



ST. TAMMANY PARISH  
MICHAEL B. COOPER  
PARISH PRESIDENT

## NOTICE TO BIDDERS

### ST. TAMMANY PARISH

#### **Bid # 20-16-2– Safe Haven Training / Education Center**

Sealed bids will be received by the Department of Procurement, until 2:00 p.m., **Wednesday, February 10, 2021**, and then opened and read publicly at that time by the Procurement Staff for the following project:

Each paper bid must be submitted in a sealed envelope. The outside of the envelope shall show the Name and Address of the Bidder, the State Contractor's License Number of the Bidder (if the work is estimated at \$50k or more), the Project Name and the Bid Number.

**The project classification is:**

#### **Building Construction**

This Bid package is available online at <http://www.stpgov.org/> or at [www.bidexpress.com](http://www.bidexpress.com).

It is the Bidder's responsibility to check the Parish website frequently for any possible addenda that may be issued. The Parish is not responsible for a Bidder's failure to download any addenda documents required to complete a submission.

**A Mandatory pre-bid conference will be held at 10:00 AM CST/CDT on Thursday, January 28, 2021, on-site at 23515 Highway 190, Mandeville, LA 70448**

Bids will be received at 21454 Koop Dr., Suite 2F, Mandeville, LA 70471 from each bidder or his agent and given a written receipt, by certified mail with return receipt requested, or electronically at [www.bidexpress.com](http://www.bidexpress.com).

**Due to the COVID-19 pandemic, and in an effort to help slow the spread of the virus, Openings will take place outside at the “Pavilion” of Building B located at 21454 Koop Drive, Mandeville, La. 70471. Any questions regarding this should be directed to the Department of Procurement via email at [purchasing@stpgov.org](mailto:purchasing@stpgov.org). Please call the Procurement office at 985-898-2520 and we will meet you at the front entrance of Building B to collect bids and issue a receipt.**

Procurement Department

# **BID PROPOSAL**

ST. TAMMANY PARISH  
GOVERNMENT



BID PACKAGE FOR

**NEW BUILDING**

FOR

**SAFE HAVEN TRAINING / EDUCATION CENTER**

23577 MARTIN WAY  
MANDEVILLE, LOUISIANA 70448

BID NO.: 20-16-2

July 3, 2020

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### Instructions to Bidders

Bidders are urged to promptly review the requirements of this specification and submit questions for resolution as early as possible during the bid period. Questions or concerns must be submitted in writing to the Procurement Department no later than 2:00 CST seven (7) working days prior to the bid opening date. Otherwise, this will be construed as acceptance by the bidders that the intent of the specifications is clear and that competitive bids may be obtained as specified herein. Protests with regard to the specification documents will not be considered after bids are opened.

1. Bid security is required. Be sure that your bid includes such security as is necessary to meet Parish requirements and is properly signed. The bid must be fully completed. All applicable Louisiana license numbers must be affixed.
2. The Owner is the St. Tammany Parish Government (the “Parish”).
3. The terms “he/his” and “it/its” may be used interchangeably.
4. The terms “Owner,” the “Parish,” and “St. Tammany Parish” may be used interchangeably.
5. The successful Bidder understands the limited contract time in the contract is **two hundred seventy-five (275) calendar days**, and shall submit any request for an extension of time in accordance with the General and Supplementary Conditions. Said request will reflect the days requested and the reason for same. No extension request is guaranteed or absolute.
6. Bidder specifically understands that acknowledgment of the General Conditions is required. Bidder specifically understands that signature of receipt of the General Conditions is mandated. **The Bidder’s signature on the “Louisiana Uniform Public Work Bid Form” will serve as acknowledgment of the Bidder’s receipt and understanding of the General Conditions as well as any Supplementary Conditions.**
7. ***If any additional work is performed by the contractor without written approval by owner, the cost of the work will be borne by the contractor and will not be reimbursed by the Parish.***
8. **Only** the Louisiana Uniform Public Bid Form, the Unit Price Form (if necessary), the bid security, and written evidence of authority of person signing the bid shall be submitted on or before the bid opening time and date provided for in the Bid Documents. Necessary copies of the Louisiana Uniform Public Work Forms and Unit Price Forms (if necessary) will be furnished for Bidding. Bound sets of the Contract Documents are for Bidder’s information and should not be used in submitting Bids.
9. All other documents and information required are to be submitted by the low Bidder within ten (10) days after the opening of the bids, and at the same time of day and location as given for the opening of the bids in the Bid Documents.
10. Each Bid must be submitted in a sealed envelope, unless submitted electronically. The outside of the envelope shall show the name and address of the Bidder, the State

Contractor's License Number of the Bidder (if work requires contractor's license), and the Project name and the Bid number. In the case of an electronic bid proposal, a contractor may submit an authentic digital signature on the electronic bid proposal accompanied by the contractor's license number, Project name and the Bid number.

11. The price quoted for the Work shall be stated in words and figures on the Bid Form, and in figures only on the Unit Price Form. The price in the Bid shall include all costs necessary for the complete performance of the Work in full conformity with the conditions of the Contract Documents, and shall include all applicable Federal, State, Parish, Municipal or other taxes. The price bid for the items listed on the Unit Price Form will include the cost of all related items not listed, but which are normally required to do the type of Work bid.
12. The Bid shall be signed by the Bidder. The information required on the Louisiana Uniform Public Work Bid Form must be provided. Evidence of agency, corporate, or partnership authority is required and shall be provided in conformance with LSA-R.S. 38:2212(B).
13. Only a Contractor licensed by the State to do the type of Work as indicated on the Notice to Bidders can submit a Bid. The Bidder's signature on the Bid Form certifies that he holds an active license under the provisions of Chapter 24 of Louisiana Revised Statutes Title 37. Failure to be properly licensed constitutes authority for the Owner to reject the Bid.
14. Bidders shall not attach any conditions or provisions to the Bid. Any conditions or provisions so attached may, at the sole option of the Owner, cause rejection of the Bid.
15. A Bid Guarantee of five percent (5%) of the amount of the total Bid, including Alternates, must accompany the Proposal and, at the option of the Bidder, may be a cashier's check, certified check or a satisfactory Bid Bond. The Bid Guarantee must be attached to the Louisiana Uniform Public Work Bid Form. No Bid will be considered unless it is so guaranteed. Cashier's check or certified check must be made payable to the order of the Owner. Cash deposits will not be accepted. The Owner reserves the right to cash or deposit the cashier's check or certified check. Such guarantees shall be made payable to the Parish of St. Tammany. In accordance with LSA-R.S. 38:2218(C), if a bid bond is used, it shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company in good standing licensed to write bid bonds which is either domiciled in Louisiana or owned by Louisiana residents. It is **not** required to be on any AIA form.
16. Bid securities of the three (3) lowest Bidders will be retained by the Owner until the Contract is executed or until final disposition is made of the Bids submitted. Bid securities of all other Bidders will be returned promptly after the canvas of Bids. Bids shall remain binding for forty-five (45) days after the date set for Bid Opening. The Parish shall act within the forty-five (45) days to award the contract to the lowest responsible bidder or reject all bids. However, the Parish and the lowest responsible bidder, by mutual written consent, may agree to extend the deadline for award by one or more extensions of thirty (30) calendar days. In the event the Owner issued the Letter of Award during this period,

or any extension thereof, the Bid accepted shall continue to remain binding until the execution of the Contract.

17. A Proposal may be withdrawn at any time prior to the scheduled closing time for receipt of Bids, provided the request is in writing, executed by the Bidder or its duly authorized representative and is filed with the Owner prior to that time. When such a request is received, the Proposal will be returned to the Bidder unopened. A bid withdrawn under the provisions of LSA-R.S. 38:2214(C) cannot be resubmitted.
18. Written communications, over the signature of the Bidder, to modify Proposals will be accepted and the Proposal corrected in accordance therewith if received by the Owner prior to the scheduled closing time for receipt of Bids. Oral, telephonic or telegraphic Modifications will not be considered.
19. No oral interpretation obligating the Owner will be made to any Bidder as to the meaning of the Drawings, Specifications and Contract Documents. Every request for such an interpretation shall be made in writing and addressed and forwarded to the Owner. Inquiries received within seven (7) days prior to the day fixed for opening of the Bids may not be given consideration. Every interpretation made to the Bidder shall be in the form of an addendum to the Specifications. All such Addenda shall become part of the Contract Documents. Failure of the Owner to send or failure of Bidder to receive any such interpretation shall not relieve any Bidder from any obligation under this Bid as submitted without Modification. All Addenda shall be issued in accordance with the Public Bid Law, LSA-R.S. 38:2212(O).
20. The Owner reserves the right to reject any or all Bids for just cause in accordance with the Public Bid Law, LSA-R.S. 38:2214(B). Incomplete, informal, illegible, or unbalanced Bids may be rejected. Reasonable grounds for belief that any one Bidder is concerned directly or indirectly with more than one Bid will cause rejection of all Bids wherein such Bidder is concerned. If required, a Bidder shall furnish satisfactory evidence of its competence and ability to perform the Work stipulated in its Proposal. Incompetence will constitute cause for rejection. If the Parish determines that the bidder is not responsive or responsible for any reason whatsoever, the bid may be rejected in accordance with State law.
21. The Contractor shall indemnify and hold harmless the Owner from any and all suits, costs, penalties or claims for infringement by reason of use or installation of any patented design, device, material or process, or any trademark and copyright in connection with the Work agreed to be performed under this Contract, and shall indemnify and hold harmless the Owner for any costs, expenses and damages which it may be obliged to pay by reason of any such infringement at any time during the prosecution or after completion of the Work.
22. Bidders shall familiarize themselves with and shall comply with all applicable Federal and State Laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the Project, which may directly or indirectly affect the Work or its prosecution. These laws and/or ordinances will be deemed to be included in the Contract, as though herein written in full.
23. Each Bidder shall visit the site of the proposed Work and fully acquaint itself with all surface and subsurface conditions as they may exist so that it may fully understand this Contract. Bidder shall also thoroughly examine and be familiar with drawings,

Specifications and Contract Documents. The failure or omission of any Bidder to receive or examine any form, instrument, Drawing or document or to visit the site and acquaint itself with existing conditions shall in no way relieve any Bidder from any obligation with respect to its Bid and the responsibility in the premises.

24. The standard contract form enclosed with the Proposal documents is a prototype. It is enclosed with the Contract Documents for the guidance of the Owner and the Contractor. It has important legal consequences in all respects and consultation with an attorney is encouraged. Contractor shall be presumed to have consulted with its own independent legal counsel.
25. When one set of Contract plans show the Work to be performed by two or more prime Contractors, it is the responsibility of each Bidder to become knowledgeable of the Work to be performed by the other where the Work upon which this bid is submitted is shown to come into close proximity or in conflict with the Work of the other. In avoiding conflicts, pressure pipe lines must be installed to avoid conflict with gravity pipe lines and the Bidder of the smaller gravity pipe line in conflict with the larger gravity pipe line must include in his Bid the cost of a conflict box at these locations. The location of and a solution to the conflicts do not have to be specifically noted as such on the plans.
26. Bidder shall execute affidavit(s) attesting compliance with LSA-R.S. 38:2212.10, 38:2224, 38:2227, each as amended, and other affidavits as required by law, prior to execution of the contract.
27. Sealed Bids shall be delivered to St. Tammany Parish Government at the office of **St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471**, and a receipt given, until the time and date denoted in Notice to Bidders, at which time and place the Bids shall be publicly opened and read aloud to those present. In accordance with LSA-R.S. 38:2212(H), the designer's final estimated cost of construction shall be read aloud upon opening bids. Sealed Bids may also be mailed by certified mail to **St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471**, and must be received before the bid opening. Bids may also be submitted electronically. Information concerning links for electronic bidding is contained in the Notice to Bidders. It is the responsibility of the Bidders to insure that bids are delivered in a timely fashion. **Late bids, regardless of reason, will not be considered, and will be returned to bidder.**
28. Paper bids shall be placed in a sealed envelope, marked plainly and prominently as indicated in the Notice to Bidders, and these Instructions, and addressed:

**St. Tammany Parish Government  
Department of Procurement  
21454 Koop Drive, Suite 2-F  
Mandeville, LA 70471**

29. Complete sets of Drawings, Specifications and Contract Documents may be secured at the Office of the Owner. See Notice to Bidders for deposit schedule and availability via electronic methods.

30. The successful Bidder shall be required to post in each direction a public information sign, 4' x 8' in size, at the location of the project containing information required by the Owner. The Owner shall supply this information.
31. The award of the Contract, if it is awarded, will be to the lowest responsible Bidder, in accordance with State Law. No award will be made until the Owner has concluded such investigations as it deems necessary to establish the responsibility, qualifications, and financial ability and stability of the Bidder to do the Work in accordance with the Contract Documents to the satisfaction of the Owner within the time prescribed as established by the Department based upon the amount of work to be performed and the conditions of same. The written contract and bond shall be issued in conformance with LSA-R.S. 38:2216. If the Contract is awarded, the Owner shall give the successful Bidder written notice of the award within forty-five (45) calendar days after the opening of the Bids in conformance with LSA-R.S. 38:2215(A), or any extension as authorized thereunder.
32. At least three days prior to the execution of the Contract, the Contractor shall deliver to the Owner the required Bonds.
33. Failure of the successful Bidder to execute the Contract and deliver the required Bonds within twenty (20) days of the Notice of the Award shall be just cause for the Owner to annul the award and declare the Bid and any guarantee thereof forfeited. Award may then be made to the next lowest responsible bidder.
34. In order to ensure the faithful performance of each and every condition, stipulation and requirement of the Contract and to indemnify and hold harmless the Owner from any and all damages, either directly or indirectly arising out of any failure to perform same, the successful Bidder to whom the Contract is awarded shall furnish a Performance and Payment Bond in an amount of at least equal to one hundred percent (100%) of the Contract Price. The Contract shall not be in force or binding upon the Owner until such satisfactory Bond has been provided to and approved by the Parish. The cost of the Bond shall be paid for by the Contractor unless otherwise stipulated in the Special Provisions.
35. No surety Company will be accepted as a bondsman which has no permanent agent or representative in the State upon whom notices referred to in the General Conditions of these Specifications may be served. Service of said notice on said agent or representative in the State shall be equal to service of notice on the President of the Surety Company, or such other officer as may be concerned.
36. In conformance with LSA-R.S. 38:2219(A)(1)(a), (b), and (c):

Any surety bond written for a public works project shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide, to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company that is either domiciled in Louisiana or owned by Louisiana residents and is licensed to write surety bonds.

For any public works project, no surety or insurance company shall write a bond which is in excess of the amount indicated as approved by the U.S. Department of the Treasury Financial Management Service list or by a Louisiana domiciled insurance company with an A- rating by A.M. Best up to a limit of ten percent of policyholders' surplus as shown by A.M. Best; companies authorized by this Paragraph who are not on the treasury list shall not write a bond when the penalty exceeds fifteen percent of its capital and surplus, such capital and surplus being the amount by which the company's assets exceed its liabilities as reflected by the most recent financial statements filed by the company with the Department of Insurance.

In addition, any surety bond written for a public works project shall be written by a surety or insurance company that is currently licensed to do business in the state of Louisiana. All contractors must comply with any other applicable provisions of LSA-R.S. 38:2219.

37. Should the Contractor's Surety, even though approved and accepted by the Owner, subsequently remove its agency or representative from the State or become insolvent, bankrupt, or otherwise fail, the Contractor shall immediately furnish a new Bond in another company approved by the Owner, at no cost to the Owner. The new Bond shall be executed under the same terms and conditions as the original Bond. The new bond shall be submitted within thirty (30) days of such time as the Owner notifies Contractor or from the time Contractor learns or has reason to know that the original surety is no longer financially viable or acceptable to the Parish, whichever occurs first. In the event that Contractor fails or refuses to timely secure additional surety, then the Owner may secure such surety and thereafter deduct such cost or expense from any sum due, or to become due to Contractor.
38. The Contractor's bondsman shall obligate itself to all the terms and covenants of these Specifications and of contracts covering the Work executed hereunder. The Owner reserves the right to do Extra Work or make changes by altering, adding to deducting from the Work under the conditions and in the manner herein before described without notice to the Contractor's surety and without in any manner affecting the liability of bondsman or releasing it from any of its obligations hereunder.
39. The Bond shall also secure for the Owner the faithful performance of the Contract in strict accordance with plans, specifications, and other Contract Documents. It shall protect the Owner against all lien laws of the State and shall provide for payment of reasonable attorney's fees for enforcement of Contract and institution or concursus proceedings, if such proceedings become necessary. Likewise, it shall provide for all additional expenses of the Owner occurring through failure of the Contractor to perform.
40. The surety of the Contractor shall be and does hereby declare and acknowledge itself by acceptance to be bound to the Owner as a guarantor, jointly and in solido, with the Contractor, for fulfillment of terms of the Contract.
41. The performance Bond and Labor and Material Bond forming part of this Contract shall be continued by Contractor and its Surety for a period of one (1) year from date of acceptance of the Work/Project by Owner to assure prompt removal and replacement of all defective material, equipment, components thereof, workmanship, etc., and to assure payment of any damage to property of Owner or others as a result of such defective materials, equipment, workmanship, etc.

42. Contractor shall pay for cost of recording the Contract, Bond, and any change orders required to be recorded, as well as the cost of canceling any of the foregoing. Contractor shall also secure and pay for all Clear Lien and Privilege Certificates (together with any updates) which will be required before any final payment is made, and that may be required before any payment, at the request of the Owner, its representative, agent, architect, engineer and the like. All recordation and Clear Lien and Privilege Certificate requirements shall be in accordance with those requirements noted herein before in contract Specifications.
43. Contractor shall secure and maintain at its expense such insurance that will protect it and the Parish from claims for injuries to persons or damages to property which may arise from or in connection with the performance of Services or Work hereunder by the Contractor, his agents, representatives, employees, and/or subcontractors. The cost of such insurance shall be included in Contractor's bid.
44. The Contractor shall not commence work until it has obtained all insurance as required for the Parish Project. If the Contractor fails to furnish the Parish with the insurance protection required and begins work without first furnishing Parish with a currently dated certificate of insurance, the Parish has the right to obtain the insurance protection required and deduct the cost of insurance from the first payment due the Contractor. Further deductions are permitted from future payments as are needed to protect the interests of the Parish including, but not limited to, renewals of all policies.
45. Payment of Premiums: The insurance companies issuing the policy or policies shall have no recourse against the Parish of St. Tammany for payment of any premiums or for assessments under any form of policy.
46. Deductibles: Any and all deductibles in the described insurance policies shall be assumed by and be at the sole risk of the Contractor.
47. Authorization of Insurance Company(ies) and Rating: All insurance companies must be authorized to do business in the State of Louisiana and shall have an A.M. Best rating of no less than A-, Category VII.
48. Policy coverages and limits must be evidenced by Certificates of Insurance issued by Contractor's carrier to the Parish and shall reflect:

Date of Issue: Certificate must have current date.

Named Insured: The legal name of Contractor under contract with the Parish and its principal place of business shall be shown as the named insured on all Certificates of Liability Insurance.

Name of Certificate Holder: St. Tammany Parish Government, Office of Risk Management, P. O. Box 628, Covington, LA 70434

Project Description: A brief project description, including Project Name, Project Number and/or Contract Number, and Location.

Endorsements and Certificate Reference: All policies must be endorsed to provide, and certificates of insurance must evidence the following:

Waiver of Subrogation: The Contractor's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance. *Policy endorsements required for all coverages.*

Additional Insured: The Parish of St. Tammany shall be named as additional named insured with respect to general liability, marine liability, pollution/environmental liability, automobile liability and excess liability coverages. *Policy endorsements required.*

Hold Harmless: Contractor's liability insurers shall evidence their cognizance of the Hold Harmless and Indemnification in favor of St. Tammany Parish Government by referencing same on the face of the Certificate(s) of Insurance.

Cancellation Notice: Producer shall provide thirty (30) days prior written notice to the Parish of policy cancellation or substantive policy change.

49. The types of insurance coverage the Contractor is required to obtain and maintain throughout the duration of the Contract shall be designated by a separate document issued by the Office of Risk Management.
50. It is the intent of these instructions that they are in conformance with State Bid Laws. Should there be any discrepancy or ambiguity in these provisions, the applicable State Bid Law shall apply.
51. The letting of any public contract in connection with funds that are granted or advanced by the United States of America shall be subject to the effect, if any, of related laws of said United States and valid rules and regulations of federal agencies in charge, or governing use and payment of such federal funds.
52. Protests based on alleged solicitation improprieties that are apparent before bid opening, or the time set for receipt of initial proposals must be filed with and received by the Procurement Department BEFORE these times. Any other protest shall be filed no later than ten (10) calendar days after: the opening of the bid; the basis of the protest is known; or the basis of the protest should have been known (whichever is earlier).
53. It is the Parish's policy to provide a method to protest exclusion from a competition or from the award of a contract, or to challenge an alleged solicitation irregularity. It is always better to seek a resolution within the Parish system before resorting to outside agencies and/or litigation to resolve differences. All protests must be made in writing, and shall be concise and logically presented to facilitate review by the Parish. The written protest shall include:

The protester's name, address, and fax and telephone numbers and the solicitation, bid, or contract number;

A detailed statement of its legal and factual grounds, including a description of the resulting prejudice to the protester;

Copies of relevant documents;

All information establishing that the protester is an interested party and that the protest is timely; and

A request for a ruling by the agency; and a statement of the form of relief requested.

The protest shall be addressed to St. Tammany Parish Government Department of Procurement, P.O. Box 628, Covington, LA 70434

The protest review shall be conducted by the Parish Legal Department.

Only protests from interested parties will be allowed. Protests based on alleged solicitation improprieties that are apparent before bid opening, or the time set for receipt of initial proposals, must be filed with and received by the Department of Procurement BEFORE those deadlines.

Any other protest shall be filed no later than ten (10) calendar days after the basis of the protest is known, or should have been known (whichever is earlier).

The Parish will use its best efforts to resolve the protest within thirty (30) days of the date that it is received by the Parish. The written response will be sent to the protestor via mail and fax, if a fax number has been provided by the protestor. The protester can request additional methods of notification.

54. The last day to submit questions and/or verification on comparable products will be no later than 2:00 pm CST, seven (7) working days prior to the opening date of the bid/proposal due date. Further, any questions or inquires must be submitted via fax to 985-898-5227, or via email to [Purchasing@stpgov.org](mailto:Purchasing@stpgov.org). Any questions or inquiries received after the required deadline to submit questions or inquiries will not be answered.
55. St. Tammany Parish Government contracts to be awarded are dependent on the available funding and/or approval by members designated and/or acknowledged by St. Tammany Parish Government. At any time St. Tammany Parish Government reserves the right to cancel the award of a contract if either or both of these factors is deficient.
56. Any action by the Parish to disqualify any Bidder on the grounds that they are not a responsible Bidder shall be conducted in accordance with LSA-R.S. 38:2212(X).
57. If any part of the provisions contained herein and/or in the Specifications and Contract for the Work shall for any reason be held invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement or attachment, but it shall be construed as if such invalid, illegal, or unenforceable provision or part of a provision had never been contained herein.

## Section 03

### Summary of Work

**I.** Work to Include:

Contractor shall furnish all supervision, sub-contractors, labor, permits, equipment, tools, supplies, and materials necessary for the construction of the new Safe Haven Training & Education Center on the St. Tammany Parish Safe Haven Campus located at 23515 Highway 190, Mandeville, La 70448 (S43-T08S-R12E)., in accordance with the design specifications and plans. Scope includes, but is not limited to, a single story 4,000 square foot building, related site development, parking lot, and supporting water, sewer and electrical services.

**II.** Location of Work:

St. Tammany Parish Safe Haven Campus located at 23515 Highway 190, Mandeville, La 70448 (S43-T08S-R12E)

**III.** Documents: Bid Documents dated July 3, 2020, and entitled:

Bid No. 20-16-2

**IV.** OTHER REQUIREMENTS (as applicable)

**When not otherwise specified herein, all work and materials shall conform to the requirements of the Louisiana Department of Transportation and Development hereafter called LDOTD (2006 Edition of Louisiana Standard Specifications for Roads and Bridges).**

**Section 04**

**LOUISIANA UNIFORM PUBLIC WORK BID FORM**

**TO:**

St. Tammany Parish Government  
21454 Koop Drive, Suite 2F  
Mandeville, Louisiana 70471  
\_\_\_\_\_

*(Owner to provide name and address of owner)*

**BID FOR:**

New Building for  
Safe Haven Training/ Education Center  
23577 Martin Way  
Mandeville, Louisiana 70448  
BID NO.: 20-16-2

*(Owner to provide name of project and other identifying information)*

The undersigned bidder hereby declares and represents that she/ he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: **Burgdahl & Graves AIA Architects** and dated: **3 July 2020**. *(Owner to provide name of entity preparing bidding documents.)*

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) \_\_\_\_\_

**TOTAL BASE BID:** For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" \* but not alternates) the sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**ALTERNATES:** For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

**Alternate No. 1 – ADDITIVE ALTERNATE: Interior Finishes – See drawings and Section 01100 for scope of work** for the lump sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**Alternate No. 2: – ADDITIVE ALTERNATE: Parking Lot Surfacing – See drawings and Section 01100 for scope of work** for the lump sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**Alternate No. 3:** *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**NAME OF BIDDER:** \_\_\_\_\_

**ADDRESS OF BIDDER:** \_\_\_\_\_

**LOUISIANA CONTRACTOR'S LICENSE NUMBER:** \_\_\_\_\_

**NAME OF AUTHORIZED SIGNATORY OF BIDDER:** \_\_\_\_\_

**TITLE OF AUTHORIZED SIGNATORY OF BIDDER:** \_\_\_\_\_

**SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER \*\*:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**THE FOLLOWING ITEMS ARE TO BE INCLUDED WITH THE SUBMISSION OF THIS LOUISIANA UNIFORM PUBLIC WORK BID FORM:**

\* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

\*\* **A CORPORATE RESOLUTION OR WRITTEN EVIDENCE** of the authority of the person signing the bid for the public work as prescribed by LA R.S 38:2212(B)(5).

**BID SECURITY** in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218(A) attached to and made a part of this bid.

**Section 05**

**AFFIDAVIT PURSUANT TO LSA-R.S. 38:2224 and 38:2227  
FOR BIDDERS FOR PUBLIC WORKS CONTRACTS**

**STATE OF** \_\_\_\_\_

**PARISH/COUNTY OF** \_\_\_\_\_

**BEFORE ME**, the undersigned authority, in and for the above stated State and Parish (or County), personally came and appeared:

\_\_\_\_\_

Print Name

who, after first being duly sworn, did depose and state:

1. That affiant is appearing on behalf of \_\_\_\_\_, who is seeking a public contract with St. Tammany Parish Government.
  
2. That affiant employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project or in securing the public contract were in the regular course of their duties for affiant; and
  
3. That no part of the contract price received by affiant was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project were in the regular course of their duties for affiant.

4. If affiant is a sole proprietor, that after July 2, 2010, he/she has not been convicted of, or has not entered a plea of guilty or *nolo contendere* to any of the crimes or equivalent federal crimes listed in LSA-R.S. 38:2227(B).
  
5. If affiant is executing this affidavit on behalf of a juridical entity such as a partnership, corporation, or LLC, etc., that no individual partner, incorporator, director, manager, officer, organizer, or member, who has a minimum of a ten percent ownership in the bidding entity, has been convicted of, or has entered a plea of guilty or *nolo contendere* to any of the crimes or equivalent federal crimes listed in LSA-R.S. 38:2227(B).
  
6. If affiant is a sole proprietor, that neither affiant, nor his/her immediate family is a public servant of St. Tammany Parish Government or the Contract is not under the supervision or jurisdiction of the public servant's agency.
  
7. If affiant is executing this affidavit on behalf of a juridical entity such as a partnership, corporation, or LLC, etc., that no public servant of St. Tammany Parish Government, or his/her immediate family, either individually or collectively, has more than a 25% ownership interest in the entity seeking the Contract with St. Tammany Parish Government if the Contract will be under the supervision or jurisdiction of the public servant's agency.

\_\_\_\_\_  
**Printed Name:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Entity name:** \_\_\_\_\_

**THUS SWORN TO AND SUBSCRIBED BEFORE ME,  
THIS \_\_\_\_\_, DAY OF \_\_\_\_\_, 202\_\_.**

\_\_\_\_\_  
**Notary Public**

**Print Name:** \_\_\_\_\_

**Notary I.D./Bar No.:** \_\_\_\_\_

**My commission expires:** \_\_\_\_\_

**AFFIDAVIT PURSUANT TO LSA-R.S. 38:2212.10 CONFIRMING  
REGISTRATION AND PARTICIPATION IN A STATUS VERIFICATION  
SYSTEM**

**STATE OF** \_\_\_\_\_

**PARISH/COUNTY OF** \_\_\_\_\_

**BEFORE ME**, the undersigned authority, in and for the above stated State and Parish (or County), personally came and appeared:

\_\_\_\_\_  
Print Name

who, after first being duly sworn, did depose and state:

1. That affiant is appearing on behalf of \_\_\_\_\_,  
a private employer seeking a bid or a contract with St. Tammany Parish  
Government for the physical performance of services within the State of  
Louisiana.

2. That affiant is registered and participates in a status verification system to verify that all employees in the state of Louisiana are legal citizens of the United States or are legal aliens; and
3. That affiant shall continue, during the term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.
4. That affiant shall require all subcontractors to submit to the affiant a sworn affidavit verifying compliance with this law.

\_\_\_\_\_  
**Printed Name:** \_\_\_\_\_  
**Title:** \_\_\_\_\_  
**Name of Entity:** \_\_\_\_\_

**THUS SWORN TO AND SUBSCRIBED BEFORE ME,  
THIS \_\_\_\_\_, DAY OF \_\_\_\_\_, 202\_\_.**

\_\_\_\_\_  
**Notary Public**  
**Print Name:** \_\_\_\_\_  
**Notary I.D./Bar No.:** \_\_\_\_\_  
**My commission expires:** \_\_\_\_\_



## INSURANCE REQUIREMENTS\*

Construction Project: Safe Haven Training/Education Center

Project/Quote/Bid#: 20-16-2

### **\*\*\*IMPORTANT – PLEASE READ\*\*\***

**Prior to submitting your quote or bid, it is recommended that you review these insurance requirements with your insurance broker/agent.**

*These requirements modify portions of the insurance language found in the General Conditions and/or Supplementary General Conditions; however, there is no intention to remove all sections pertaining to insurance requirements and limits set forth in the General Conditions and/or Supplementary General Conditions, only to amend and specify those items particular for this Project.*

- A. The Provider shall secure and maintain at its expense such insurance that will protect it and St. Tammany Parish Government (the "Parish") from claims for bodily injury, death or property damage as well as from claims under the Workers' Compensation Acts that may arise from the performance of services under this agreement. All certificates of insurance shall be furnished to the Parish and provide thirty (30) days prior notice of cancellation to the Parish, in writing, on all of the required coverage.
- B. All policies shall provide for and certificates of insurance shall indicate the following:
1. Waiver of Subrogation: The Provider's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance.
  2. Additional Insured: St. Tammany Parish Government shall be named as Additional Insured with respect to general liability, automobile liability and excess liability coverages, as well as marine liability and pollution/environmental liability, when those coverages are required or necessary.
  3. Payment of Premiums: The insurance companies issuing the policy or policies will have no recourse against St. Tammany Parish Government for payment of any premiums or for assessments under any form of policy.
  4. Deductibles/Self-Insured Retentions: Any deductibles and/or self-insured retentions in the described insurance policies **must be declared on the Certificate of Insurance**, and are both assumed by and the sole risk of the Provider. The Parish will have the sole discretion to accept or reject deductibles and/or self-insured retentions exceeding \$100,000 as it deems appropriate. The Parish may require Provider to produce evidence of verifiable financial ability to satisfy its deductibles and/or self-insured retentions; however, the Parish assumes no liability or obligation resulting from its examination, acceptance, or rejection of information presented.
  5. Project Reference: The project(s) and location(s) shall be referenced in the Comment or Description of Operations section of the Certificate of Insurance (Project ##-####, or Bid # if applicable, Type of Work, Location).
- C. Coverage must be issued by insurance companies authorized to do business in the State of Louisiana. Companies must have an A.M. Best rating of no less than A-, Category VII. St. Tammany Parish Risk Management Department may waive this requirement only for Workers Compensation coverage at their discretion.

Provider shall secure and present proof of insurance on forms acceptable to St. Tammany Parish Government, Office of Risk Management no later than the time of submission of the Contract to the Parish. However, should any work performed under this Contract by or on behalf of Provider include exposures that are not covered by those insurance coverages, Provider is not relieved of its obligation to maintain appropriate levels and types of insurance necessary to protect itself, its agents and employees, its subcontractors, St. Tammany Parish Government (Owner), and all other interested third parties, from any and all claims for damage or injury in connection with the services performed or provided throughout the duration of this Project, as well as for any subsequent periods required under this Contract.

The insurance coverages checked (✓) below are those required for this Contract.

- 1. **Commercial General Liability\*** insurance – **Occurrence Form** - with a Combined Single Limit for bodily injury and property damage of at least \$1,000,000 per Occurrence / \$2,000,000 General Aggregate and \$2,000,000 Products-Completed Operations. Contracts over \$1,000,000 may require higher limits. The insurance shall provide for and the certificate(s) of insurance shall indicate the following coverages:
  - a) Premises - operations;
  - b) Broad form contractual liability;
  - c) Products and completed operations;
  - d) Personal/Advertising Injury;
  - e) Broad form property damage (for Projects involving work on Parish property);
  - f) Explosion, Collapse and Damage to underground property.
  - g) Additional Insured forms CG 2010 and CG 2037 in most current edition are required.
  
- 2. **Business Automobile Liability\*** insurance with a Combined Single Limit of \$1,000,000 per Occurrence for bodily injury and property damage, and shall include coverage for the following:
  - a) Any auto;
  - or**
  - b) Owned autos; **and**
  - c) Hired autos; **and**
  - d) Non-owned autos.
  
- 3. **Workers' Compensation/Employers Liability insurance\*** - Workers' Compensation coverage as required by State law. Employers' liability limits shall be a minimum of \$1,000,000 each accident, \$1,000,000 each disease, \$1,000,000 disease policy aggregate. When water activities are expected to be performed in connection with this project, coverage under the USL&H Act, Jones Act and/or Maritime Employers Liability (MEL) must be included. **Coverage for owners, officers and/or partners in any way engaged in the Project shall be included in the policy.** The names of any excluded individual must be shown in the Description of Operations/Comments section of the Certificate.
  
- 4. **Pollution Liability and Environmental Liability\*** insurance in the minimum amount of \$1,000,000 per occurrence / \$2,000,000 aggregate including full contractual liability and third party claims for bodily injury and/or property damage, for all such hazardous waste, pollutants and/or environmental exposures that may be affected by this project stemming from pollution/environmental incidents as a result of Contractor's operations.

If coverage is provided on a claims-made basis, the following conditions apply:

- 1) the retroactive date must be prior to or coinciding with the effective date of the Contract, or prior to the commencement of any services provided by the Contractor on behalf of the Parish, whichever is earlier; AND
- 2) continuous coverage must be provided to the Parish with the same retro date for 24 months following acceptance or termination of the Project by the Parish either by
  - a) continued renewal certificates **OR**
  - b) a 24 month Extended Reporting Period

\*The Certificate must indicate whether the policy is written on an occurrence or claims-made basis and, if claims-made, the applicable retro date must be stated.

5. **Contractor's Professional Liability/Errors and Omissions\*** insurance in the sum of at least \$1,000,000 per claim / \$2,000,000 aggregate is required when work performed by Contractor or on behalf of Contractor includes professional or technical services including, but not limited to, construction administration and/or management, engineering services such as design, surveying, and/or inspection, technical services such as testing and laboratory analysis, and/or environmental assessments. An occurrence basis policy is preferred.

If coverage is provided on a claims-made basis, the following conditions apply:

- 1) the retroactive date must be prior to or coinciding with the effective date of the Contract, or prior to the commencement of any services provided by the Contractor on behalf of the Parish, whichever is earlier; AND
- 2) continuous coverage must be provided to the Parish with the same retro date for 24 months following acceptance or termination of the Project by the Parish either by
  - a) continued renewal certificates **OR**
  - b) a 24 month Extended Reporting Period

\*The Certificate must indicate whether the policy is written on an occurrence or claims-made basis and, if claims-made, the applicable retro date must be stated.

6. **Marine Liability/Protection and Indemnity\*** insurance is required for any and all vessel and/or marine operations in the minimum limits of \$1,000,000 per occurrence / \$2,000,000 per project general aggregate. The coverage shall include, but is not limited to, the basic coverages found in the Commercial General Liability insurance and coverage for third party liability

**\*Excess/Umbrella Liability** insurance may be provided to meet the limit requirements for any Liability coverage. For example: if the General Liability requirement is \$3,000,000 per occurrence, but the policy is only \$1,000,000 per occurrence, then the excess policy should be at least \$2,000,000 per occurrence thereby providing a combined per occurrence limit of \$3,000,000.)

7. **Owners Protective Liability (OPL)** shall be furnished by the Contractor and shall provide coverage in the minimum amount of \$1,000,000 CSL each occurrence / \$1,000,000 aggregate. **St. Tammany Parish Government, ATTN: Risk Management Department, P. O. Box 628, Covington, LA 70434 shall be the first named insured on the policy.**

8. **Builder's Risk Insurance** written on an "all-risk" policy form shall be furnished by Contractor for 100% of the contract cost. Any contract modifications increasing the contract cost will require an increase in the limit of the Builder's Risk policy. Deductibles should not exceed \$5,000 and Contractor shall be responsible for all policy deductibles. This insurance shall cover materials at the site, stored off the site, and in transit. The Builder's Risk Insurance shall include the interests of the Owner, Contractor and Subcontractors and shall terminate only when the Project is accepted in writing. **St. Tammany Parish Government, ATTN: Risk Management Department, P. O. Box 628, Covington, LA 70434 shall be the first named insured on the policy.**

9. **Installation Floater Insurance**, on an "all-risk" form, shall be furnished by Contractor and carried for the full value of the materials, machinery, equipment and labor for each location. The Contractor shall be responsible for all policy deductibles. The Installation Floater Insurance shall provide coverage for property owned by others and include the interests of the Owner, Contractor and Subcontractors and shall terminate only when the Project is accepted in writing. **St. Tammany Parish Government, ATTN: Risk Management Department, P. O. Box 628, Covington, LA 70434 shall be the first named insured on the policy.**

- D. All policies of insurance shall meet the requirements of the Parish prior to the commencing of any work. The Parish has the right, but not the duty, to approve all insurance coverages prior to commencement of work. If any of the required policies are or become unsatisfactory to the Parish as to form or substance; or if a company issuing any policy is or becomes unsatisfactory to the Parish, the Provider shall promptly obtain a new policy, timely submit same to the Parish for approval, and submit a certificate thereof as provided above. The Parish agrees not to unreasonably withhold approval of any insurance carrier selected by Provider. In the event that Parish cannot agree or otherwise authorize a carrier, Provider shall have the option of selecting and submitting a new insurance carrier within 30 days of said notice by the Parish. In the event that the second submission is insufficient or is not approved, then the Parish shall have the unilateral opportunity to thereafter select a responsive and responsible insurance carrier all at the cost of Provider and thereafter deduct from Provider's fee the cost of such insurance.
- E. Upon failure of Provider to furnish, deliver and/or maintain such insurance as above provided, this contract, at the election of the Parish, may be declared suspended, discontinued or terminated. Failure of the Provider to maintain insurance shall not relieve the Provider from any liability under the contract, nor shall the insurance requirements be construed to conflict with the obligation of the Provider concerning indemnification.
- F. Provider shall maintain a current copy of all annual insurance policies and agrees to provide a certificate of insurance to the Parish on an annual basis or as may be reasonably requested for the term of the contract or any required Extended Reporting Period. Provider further shall ensure that all insurance policies are maintained in full force and effect throughout the duration of the Project and shall provide the Parish with annual renewal certificates of insurance evidencing continued coverage, without any prompting by the Parish.
- G. It shall be the responsibility of Provider to require that these insurance requirements are met by all contractors and sub-contractors performing work for and on behalf of Provider. Provider shall further ensure the Parish is named as an additional insured on all insurance policies provided by said contractor and/or sub-contractor throughout the duration of the project.
- H. Certificates of Insurance shall be issued as follows:

**St. Tammany Parish Government  
Attn: Risk Management  
P O Box 628  
Covington, LA 70434**

To avoid contract processing delays, be certain the project name/number is included on all correspondence including Certificates of Insurance.

**\*NOTICE: St. Tammany Parish Government reserves the rights to remove, replace, make additions to and/or modify any and all of the insurance requirements at any time.**

**Any inquiry regarding these insurance requirements should be addressed to:**

**St. Tammany Parish Government  
Office of Risk Management  
P O Box 628  
Covington, LA 70434  
Telephone: 985-898-5226  
Email: riskman@stpgov.org**

# HOLD HARMLESS AGREEMENT

\_\_\_\_\_ (Contractor) agrees to protect, defend, indemnify, save, and hold harmless St. Tammany Parish Government, its elected and appointed officials, departments, agencies, boards and commissions, its officers, agents servants, employees, including volunteers, from and against any and all claims, demands, expense and liability arising out of injury or death to any person or the damage, loss or destruction of any property to the extent caused by any act or omission of Contractor, its agents, servants, employees, and subcontractors, or any and all costs, expense and/or attorney fees incurred as a result of any claim, demands, and/or causes of action that results under the performance or non-performance of this contract.

\_\_\_\_\_ (Contractor) agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit, as described in the paragraph above, at its sole expense and agrees to bear all other costs and expenses related thereto, even if it (claims, etc.) is groundless, false or fraudulent.

SIGNED, this \_\_\_\_ day of \_\_\_\_\_, 20\_\_

WITNESSES:

\_\_\_\_\_

Print Name: \_\_\_\_\_

\_\_\_\_\_

Print Name: \_\_\_\_\_

STATE OF \_\_\_\_\_

PARISH/COUNTY OF \_\_\_\_\_

SWORN TO and subscribed before me, Notary, on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_

BY: \_\_\_\_\_  
(Signature of Authorized Officer)

Print Name: : \_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_

NOTARY PUBLIC

My Commission Expires: \_\_\_\_\_

---

## Please complete the following:

Claims contact for this project will be:

\_\_\_\_\_

(Print name and title of Contact Person)

\_\_\_\_\_

Address

\_\_\_\_\_

Email address

\_\_\_\_\_

Telephone#

\_\_\_\_\_

Cell #

\_\_\_\_\_

Fax #

## Section 07

### Project Signs

#### 1. General

- a. Work to include providing and installing project sign(s) at the beginning of the project. Some projects may require multiple signs. Should more than one sign be required, it will be reflected in the bidding documents.

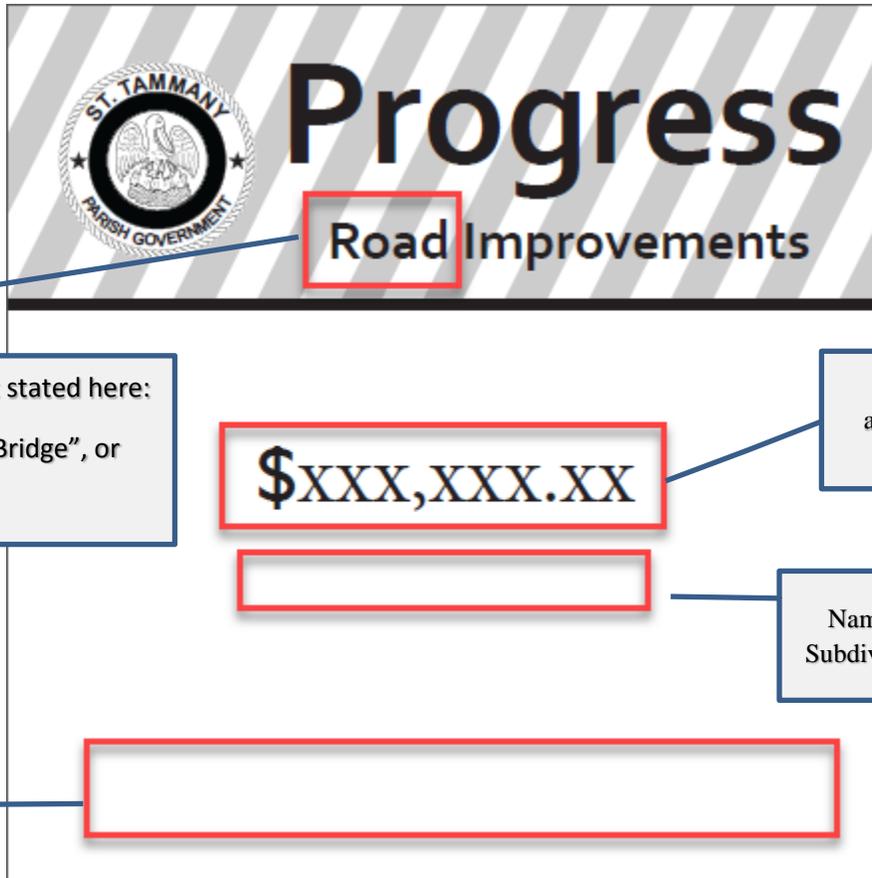
#### 2. Materials

- a. The printed project sign(s) shall be 3/8" primed Medium Density Overlay (MDO) **OR** 3 millimeter corrugated plastic secured to exterior plywood (4' x 4').
- b. Contractor shall not use previously provided templates and/or fonts.

#### 3. Execution

- a. The sign(s) shall be printed on a project-by-project basis in black and white, using the template and font provided to the Contractor by the St. Tammany Parish Government Project Manager.
- b. All signage proofed and approved by State Tammany Parish Government before project sign(s) are to be produced by the Contractor.
- c. Exact placement of the project sign(s) must be coordinated with, and approved by, the St. Tammany Parish Government Project Manager prior to sign installation.
- d. The sign(s) is to be installed such that the bottom of the sign is a minimum of 5' above the existing ground elevation.
- e. Sign(s) is to be maintained throughout the period of construction. If sign(s) is damaged or destroyed, repair and/or replacement of sign(s) will be at Contractor's expense.
- f. Contractor is responsible for the removal of all project signs upon issuance of final acceptance by the St. Tammany Parish Government Project Manager at no direct pay.
- g. Cost to be included in "Temporary Signs and Barricades

# Blank Template of Parish Project Sign:



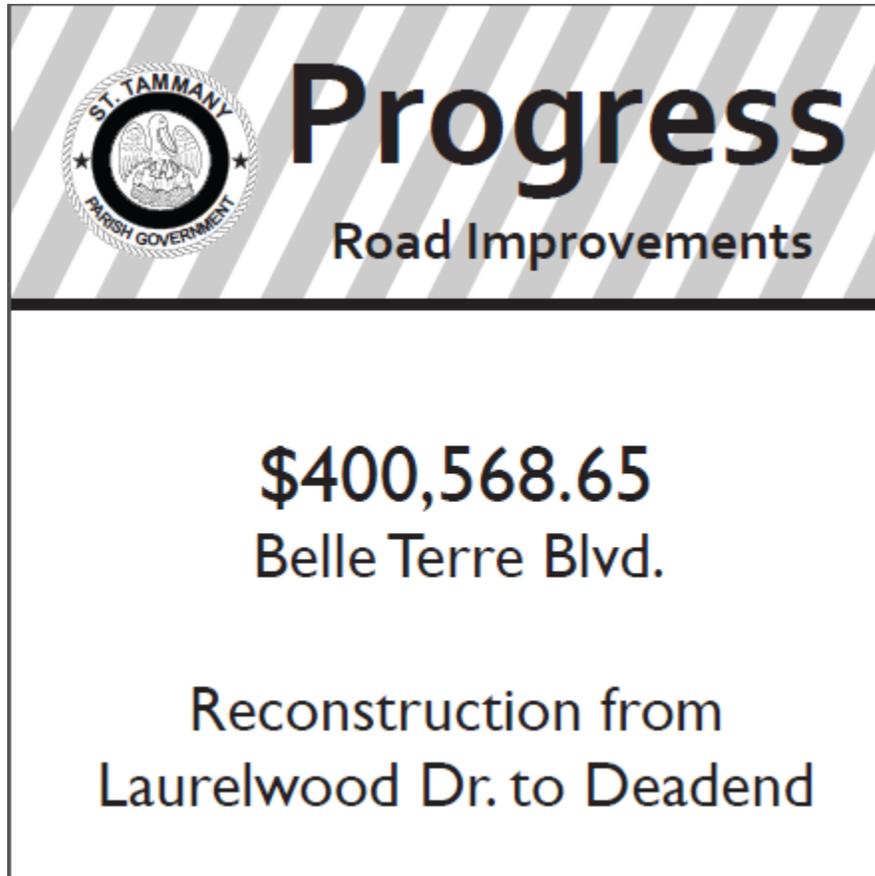
Type of improvement stated here:  
"Road", "Drainage" "Bridge", or  
"Infrastructure"

Total Dollar \$  
amount specified  
here

Name of Street, Bridge,  
Subdivision, etc. stated here

Short Description of Project stated here  
(if deemed applicable by the Parish)

**Example of a Completed Parish Project Sign:**



Section 08

**General Conditions for St. Tammany Parish Government**

**This index is for illustrative purposes only and is not intended to be complete nor exhaustive.**

**All bidders/contractors are presumed to have read and understood the entire document. Some information contained in these conditions may not be applicable to all projects.**

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## 01.00 DEFINITIONS OF TERMS

Whenever used in these General Conditions or in other Contract Documents, the following terms shall have the meanings indicated, and these shall be applicable to both the singular and plural thereof.

- 01.01 A.A.S.H.T.O American Association of State Highway and Transportation Officials. When A.A.S.H.T.O. is referred to in these Specifications it takes the meaning of the specification for materials and methods of testing specified by this association and the specification stated is considered to be a part of the Specifications as if written herein in full.
- 01.02 A.C.I American Concrete Institute. When A.C.I. is referred to in these Specifications it takes the meaning of the specification for materials and methods of testing specified by this institute and the specification stated is considered to be a part of the Specifications as if written herein in full.
- 01.03 Addenda Written or graphic instruments issued prior to the opening of bids which clarify, correct, modify or change the bidding or Contract Documents.
- 01.04 Advertisement The written instrument issued by the Owner at the request of the Owner used to notify the prospective bidder of the nature of the Work. It becomes part of the Contract Documents.
- 01.05 Agreement The written agreement or contract between the Owner and the Contractor covering the Work to be performed and the price that the Owner will pay. Other documents, including the Proposal, Addenda, Specifications, plans, surety, insurance, etc., are made a part thereof.
- 01.06 Application for Payment The form furnished by the Owner which is to be used by the Contractor in requesting incremental (progress) payments and which is to include information required by Section 28.01 and an affidavit of the Contractor. The affidavit shall stipulate that progress payments theretofore received from the Owner on account of the Work have been applied by Contractor to discharge in full of all Contractor's obligations reflected in prior applications for payment.
- 01.07 A.S.T.M. American Society of Testing Materials. When A.S.T.M. is referred to in these Specifications it takes the meaning of the specification for materials and methods of testing specified by this society and the specification stated is considered to be a part of the Specifications as if written herein in full.
- 01.08 Bid The offer or Proposal of the Bidder submitted on the prescribed form setting forth all the prices for the Work to be performed.
- 01.09 Bidder Any person, partnership, firm or corporation submitting a Bid for the Work.
- 01.10 Bonds Bid, performance and payment bonds and other instruments of security, furnished by the Contractor and its surety in accordance with the Contract Documents and Louisiana law.

- 01.11 Change Order A written order to the Contractor signed by the Owner authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time after execution of the Agreement.
- 01.12 Contract Documents The Agreement, Addenda, Contractor's Bid and any documentation accompanying or post-bid documentation when attached as an exhibit, the Bonds, these General Conditions, the Advertisement for Bid, Notice to Contractor, all supplementary conditions, the Specifications, the Drawings, together with all Modifications issued after the execution of the Agreement.
- 01.13 Contract Price The total monies payable to the Contractor under the Contract Documents.
- 01.14 Contract Time The number of consecutive calendar days stated in the Agreement for the completion of the Work.
- 01.15 Contractor The person, firm, corporation or provider with whom the Owner has executed the Agreement.
- 01.16 Defective Work Work which is unsatisfactory, faulty or deficient for any reason whatsoever, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, test or approval referred to in the Contract Documents, or has been damaged prior to the Owner's recommendation or acceptance.
- 01.17 Drawings The Drawings and plans which show the character and scope of the Work to be performed and which have been prepared or approved by the Owner and are referred to in the Contract Documents.
- 01.18 Field Order A written order issued by the Owner or his agent which clarifies or interprets the Contract Documents.
- 01.19 Modification (a) A written amendment of the Contract Documents signed by both parties, (b) A Change Order, (c) A written clarification or interpretation issued by the Owner or his agent. Modification may only be issued after execution of the Agreement.
- 01.20 Notice of Award The written notice by Owner to the lowest responsible Bidder stating that upon compliance of the conditions enumerated in the Notice of Award, or enumerated in the Bid documents, the Owner will deliver the Contract Documents for signature. The time for the delivery of the Contract Documents can be extended in conformance with Louisiana Law.
- 01.21 Notice to Contractor Instructions, written or oral given by Owner to Contractor and deemed served if given to the Contractor's superintendent, foreman or mailed to Contractor at his last known place of business.
- 01.22 Notice to Proceed A written notice given by the Owner fixing the date on which the Contract Time will commence, and on which date the Contractor shall start to perform his obligation under the Contract Documents. Upon mutual consent by both parties, the Notice to Proceed may be extended.

- 01.23 Owner St. Tammany Parish Government, acting herein through its duly constituted and authorized representative, including but not limited to the Office of the Parish President or its designee, its Chief Administrative Officer, and/or Legal Counsel. St. Tammany Parish Government (hereinafter, the "Parish") and Owner may be used interchangeably.
- 01.24 Project The entire construction to be performed as provided in the Contract Documents.
- 01.25 Project Representative The authorized representative of the Owner who is assigned to the Project or any parts thereof.
- 01.26 Proposal The Bid submitted by the Bidder to the Owner on the Proposal form setting forth the Work to be done and the price for which the Bidder agrees to perform the Work.
- 01.27 Shop Drawings All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, Subcontractor, Manufacturer, Supplier or Distributor and which illustrate the equipment, material or some portion of the Work.
- 01.28 Specifications The Instructions to Bidders, these General Conditions, the Special Conditions and the Technical Provisions. All of the documents listed in the "Table of Contents."
- 01.29 Subcontractor An individual, firm or corporation having a direct Contract with the Contractor or with any other Subcontractor for the performance of a part of the Project Work.
- 01.30 Substantial Completion The date as certified by the Owner or its agent when the construction of the Project or a specified part thereof is sufficiently complete in accordance with the Contract Documents so that the Project or specified part can be utilized for the purposes for which it was intended; or if there is no such certification, the date when final payment is due in accordance with Section 28.
- 01.31 Superintendent Contractor's site representative. The person on the site who is in full and complete charge of the Work.
- 01.32 Time Unless specifically stated otherwise, all time delays shall be calculated in calendar days.
- 01.33 Work Any and all obligations, duties and responsibilities necessary to the successful completion of the Project assigned to or undertaken by the Contractor under the Contract Documents, usually including the furnishing of all labor, materials, equipment and other incidentals.
- 01.34 The terms "he/himself" may be used interchangeably with "it/itself."
- 02.00 PROPOSAL
- 02.01 All papers bound with or attached to the Proposal Form are a necessary part thereof and must not be detached.

- 02.02 For submitting Bids, the only forms allowed shall be the “Louisiana Uniform Public Work Bid Form”, “Louisiana Uniform Public Works Bid Form Unit Price Form” (if necessary), the Bid Bond, and written evidence of authority of person signing the bid. Necessary copies of the Louisiana Uniform Public Work Forms will be furnished for Bidding. Bound sets of the Contract Documents are for Bidder's information and should not be used in submitting Bids.
- 02.03 Proposal forms must be printed in ink or typed, unless submitted electronically. Illegibility or ambiguity therein may constitute justification for rejection of the Bid.
- 02.04 Each Bid must be submitted in a sealed envelope, unless submitted electronically. The outside of the envelope shall show the name and address of the Bidder, the State Contractor’s License Number of the Bidder (if work requires contractor’s license), and the Project name and number for which the Bid is submitted, along with the Bid number.
- 02.05 The price quoted for the Work shall be stated in words and figures on the Bid Form, and in numbers only on the Unit Price Form. The price in the Proposal shall include all costs necessary for the complete performance of the Work in full conformity with the conditions of the Contract Documents, and shall include all applicable Federal, State, Parish, Municipal or other taxes. The price bid for the items listed on the Unit Price Form will include the cost of all related items not listed, but which are normally required to do the type of Work bid.
- 02.06 The Bid shall be signed by the Bidder. The information required on the Louisiana Uniform Public Work Bid Form must be provided. Evidence of agency, corporate, or partnership authority is required and shall be provided in conformance with LSA-R.S. 38:2212(B).
- 02.07 Only the Contractors licensed by the State to do the type of Work involved can submit a Proposal for the Work. The envelope containing the Proposal shall have the Contractor's license number on it. Failure to be properly licensed constitutes authority by the Owner for rejection of Bid.
- 02.08 Bidders shall not attach any conditions or provisions to the Proposal. Any conditions or provisions so attached may, at the sole option of the Owner, cause rejection of the Bid or Proposal.
- 02.09 A Bid Guarantee of five percent (5%) of the amount of the total Bid, including Alternates, must accompany the Proposal and, at the option of the Bidder, may be a cashier's check, certified check or a satisfactory Bid Bond. The Bid Guarantee must be attached to the Louisiana Uniform Public Work Bid Form. No Bid will be considered unless it is so guaranteed. Cashier's check or certified check must be made payable to the order of the Owner. Cash deposits will not be accepted. The Owner reserves the right to cash or deposit the cashier's check or certified check. Such guarantees shall be made payable to the Parish of St. Tammany. In accordance with LSA-R.S. 38:2218(C), if a bid bond is used, it shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide, or by an insurance company in good standing licensed to write bid

bonds which is either domiciled in Louisiana or owned by Louisiana residents. It is **not** required to be on any AIA form.

- 02.10 Bid securities of the three (3) lowest Bidders will be retained by the Owner until the Contract is executed or until final disposition is made of the Bids submitted. Bid securities of all other Bidders will be returned promptly after the canvas of Bids. Bids shall remain binding for forty-five (45) days after the date set for Bid Opening. The Parish shall act within the forty-five (45) days to award the contract to the lowest responsible bidder or reject all bids as permitted by Public Bid Law. However, the Parish and the lowest responsible bidder, by mutual written consent, may agree to extend the deadline for award by one or more extensions of thirty (30) calendar days. In the event the Owner issued the Letter of Award during this period, or any extension thereof, the Bid accepted shall continue to remain binding until the Execution of the Contract.
- 02.11 A Proposal may be withdrawn at any time prior to the scheduled closing time for receipt of Bids, provided the request is in writing, executed by the Bidder or its duly authorized representative and is filed with the Owner prior to that time. When such a request is received, the Proposal will be returned to the Bidder unopened.
- 02.12 Written communications, over the signature of the Bidder, to modify Proposals will be accepted and the Proposal corrected in accordance therewith if received by the Owner prior to the scheduled closing time for receipt of Bids. Oral, telephonic or telegraphic Modifications will not be considered.
- 02.13 No oral interpretation obligating the Owner will be made to any Bidder as to the meaning of the Drawings, Specifications and Contract Documents. Every request for such an interpretation shall be made in writing and addressed and forwarded to the Owner. No inquiry received within seven (7) days prior to the day fixed for opening of the Bids shall be given consideration. Every interpretation made to the Bidder shall be in the form of an addendum to the Specifications. All such Addenda shall become part of the Contract Documents. Failure of Bidder to receive any such interpretation shall not relieve any Bidder from any obligation under this Bid. All Addenda shall be issued in accordance with the Public Bid Law, LSA-R.S. 38:2212(O)(2)(a) and (b).
- 02.14 The Owner reserves the right to reject any or all Bids for just cause in accordance with the Public Bid Law, LSA-R.S. 38:2214(B). Incomplete, informal or unbalanced Bids may be rejected. Reasonable grounds for belief that any one Bidder is concerned directly or indirectly with more than one Bid will cause rejection of all Bids wherein such Bidder is concerned. If required, a Bidder shall furnish satisfactory evidence of its competence and ability to perform the Work stipulated in its Proposal. Incompetence will constitute cause for rejection. If the Parish determines that the bidder is not responsive or responsible for any reason whatsoever, the bid may be rejected in accordance with State law.
- 02.15 The Contractor shall indemnify and hold harmless the Owner from any and all suits, costs, penalties or claims for infringement by reason of use or installation of any patented design, device, material or process, or any trademark and copyright in connection with the Work agreed to be performed under this Contract, and shall indemnify and hold harmless the Owner for any costs, expenses and damages which it may be obliged to pay by reason of any such infringement at any time during the prosecution or after completion of the Work.

- 02.16 Bidders shall familiarize themselves with and shall comply with all applicable Federal and State Laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the Project, which may directly or indirectly affect the Work or its prosecution. These laws and/or ordinances will be deemed to be included in the Contract, as though herein written in full.
- 02.17 Each Bidder shall visit the site of the proposed Work and fully acquaint itself with all surface and subsurface conditions as they may exist so that it may fully understand this Contract. Bidder shall also thoroughly examine and be familiar with drawings, Specifications and Contract Documents. The failure or omission of any Bidder to receive or examine any form instrument, Drawing or document or to visit the site and acquaint itself with existing conditions, shall in no way relieve any Bidder from any obligation with respect to its Bid and the responsibility in the premises.
- 02.18 The standard contract form enclosed with the Proposal documents is a prototype. It is enclosed with the Contract Documents for the guidance of the Owner and the Contractor. It has important legal consequences in all respects and consultation with an attorney is encouraged. Contractor shall be presumed to have consulted with its own independent legal counsel.
- 02.19 When one set of Contract plans show the Work to be performed by two or more prime Contractors, it is the responsibility of each Bidder to become knowledgeable of the Work to be performed by the other where the Work upon which this bid is submitted is shown to come into close proximity or into conflict with the Work of the other. In avoiding conflicts, pressure pipe lines must be installed to avoid conflict with gravity pipe lines and the Bidder of the smaller gravity pipe line in conflict with the larger gravity pipe line must include in his Bid the cost of a conflict box at these locations. The location of and a solution to the conflicts do not have to be specifically noted as such on the plans.
- 02.20 Bidder shall execute affidavit(s) attesting compliance with LSA-R.S. 38:2212.10, 38:2224, 38:2227, each as amended, and other affidavits as required by law, prior to execution of the contract.
- 02.21 Sealed Proposals (Bid) shall be received by St. Tammany Parish Government at the office of St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471, until the time and date denoted in Notice to Bidders, at which time and place the Proposals (Bids), shall be publicly opened and read aloud to those present. In accordance with LSA-R.S. 38-2212(A)(3)(c)(i), the designer's final estimated cost of construction shall be read aloud upon opening bids. Sealed Proposals (Bids) may also be mailed by certified mail to St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471, and must be received before the bid opening. Bids may also be submitted electronically. Information concerning links for electronic bidding is contained in the Notice to Bidders.
- 02.22 Proposals (Bids) shall be executed on Forms furnished and placed in a sealed envelope, marked plainly and prominently as indicated in the Notice to Bidders, and these General Conditions, and addressed:

St. Tammany Parish Government  
Department of Procurement

21454 Koop Drive, Suite 2-F  
Mandeville, LA 70471

- 02.23 Complete sets of Drawings, Specifications, and Contract Documents may be secured at the Office of the Owner. See Notice to Bidders for deposit schedule.
- 02.24 The successful bidder shall be required to post in each direction a public information sign, 4' x 8' in size, at the location of the project containing information required by the Owner. The Owner shall supply this information.
- 03.00 AWARD, EXECUTION OF DOCUMENTS, BONDS, ETC.
- 03.01 The award of the Contract, if it is awarded, will be to the lowest responsible Bidder, in accordance with State Law. No award will be made until the Owner has concluded such investigations as it deems necessary to establish the responsibility, qualifications and financial ability and stability of the Bidder to do the Work in accordance with the Contract Documents to the satisfaction of the Owner within the time prescribed as established by the Department based upon the amount of work to be performed and the conditions of same. The written contract and bond shall be issued in conformance with LSA-R.S. 38:2216. The Owner reserves the right to reject the Bid of any Bidder in accordance with the Public Bid Law, LSA-R.S. 38:2214. If the Contract is awarded, the Owner shall give the successful Bidder written notice of the award within forty-five (45) calendar days after the opening of the Bids in conformance with LSA-R.S. 38:2215(A), or any extension as authorized thereunder.
- 03.02 At least three counterparts of the Agreement and of such other Contract Documents as practicable shall be signed by the Owner and the Contractor. The Owner shall identify those portions of the Contract Documents not so signed and such identification shall be binding on both parties. The Owner and the Contractor shall each receive an executed counterpart of the Contract Documents.
- 03.03 Prior to the execution of the Agreement, the Contractor shall deliver to the Owner the required Bonds.
- 03.04 Failure of the successful Bidder to execute the Agreement and deliver the required Bonds within twenty (20) days of the Notice of the Award shall be just cause for the Owner to annul the award and declare the Bid and any guarantee thereof forfeited.
- 03.05 In order to ensure the faithful performance of each and every condition, stipulation and requirement of the Contract and to indemnify and save harmless the Owner from any and all damages, either directly or indirectly arising out of any failure to perform same, the successful Bidder to whom the Contract is awarded shall furnish a surety Bond in an amount of at least equal to one hundred percent (100%) of the Contract Price. The Contract shall not be in force or binding upon the Owner until such satisfactory Bond has been provided to and approved by the Parish. The cost of the Bond shall be paid for by the Contractor unless otherwise stipulated in the Special Provisions.
- 03.06 No surety Company will be accepted as a bondsman who has no permanent agent or representative in the State upon whom notices referred to in the General Conditions of

these Specifications may be served. Services of said notice on said agent or representative in the State shall be equal to service of notice on the President of the Surety Company, or such other officer as may be concerned.

03.07 In conformance with LSA-R.S. 38:2219(A)(1)(a), (b), and (c):

Any surety bond written for a public works project shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide, to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company that is either domiciled in Louisiana or owned by Louisiana residents and is licensed to write surety bonds.

For any public works project, no surety or insurance company shall write a bond which is in excess of the amount indicated as approved by the U.S. Department of the Treasury Financial Management Service list or by a Louisiana domiciled insurance company with an A- rating by A.M. Best up to a limit of ten percent of policyholders' surplus as shown by A.M. Best; companies authorized by this Paragraph who are not on the treasury list shall not write a bond when the penalty exceeds fifteen percent of its capital and surplus, such capital and surplus being the amount by which the company's assets exceed its liabilities as reflected by the most recent financial statements filed by the company with the Department of Insurance.

In addition, any surety bond written for a public works project shall be written by a surety or insurance company that is currently licensed to do business in the state of Louisiana. All contractors must comply with any other applicable provisions of LSA-R.S. 38:2219.

03.08 Should the Contractor's Surety, even though approved and accepted by the Owner, subsequently remove its agency or representative from the State or become insolvent, bankrupt, or otherwise fail, the Contractor shall immediately furnish a new Bond in another company approved by the Owner, at no cost to the Owner. The new Bond shall be executed under the same terms and conditions as the original Bond. The new bond shall be submitted within thirty (30) days of such time as the Owner notifies Contractor or from the time Contractor learns or has reason to know that the original surety is no longer financially viable or acceptable to the Parish, whichever occurs first. In the event that Contractor fails or refuses to timely secure additional surety, then the Owner may secure such surety and thereafter deduct such cost or expense from any sum due or to become due Contractor.

03.09 The Contractor's bondsman shall obligate itself to all the terms and covenants of these Specifications and of contracts covering the Work executed hereunder. The Owner reserves the right to do Extra Work or make changes by altering, adding to deducting from the Work under the conditions and in the manner herein before described without notice to the Contractor's surety and without in any manner affecting the liability of bondsman or releasing it from any of its obligations hereunder.

03.10 The Bond shall also secure for the Owner the faithful performance of the Contract in strict accordance with plans and Specifications. It shall protect the Owner against all lien laws

of the State and shall provide for payment of reasonable attorney fees for enforcement of Contract and institution or concursus proceedings, if such proceedings become necessary. Likewise, it shall provide for all additional expenses of the Owner occurring through failure of the Contractor to perform.

- 03.11 The surety of the Contractor shall be and does hereby declare and acknowledge itself by acceptance to be bound to the Owner as a guarantor, jointly and in solido, with the Contractor, for fulfillment of terms of Section 03.00.
- 03.12 The performance Bond and Labor and Material Bond forming part of this Contract shall be continued by Contractor and its Surety for a period of one (1) year from date of acceptance of this Contract by Owner to assure prompt removal and replacement of all defective material, equipment, components thereof, workmanship, etc., and to assure payment of any damage to property of Owner or others as a result of such defective materials, equipment, workmanship, etc.
- 03.13 Contractor shall pay for the cost of recording the Contract and Bond and the cost of canceling same. Contractor shall also secure and pay for all Clear Lien and Privilege Certificates (together with any updates) which will be required before any final payment is made, and that may be required before any payment, at the request of the Owner, its representative, agent, architect, engineer and the like. All recordation and Clear Lien and Privilege Certificate requirements shall be in accordance with those requirements noted herein before in contract Specifications.

#### 04.00 SUBCONTRACTS

- 04.01 Contractor shall be fully responsible for all acts and omissions of its Subcontractors and of persons and organizations for whose acts any of them may be liable to the same extent that it is responsible for the acts and omissions of persons directly employed by it. Nothing in the Contract Documents shall create any contractual relationship between Owner and any Subcontractor or other person or organization having a direct Contract with Contractor, nor shall it create any obligation on the part of the Owner to pay or to see to the payment of any monies due any Subcontractor.
- 04.02 Nothing in the Contract Documents shall be construed to control the Contractor in dividing the Work among approved Subcontractors or delineating the Work to be performed by any trade.
- 04.03 The Contractor agrees to specifically bind every Subcontractor to all of the applicable terms and conditions of the Contract Documents prior to commencing Work. Every Subcontractor, by undertaking to perform any of the Work, shall thereby automatically be deemed bound by such terms and conditions.
- 04.04 The Contractor shall indemnify and hold harmless the Owner and their agents and employees from and against all claims, damages, losses and expenses including Attorney's fees arising out of or resulting from the Contractor's failure to bind every Subcontractor and Contractor's surety to all of the applicable terms and conditions of the Contract Documents.

## 05.00 ASSIGNMENT

05.01 Neither party to this Contract shall assign or sublet its interest in this Contract without prior written consent of the other, nor shall the Contractor assign any monies due or to become due to it under this Contract without previous written consent of the Owner, nor without the consent of the surety unless the surety has waived its right to notice of assignment.

## 06.00 CORRELATION, INTERPRETATION AND INTENT OF CONTRACT DOCUMENTS.

06.01 It is the intent of the Specifications and Drawings to describe a complete Project to be constructed in accordance with the Contract Documents. The Contract Documents comprise the entire Agreement between Owner and Contractor. Alterations, modifications and amendments shall only be in writing between these parties.

06.02 The Contract Documents are intended to be complimentary and to be read *in pari materii*, and what is called for by one is as binding as if called for by all. If Contractor finds a conflict, error or discrepancy in the Contract Documents, it shall call it to the Owner's attention, in writing, at once and before proceeding with the Work affected thereby; however, it shall be liable to Owner for its failure to discover any conflict, error or discrepancy in the Specifications or Drawings. In resolving such conflicts, errors and discrepancies, the documents shall be given precedence in the following order: Agreement, Modifications, Addenda, Special Conditions, General Conditions, Construction Specifications and Drawings. The general notes on the plans shall be considered special provisions. Figure dimensions on Drawings shall govern over scale dimensions and detail Drawings shall govern over general Drawings. Where sewer connections are shown to fall on a lot line between two lots, the Contractor shall determine this location by measurement not by scale. Any Work that may reasonably be inferred from the Specifications or Drawings as being required to produce the intended result shall be supplied whether or not it is specifically called for. Work, materials or equipment described herein which so applied to this Project are covered by a well-known technical meaning or specification shall be deemed to be governed by such recognized standards unless specifically excluded.

06.03 Unless otherwise provided in the Contract Documents, the Owner will furnish to the Contractor (free of charge not to exceed ten (10) copies) Drawings and Specifications for the execution of Work. The Drawings and Specifications are the property of the Owner and are to be returned to it when the purpose for which they are intended have been served. The Contractor shall keep one copy of all Drawings and Specifications, including revisions, Addenda, details, Shop Drawings, etc. on the Work in good order and available to the Owner or the regulatory agency of the governmental body having jurisdiction in the area of the Work.

## 07.00 SHOP DRAWINGS, BROCHURES AND SAMPLES

07.01 After checking and verifying all field measurements, Contractor shall submit to Owner for approval, five copies (or at Owner's option, one reproducible copy) of all Shop Drawings, which shall have been checked by and stamped with the approval of Contractor and identified as Owner may require. The data shown on the Shop Drawings will be complete

with respect to dimensions, design criteria, materials of construction and the like to enable Owner to review the information as required.

- 07.02 Contractor shall also submit to Owner, for review with such promptness as to cause no delay in Work, all samples as required by the Contract Documents. All samples will have been checked by and stamped with the approval of Contractor identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended. At the time of each submission, Contractor shall in writing call Owner's attention to any deviations that the Shop Drawings or samples may have from the requirements of the Contract Documents.
- 07.03 Owner will review with reasonable promptness Shop Drawings and samples, but its review shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The review of a separate item as such will not indicate approval of the assembly in which the item functions. Contractor shall make any corrections required by Owner and shall return the required number of corrected copies of Shop Drawings and resubmit new samples for review. Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections called for by Owner on previous submissions. Contractor's stamp of approval on any Shop Drawing or sample shall constitute a representation to Owner that Contractor has determined and verified all quantities, dimensions, field construction criteria, materials catalog numbers and similar data and thereafter assumes full responsibility for doing so, and that it has reviewed or coordinated each Shop Drawing or sample with the requirements of the Work and the Contract Documents.
- 07.04 Where a Shop Drawing or sample submission is required by the Specifications, no related Work shall be commenced until the submission has been reviewed by Owner. A copy of each reviewed shop Drawing and each inspected sample shall be kept in good order by Contractor at the site and shall be available to Owner.
- 07.05 Owner's review of Shop Drawings or samples shall not relieve Contractor from its responsibility for any deviations from the requirements of the Contract Documents unless Contractor has in writing called Owner's attention to such deviation at the time of submission and Owner has given written approval to the specific deviation, nor shall any review by Owner relieve Contractor from responsibility for errors or omissions in the Shop Drawings. The mere submittal of shop drawings which contain deviations from the requirements of plans, specifications and/or previous submittals in itself does not satisfy this requirement.

#### 08.00 RECORD DRAWINGS

- 08.01 The Contractor shall keep an accurate record in a manner approved by the Owner of all changes in the Contract Documents during construction. In Work concerning underground utilities, the Contractor shall keep an accurate record in a manner approved by the Owner of all valves, fittings, etc. Before the Work is accepted by the Owner, and said acceptance is recorded, the Contractor shall furnish the Owner a copy of this record.

08.02 Contractor shall keep an accurate drawing measured in the field to the nearest 0.1' of the location of all sewer house connections. The location shown shall be the end of the connection at the property line measured along the main line of pipe from a manhole.

08.03 Contractor shall keep an accurate drawing of the storm water drainage collection system. Inverts to the nearest 0.01' and top of castings shall be shown as well as location of all structures to the nearest 0.1'. Upon completion of the Work, the plan will be given to the Owner.

#### 09.00 PROGRESS OF WORK

09.01 Contractor shall conduct the Work in such a professional manner and with sufficient materials, equipment and labor as is considered necessary to ensure its completion within the time limit specified.

09.02 The Owner shall issue a Notice to Proceed to the Contractor within twenty (20) calendar days from the date of execution of the Contract. Upon mutual consent by both parties, the Notice to Proceed may be extended. The Contractor is to commence Work under the Contract within ten (10) calendar days from the date the Notice to Proceed is issued by the Owner.

09.03 The Contractor, immediately after being awarded the Contract, shall prepare and submit for the Owner's approval an estimated progress schedule for the work to be performed, as well as a construction signing layout for all roads within the project area. The Contractor shall not start work or request partial payment until the work schedule has been submitted to the Owner for approval.

09.04 Revisions to the original schedule will be made based on extension of days granted for inclement weather or change orders issued under the contract. No other revision shall be made which affects the original completion or updated completion date, whichever is applicable.

09.05 Failure of the Contractor to submit an estimated progress schedule or to complete timely and on schedule the Work shown on the progress schedule negates any and all causes or claims by the Contractor for accelerated completion damages. These accelerated damage claims shall be deemed forfeited.

09.06 Meetings will be held as often as necessary to expedite the progress of the job. Meetings will be held during normal working hours at the jobsite and shall be mandatory for the Contractor and all Sub-Contractors working on the project. Meetings may be requested by the Owner at any time and at the discretion of the Owner.

#### 10.00 OWNER'S RIGHT TO PROCEED WITH PORTIONS OF THE WORK

10.01 Upon failure of the Contractor to comply with any notice given in accordance with the provisions hereof, the Owner shall have the alternative right, instead of assuming charge of the entire Work, to place additional forces, tools, equipment and materials on parts of the Work. The cost incurred by the Owner in carrying on such parts of the Work shall be

payable by the Contractor. Such Work shall be deemed to be carried on by the Owner on account of the Contractor. The Owner may retain all amounts of the cost of such Work from any sum due Contractor or those funds that may become due to Contractor under this Agreement.

- 10.02 Owner may perform additional Work related to the Project by itself or it may let any other direct contract which may contain similar General Conditions. Contractor shall afford the other contractors who are parties to such different contracts (or Owner, if it is performing the additional Work itself) reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work, and shall properly connect and coordinate its Work with the subsequent work.
- 10.03 If any part of Contractor's Work depends upon proper execution or results upon the Work of any such other contractor (or Owner), Contractor shall inspect and promptly report to Owner in writing any defects or deficiencies in such Work that render it unsuitable for such proper execution and results. Failure to so report shall constitute an acceptance of the other Work as fit and proper for the relationship of its Work except as to defects and deficiencies which may appear in the other Work after the execution of its Work.
- 10.04 Whatever Work is being done by the Owner, other Contractors or by this Contractor, the parties shall respect the various interests of the other parties at all times. The Owner may, at its sole discretion, establish additional rules and regulations concerning such orderly respect of the rights of various interests.
- 10.05 Contractor shall do all cutting, fitting and patching of its Work that may be required to integrate its several parts properly and fit to receive or be received by such other Work. Contractor shall not endanger any Work of others by cutting, excavating or otherwise altering Work and will only alter Work with the written consent of Owner and of the other contractors whose Work will be affected.
- 10.06 If the performance of additional Work by other contractors or Owner is not noted in the Contract Documents, written notice thereof shall be given to Contractor prior to starting any such additional Work. If Contractor believes that the performance of such additional Work by Owner or others may cause additional expense or entitles an extension of the Contract Time, the Contractor may make a claim therefor. The claim must be in writing to the Owner within thirty (30) calendar days of receipt of notice from the Owner of the planned additional Work by others.

#### 11.00 TIME OF COMPLETION

- 11.01 The Notice to Proceed will stipulate the date on which the Contractor shall begin work. That date shall be the beginning of the Contract Time charges.
- 11.02 Contractor shall notify the Owner through its duly authorized representative, in advance, of where Contractor's work shall commence each day. A daily log shall be maintained by Contractor to establish dates, times, persons contacted, and location of work. Specific notice shall be made to the Owner if the Contractor plans to work on Saturday, Sunday, or a Parish approved holiday. If notice is not received, no consideration will be given for inclement weather and same shall be considered a valid work day.

- 11.03 The Work covered by the Plans, Specifications and Contract Documents must be completed sufficiently for acceptance within the number of calendar days specified in the Proposal and/or the Contract, commencing from the date specified in the Notice to Proceed. It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the time of completion is an essential condition of this Contract, and it is further mutually understood and agreed that if the Contractor shall neglect, fail or refuse to complete the Work within the time specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as partial consideration for the awarding of this Contract, to pay the Owner \$500.00 per day as specified in the Contract, not as a penalty, but as liquidated damages for such breach of contract for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract for completing the Work. It is specifically understood that the Owner shall also be entitled to receive a reasonable attorney fee and all costs in the event that Contractor fails to adhere to this agreement and this contract is referred to counsel for any reason whatsoever. Reasonable attorney fees shall be the prevailing hourly rate of the private sector, and in no event shall the hourly rate be less than \$175.00 per hour. All attorney fees shall be paid to the operating budget of the Office of the Parish President.
- 11.04 Prior to final payment, the Contractor may, in writing to the Owner, certify that the entire Project is substantially complete and request that the Owner or its agent issue a certificate of Substantial Completion. See Section 29.00.
- 11.05 The Owner may grant an extension(s) of time to the Contractor for unusual circumstances which are beyond the control of the Contractor and could not reasonably be foreseen by the Contractor prior to Bidding. Any such request must be made in writing to the Owner within seven (7) calendar days following the event occasioning the delay. The Owner shall have the exclusive and unilateral authority to determine, grant, and/or deny the validity of any such claim.
- 11.06 Extensions of time for inclement weather shall be processed as follows:

Commencing on the start date of each job, the Parish Inspector assigned to same shall keep a weekly log, indicating on each day whether inclement weather has prohibited the Contractor from working on any project within the specific job, based upon the following:

1. Should the Contractor prepare to begin work on any day in which inclement weather, or the conditions resulting from the weather, prevent work from beginning at the usual starting time, and the crew is dismissed as a result, the Contractor will not be charged for a working day whether or not conditions change during the day and the rest of the day becomes suitable for work.
2. If weather conditions on the previous day prevent Contractor from performing work scheduled, provided that no other work can be performed on any project within the package. The Parish Inspector shall determine if it is financially reasonable to require the Contractor to deviate from the schedule and relocate to another location.

3. If the Contractor is unable to work at least 60% of the normal work day due to inclement weather, provided that a normal working force is engaged on the job.

Any dispute of weather conditions as related to a specific job shall be settled by records of the National Weather Service.

#### 11.07 Extensions of time for change orders

When a change order is issued, the Owner and Contractor will agree on a reasonable time extension, if any, to implement such change. Consideration shall be given for, but not limited to, the following:

1. If material has to be ordered;
2. Remobilization and or relocation of equipment to perform task; and
3. Reasonable time frame to complete additional work.

Time extensions for change orders shall be reflected on the official document signed by the Owner and Contractor.

- 11.08 At the end of each month, the Owner or its agent will furnish to the Contractor a monthly statement which reflects the number of approved days added to the contract. The Contractor will be allowed fourteen (14) calendar days in which to file a written protest setting forth in what respect the monthly statement is incorrect; otherwise, the statement shall be considered accepted by the Contractor as correct.

- 11.09 Apart from extension of time for unavoidable delays, no payment or allowance of any kind shall be made to the Contractor as compensation for damages because of hindrance or delay for any cause in the progress of the Work, whether such delay be avoidable or unavoidable.

#### 12.00 LIQUIDATED DAMAGES

- 12.01 In case the Work is not completed in every respect within the time that may be extended, it is understood and agreed that per diem deductions of the sum of \$500.00 for liquidated damages, as stipulated in the Proposal and/or Contract, shall be made from the total Contract Price for each and every calendar day after and exclusive of the day on which completion was required, and up to the completion of the Work and acceptance thereof by the Owner. It is understood and agreed that time is of the essence to this Contract, and the above sum being specifically herein agreed upon in advance as the measure of damages to the Owner on account of such delay in the completion of the Work. It is further agreed that the expiration of the term herein assigned or as may be extended for performing the Work shall, *ipso facto*, constitute a putting in default, the Contractor hereby waiving any and all notice of default. The Contractor agrees and consents that the Contract Price, reduced by the aggregate of the entire damages so deducted, shall be accepted in full satisfaction of all Work executed under this Contract. It is further understood and agreed that Contractor shall be liable for a reasonable attorney fee and all costs associated with any breach of this agreement, including but not limited to this subsection. In the event that any dispute or breach herein causes referrals to counsel, then Contractor agrees to pay a reasonable

attorney fee at the prevailing hourly rate of the private sector. In no event shall the hourly rate be less than \$175.00 per hour.

13.00 LABOR, MATERIALS, EQUIPMENT, SUPERVISION, PERMITS AND TAXES

- 13.01 The Contractor shall provide and pay for all labor, materials, equipment, supervision, subcontracting, transportation, tools, fuel, power, water, sanitary facilities and all incidentals necessary for the completion of the Work in substantial conformance with the Contract Documents.
- 13.02 The Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. It shall at all times maintain good discipline and order at the site.
- 13.03 Unless otherwise specifically provided for in the Specifications, all workmanship, equipment, materials, and articles incorporated in the Work covered by this Contract are to be new and of the best grade of their respective kinds for the purpose intended. Samples of materials furnished under this Contract shall be submitted for approval to the Owner when and as directed.
- 13.04 Whenever a material or article required is specified or shown on the plans by using the name of a proprietary product or of a particular manufacturer or vendor, any material or article which shall perform adequately the duties imposed by the general design will be considered equal, and satisfactory, providing the material or article so proposed is of equal substance and function and that all technical data concerning the proposed substitution be approved by the Owner prior to the Bidding. The Owner shall have the exclusive and unilateral discretion to determine quality and suitability in accordance with LSA-R.S. 38:2212(T)(2).
- 13.05 Materials shall be properly and securely stored so as to ensure the preservation of quality and fitness for the Work, and in a manner that leaves the material accessible to inspection. Materials or equipment may not be stored on the site in a manner such that it will interfere with the continued operation of streets and driveways or other contractors working on the site.
- 13.06 The Contractor, by entering into the Contract for this Work, sets itself forth as an expert in the field of construction and it shall supervise and direct the Work efficiently and with its best skill and attention. It shall be solely responsible for the means, methods, techniques, sequences and procedures of construction.
- 13.07 Contractor shall keep on the Work, at all times during its progress, a competent resident Superintendent, who shall not be replaced without written Notice to Owner except under extraordinary circumstances. The Superintendent will be Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications given to the Superintendent shall be as binding as if given to the Contractor. Owner specifically reserves the right to approve and/or disapprove the retention of a new superintendent, all to not be unreasonably withheld.

- 13.08 Any foreman or workman employed on this Project who disregards orders or instructions, does not perform his Work in a proper and skillful manner, or is otherwise objectionable, shall, at the written request of the Owner, be removed from the Work and shall be replaced by a suitable foreman or workman.
- 13.09 The Contractor and/or its assigned representative shall personally ensure that all subcontracts and divisions of the Work are executed in a proper and workmanlike manner, on scheduled time, and with due and proper cooperation.
- 13.10 Failure of the Contractor to keep the necessary qualified personnel on the Work shall be considered cause for termination of the Contract by the Owner.
- 13.11 Only equipment in good working order and suitable for the type of Work involved shall be brought onto the job and used by the Contractor. The Contractor is solely responsible for the proper maintenance and use of its equipment and shall hold the Owner harmless from any damages or suits for damages arising out of the improper selection or use of equipment. No piece of equipment necessary for the completion of the Work shall be removed from the job site without approval of the Owner.
- 13.12 All Federal, State and local taxes due or payable during the time of Contract on materials, equipment, labor or transportation, in connection with this Work, must be included in the amount bid by the Contractor and shall be paid to proper authorities before acceptance. The Contractor shall furnish all necessary permits and certificates and comply with all laws and ordinances applicable to the locality of the Work. The cost of all inspection fees levied by any governmental entity whatsoever shall be paid for by the Contractor.
- 13.13 In accordance with St. Tammany Police Jury Resolution 86-2672, as amended, the Contractor must provide in a form suitable to the Owner an affidavit stating that all applicable sales taxes for materials used on this project have been paid.
- 13.14 During the period that this Contract is in force, neither party to the Contract shall solicit for employment or employ an employee of the other.
- 13.15 All materials or equipment shown on the Drawings or included in these specifications shall be furnished unless written approval of a substitute is obtained from the Designer, or Owner if no separate designer.
- 13.16 If a potential supplier wishes to submit for prior approval a particular product other than a product specified in the contract documents, he shall do so no later than seven working days prior to the opening of bids. Within three days, exclusive of holidays and weekends, after such submission, the prime design professional shall furnish to both the public entity and the potential supplier written approval or denial of the product submitted. The burden of proof of the equality of the proposed substitute is upon the proposer and only that information formally submitted shall be used by the Designer in making its decision.
- 13.17 The decision of the Designer/Owner shall be given in good faith and shall be final.

#### 14.00 QUANTITIES OF ESTIMATE, CHANGES IN QUANTITIES, EXTRA WORK

- 14.01 Whenever the estimated quantities of Work to be done and materials to be furnished under this Contract are shown in any of the documents, including the Proposal, such are given for use in comparing Bids and the right is especially reserved, except as herein otherwise specifically limited, to increase or diminish same not to exceed twenty-five percent (25%) by the Owner to complete the Work contemplated by this Contract. Such increase or diminution shall in no way vitiate this Contract, nor shall such increase or diminution give cause for claims or liability for damages.
- 14.02 The Owner shall have the right to make alterations in the line, grade, plans, form or dimensions of the Work herein contemplated, provided such alterations do not change the total cost of the Project, based on the originally estimated quantities, and the unit prices bid by more than twenty-five percent (25%) and provided further that such alterations do not change the total cost of any major item, based on the originally estimated quantities and the unit price bid by more than twenty-five (25%). (A major item shall be construed to be any item, the total cost of which is equal to or greater than ten percent (10%) of the total Contract Price, computed on the basis of the Proposal quantity and the Contract unit price). Should it become necessary, for the best interest of the Owner, to make changes in excess of that herein specified, the same shall be covered by supplemental agreement either before or after the commencement of the Work and without notice to the sureties. If such alterations diminish the quantity of Work to be done, such shall not constitute a claim for damages for anticipated profits for the Work dispensed with, but when the reduction in amount is a material part of the Work contemplated, the Contractor shall be entitled to only reasonable compensation as determined by the Owner for overhead and equipment charges which it may have incurred in expectation of the quantity of Work originally estimated, unless specifically otherwise provided herein; if the alterations increase the amount of Work, the increase shall be paid according to the quantity of Work actually done and at the price established for such Work under this Contract except where, in the opinion of the Owner, the Contractor is clearly entitled to extra compensation.
- 14.03 Without invalidating the Contract, the Owner may order Extra Work or make changes by altering, adding to, or deducting from the Work, the Contract sum being adjusted accordingly. The consent of the surety must first be obtained when necessary or desirable, all at the exclusive discretion of the Owner. All the Work of the kind bid upon shall be paid for at the price stipulated in the Proposal, and no claims for any Extra Work or material shall be allowed unless the Work is ordered in writing by the Owner.
- 14.04 Extra Work for which there is no price or quantity included in the Contract shall be paid for at a unit price or lump sum to be agreed upon in advance in writing by the Owner and Contractor. Where such price and sum cannot be agreed upon by both parties, or where this method of payment is impracticable, the Owner may, at its exclusive and unilateral discretion, order the Contractor to do such Work on a Force Account Basis.
- 14.05 In computing the price of Extra Work on a Force Account Basis, the Contractor shall be paid for all foremen and labor actually engaged on the specific Work at the current local rate of wage for each and every hour that said foremen and labor are engaged in such Work, plus ten percent (10%) of the total for superintendence, use of tools, overhead, direct & indirect costs/expenses, pro-rata applicable payroll taxes, pro-rata applicable workman compensation benefits, pro-rata insurance premiums and pro-rata reasonable profit. The

Contractor shall furnish satisfactory evidence of the rate or rates of such insurance and tax. The Contractor will not be able to collect any contribution to any retirement plans or programs.

- 14.06 For all material used, the Contractor shall receive the actual cost of such material delivered at the site of the Work, as shown by original receipted bill, to which shall be added five percent (5%). There will be absolutely no additional surcharges or additional fees attached hereto with respect to this subsection.
- 14.07 For any equipment used that is owned by the Contractor, the Contractor shall be allowed a rental based upon the latest prevailing rental price, but not to exceed a rental price as determined by the Associated Equipment Distributors (A.E.D. Green Book).
- 14.08 The Contractor shall also be paid the actual costs of transportation for any equipment which it owns and which it has to transport to the Project for the Extra Work. There will be absolutely no additional surcharges or additional fees attached hereto with respect to this subsection.
- 14.09 If the Contractor is required to rent equipment for Extra Work, but not required for Contract items, it will be paid the actual cost of rental and transportation of such equipment to which no percent shall be added. The basis upon which rental cost are to be charged shall be agreed upon in writing before the Work is started. Actual rental and transportation costs shall be obtained from receipted invoices and freight bills.
- 14.10 No compensation for expenses, fees or costs incurred in executing Extra Work, other than herein specifically mentioned herein above, will be allowed.
- 14.11 A record of Extra Work on Force Account basis shall be submitted to the Owner on the day following the execution of the Work, and no less than three copies of such record shall be made on suitable forms and signed by both the Owner or his representative on the Project and the Contractor. All bids for materials used on extra Work shall be submitted to the Owner by the Contractor upon certified statements to which will be attached original bills covering the costs of such materials.
- 14.12 Payment for Extra Work of any kind will not be allowed unless the same has been ordered in writing by the Owner.

15.00 STATUS OF THE ENGINEER (NOT APPLICABLE)

16.00 INJURIES TO PERSONS AND PROPERTY

- 16.01 The Contractor shall be held solely and exclusively responsible for all injuries to persons and for all damages to the property of the Owner or others caused by or resulting from the negligence of itself, its employees or its agents, during the progress of or in connection with the Work, whether within the limits of the Work or elsewhere under the Contract proper or as Extra Work. This requirement will apply continuously and not be limited to normal working hours or days. The Owner's construction review is for the purpose of checking the Work product produced and does not include review of the methods employed

by the Contractor or to the Contractor's compliance with safety measures of any nature whatsoever. The Contractor agrees to pay a reasonable attorney fee and other reasonable attendant costs of the Owner in the event it becomes necessary for the Owner to employ an attorney to enforce this section or to protect itself against suit over the Contractor's responsibilities. Attorney fees shall be at the prevailing hourly rate of the private sector. The attorney fee hourly rate shall not be less than \$175.00 per hour. All attorney fees collected shall be paid to the operating budget of the Office of the Parish President.

- 16.02 The Contractor must protect and support all utility infrastructures or other properties which are liable to be damaged during the execution of its Work. It shall take all reasonable and proper precautions to protect persons, animals and vehicles or the public from the injury, and wherever necessary, shall erect and maintain a fence or railing around any excavation, and place a sufficient number of lights about the Work and keep same burning from twilight until sunrise, and shall employ one or more watchmen as an additional security whenever needed. The Contractor understands and agrees that the Owner may request that security be placed on the premises to ensure and secure same. The Owner shall have exclusive authority to request placement of such security. Contractor agrees to retain and place security as requested, all at the sole expense of Contractor. Additional security shall not be considered a change order or reason for additional payment by the Owner. The Contractor must, as far as practicable and consistent with good construction, permit access to private and public property and leave fire hydrants, catch basins, streets, etc., free from encumbrances. The Contractor must restore at its own expense all injured or damaged property caused by any negligent act of omission or commission on its part or on the part of its employees or subcontractors, including, but not limited to, sidewalks, curbing, sodding, pipes conduits, sewers, buildings, fences, bridges, retaining walls, tanks, power lines, levees or any other building or property whatsoever to a like condition as existed prior to such damage or injury.
- 16.03 In case of failure on the part of the Contractor to restore such property or make good such damage, the Owner may upon forty-eight (48) hours' notice proceed to repair or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any monies due or which may become due under its Contract.
- 16.04 Contractor agrees to protect, defend, indemnify, save, and hold harmless St. Tammany Parish Government, its elected and appointed officials, departments, agencies, boards and commissions, their officers, agents servants, employees, including volunteers, from and against any and all claims, demands, expense and liability arising out of injury or death to any person or the damage, loss or destruction of any property to the extent caused by any negligent act or omission or willful misconduct of Contractor, its agents, servants, employees, and subcontractors, or any and all costs, expense and/or attorney fees incurred by St. Tammany Parish Government as a result of any claim, demands, and/or causes of action that results from the negligent performance or non-performance by Contractor, its agents, servants, employees, and subcontractors of this contract. Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit at its sole expense and agrees to bear all other costs and expenses related thereto caused by any negligent act or omission or willful misconduct of Contractor, its agents, servants, employees, and subcontractors.
- 16.05 As to any and all claims against Owner, its agents, assigns, representatives or employees by any employee of Contractor, any Subcontractor, anyone directly or indirectly employed

by any of them or anyone for whose acts as may be liable, the indemnification obligation under Paragraph 16.04 shall not be limited in any way or by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefit acts.

- 16.06 No road shall be closed by the Contractor to the public except by written permission of the Owner. If so closed, the Contractor shall maintain traffic over, through and around the Work included in his Contract, with the maximum practical convenience, for the full twenty-four hours of each day of the Contract, whether or not Work has ceased temporarily. The Contractor shall notify the Owner at the earliest possible date after the Contract has been executed and, in any case, before commencement of any construction that might in any way inconvenience or endanger traffic, in order that necessary and suitable arrangements may be determined. Any and all security, maintenance, labor or costs associated with traffic control herein shall be at the sole expense of Contractor. This expense shall be paid directly by the Contractor. This expense shall not be considered as a change order nor shall it allow the Contractor any additional cost reimbursement whatsoever. All traffic deviations herein shall be coordinated with the appropriate law enforcement officials of this Parish.
- 16.07 The convenience of the general public and residents along the Works shall be provided for in a reasonable, adequate and satisfactory manner. Where existing roads are not available as detours, and unless otherwise provided, all traffic shall be permitted to pass through the Work. In all such cases, the public shall have precedence over Contractor's vehicles insofar as the traveling public's vehicles shall not be unduly delayed for the convenience of the Contractor. In order that all unnecessary delay to the traveling public may be avoided, the Contractor shall provide and station competent flagmen whose sole duties shall consist of directing and controlling the movement of public traffic either through or around the Work. Any and all security, maintenance, labor or costs associated with traffic control herein shall be at the sole expense of Contractor. This expense shall be paid directly by the Contractor. This expense shall not be considered as a change order nor shall it allow the Contractor any additional cost reimbursement whatsoever. All traffic deviations herein shall be coordinated with the appropriate law enforcement officials of this Parish.
- 16.08 The Contractor shall arrange its Work so that no undue or prolonged blocking of business establishments will occur.
- 16.09 Material and equipment stored on the right of way or work site shall be so placed and the Work at times shall be so conducted as to ensure minimum danger and obstruction to the traveling public.
- 16.10 During grading operations when traffic is being permitted to pass through construction, the Contractor shall provide a smooth, even surface that will provide a satisfactory passageway for use of traffic. The road bed shall be sprinkled with water if necessary to prevent a dust nuisance, provided the dust nuisance is a result of the Work.
- 16.11 Fire hydrants shall be accessible at all times to the Fire Department. No material or other obstructions shall be placed closer to a fire hydrant than permitted by ordinances, rules or regulations or within fifteen (15) feet of a fire hydrant, in the absence of such ordinance, rules or regulations.

- 16.12 The Contractor shall not, without the written permission of the Owner, do Work for a resident or property owner abutting the Work at the time that this Work is in progress.
- 16.13 No Work of any character shall be commenced on railroad right-of-way until the Railroad Company has issued a permit to the Owner and has been duly notified by the Contractor in writing (with a copy forwarded to the Owner) of the date it proposes to begin Work, and until an authorized representative of the Railroad Company is present, unless the Railroad Company waives such requirements. All Work performed by the Contractor within the right-of-way limits of the railroad shall be subject to the inspection and approval of the chief engineer of the Railroad Company or its authorized representative. Any precautions considered necessary by said chief engineer to safeguard the property, equipment, employees and passengers of the Railroad Company shall be taken by the Contractor without extra compensation. The Contractor shall, without extra compensation, take such precautions and erect and maintain such tell-tale or warning devices as the Railroad Company considers necessary to safeguard the operation of its trains. The temporary vertical and horizontal clearance specified by the chief engineer of the Railroad Company in approving these shall be maintained at all times. No steel, brick, pipe or any loose material shall be left on the ground in the immediate vicinity of the railway track. Before any Work is done within Railroad right of way, the Contractor shall provide and pay all costs of any special insurance requirements of the Railroad.
- 16.14 The Contractor, shall, without extra compensation, provide, erect, paint and maintain all necessary barricades. Also, without extra compensation, the Contractor shall provide suitable and sufficient lights, torches, reflectors or other warning or danger signals and signs, provide a sufficient number of watchmen and flagmen and take all the necessary precautions for the protection of the Work and safety of the Public.
- 16.15 The Contractor shall erect warning signs beyond the limits of the Project, in advance of any place on the Project where operations interfere with the use of the road by traffic, including all intermediate points where the new Work crosses or coincides with the existing road. All barricades and obstructions shall be kept well painted and suitable warning signs shall be placed thereon. All barricades and obstructions shall be illuminated at night and all lights or devices for this purpose shall be kept burning from sunset to sunrise.
- 16.16 Whenever traffic is maintained through or over any part of the Project, the Contractor shall clearly mark all traffic hazards. No direct payment will be made for barricades, signs and illumination therefore or for watchmen or flagmen.
- 16.17 The Contractor will be solely and completely responsible for conditions on the job site, including safety of all persons and property during performance of the Work. This requirement will apply continuously and not be limited to normal working hours. The duty of the Owner to conduct construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures, in, or near the construction site.

## 17.00 SANITARY PROVISIONS

17.01 The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of its employees as may be necessary to comply with the rules and regulations of the State Health Agency or of the other authorities having jurisdiction and shall permit no public nuisance.

## 18.00 RIGHTS OF WAY

18.01 The Owner will furnish the Contractor with all necessary rights-of-way for the prosecution of the Work. The rights of way herein referred to shall be taken to mean only permission to use or pass through the locations or space in any street, highway, public or private property in which the Contractor is to prosecute the Work.

18.02 It is possible that all lands and rights of way may not be obtained as herein contemplated before construction begins, in which event the Contractor shall begin its Work upon such land and rights of way as the Owner may have previously acquired. Any delay in furnishing these lands by the Owner can be deemed proper cause for adjustment in the Contract amount and/or in the time of completion.

## 19.00 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE

19.01 The Contractor shall not enter upon private property for any purpose without first obtaining permission from the Owner, as well as the private property owner and/or and private property Lessees. The Contractor shall use every precaution necessary for the preservation of all public and private property, monuments, highway signs, telephone lines, other utilities, etc., along and adjacent to the Work; the Contractor shall use every precaution necessary to prevent damage to pipes, conduits, and other underground structures; and shall protect carefully from disturbance or damage all land monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed. The street and highway signs and markers that are to be affected by the Work shall be carefully removed when the Work begins and stored in a manner to keep them clean and dry. The Contractor must obtain all necessary information in regard to existing utilities and shall give notice in writing to the owners or the proper authorities in charge of streets, gas, water, pipes, electric, sewers and other underground structures, including conduits, railways, poles and pole lines, manholes, catch basins, fixtures, appurtenances, and all other property that may be affected by the Contractor's operations, at least forty-eight (48) hours before its operations will affect such property. The Contractor shall not hinder or interfere with any person in the protection of such Work or with the operation of utilities at any time. When property, the operation of railways, or other public utilities are endangered, the Contractor shall at its own expense, maintain flagmen or watchmen and any other necessary precautions to avoid interruption of service or damage to life or property, and it shall promptly repair, restore, or make good any injury or damage caused by its negligent operations in an acceptable manner. The Contractor must also obtain all necessary information in regard to the installation of new cables, conduits, and transformers, and make proper provisions and give proper notifications, in order that same can be installed at the proper time without delay to the Contractor or unnecessary inconvenience to the Owner.

- 19.02 The Contractor shall not remove, cut or destroy trees, shrubs, plants, or grass that are to remain in the streets or those which are privately owned, without the proper authority. Unless otherwise provided in the Special Provisions or the Proposal, the Contractor shall replace and replant all plants, shrubs, grass and restore the grounds back to its original good condition to the satisfaction of the Owner and/or the property owner. The Contractor shall assume the responsibility of replanting and guarantees that plants, shrubs, grass will be watered, fertilized and cultivated until they are in a growing condition. No direct payment will be made for removing and replanting of trees, shrubs, plants or grass unless such items are set forth in the Proposal.
- 19.03 When or where direct damage or injury is done to public or private property by or on account of any negligent act, omission, neglect or otherwise of the Contractor, it shall make good such damage or injury in an acceptable manner.

#### 20.00 CONTRACTORS RESPONSIBILITY FOR WORK

- 20.01 Until final acceptance of the Work by the Owner as evidence by approval of the final estimate, the Work shall be in the custody and under the charge and care of the Contractor and it shall take every necessary precaution against injury or damage to any part thereof by the action of the elements or from the non-execution of the Work; unless otherwise provided for elsewhere in the Specifications or Contract. The Contractor shall rebuild, repair, restore and make good, without extra compensation, all injuries or damages to any portion of the Work occasioned by any of the above causes before its completion and acceptance, and shall bear the expenses thereof. In case of suspension of the Work from any cause whatever, the Contractor shall be responsible for all materials and shall properly and securely store same, and if necessary, shall provide suitable shelter from damage and shall erect temporary structures where necessary. If in the exclusive discretion of the Owner, any Work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of its Subcontractors to so protect the Work, such materials shall be removed and replaced at the sole expense of the Contractor. Such amount shall be deducted from any sum due or to be due Contractor.
- 20.02 The Contractor shall give all notice and comply with all Federal, State, and local laws, ordinances, and regulations in any manner affecting the conduct of the Work, and all such orders and decrees as exist, or may be enacted by bodies or tribunals having any jurisdiction or authority over the Work, and shall indemnify and hold harmless the Owner against any claim or liability arising from, or based on, the violation of any such law, ordinance, regulation, order or decree, whether by itself, its employees or Subcontractors.

#### 21.00 TESTS AND INSPECTIONS CORRECTION & REMOVAL OF DEFECTIVE WORK

- 21.01 Contractor warrants and guarantees to Owner that all materials and equipment will be new unless otherwise specified and that all Work will be of good quality and free from faults or defects and in accordance with the requirements of the Contract Documents. All unsatisfactory Work, all faulty or Defective Work and all Work not conforming to the requirements of the Contract Documents at the time of acceptance shall be considered Defective. Prompt and reasonable notice of all defects shall be given to the Contractor.

- 21.02 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested or approved by some public body, Contractor shall assume full responsibility therefor, pay all costs in connection therewith and furnish Owner the required certificates of inspection, testing or approval. All other inspections, tests and approval required by the Contract Documents shall be performed by organizations acceptable to Owner and Contractor and the costs thereof shall be borne by the Contractor unless otherwise specified.
- 21.03 Contractor shall give Owner timely notice of readiness of the Work for all inspections, tests or approvals. If any such Work required to be inspected, tested or approved is covered without written approval of Owner, it must, if requested by Owner, be uncovered for observation, and such uncovering shall be at Contractor's expense unless Contractor has given Owner timely notice of its intention to cover such Work and Owner has not acted with reasonable promptness in response to such notice.
- 21.04 Neither observations by Owner nor inspections, tests or approvals shall relieve Contractor from its obligations to perform the Work in accordance with the requirements of the Contract Document.
- 21.05 Owner and its representatives will at reasonable times have access to the Work. Contractor shall provide proper and safe facilities for such access and observation of the Work and also for any inspection or testing thereof by others.
- 21.06 If any Work is covered contrary to the written request of Owner, it must, be uncovered for Owner's observation and replaced at Contractor's expense. If any Work has been covered which Owner has not specifically requested to observe prior to its being covered, or if Owner considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, at Owner's request, shall uncover, expose or otherwise make available for observations, inspections or testing as Owner may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is Defective, Contractor shall bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate deductive Change Order shall be issued. If, however, such Work is not found to be Defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction.
- 21.07 If the Work is Defective, or Contractor fails to supply sufficient skilled workmen or suitable materials or equipment, or if the Contractor fails to make prompt payments to Subcontractors or for labor, materials or equipment, Owner may order Contractor to stop the Work, or any portion thereof, until the cause of such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor or any other party.
- 21.08 Prior to approval of final payment, Contractor shall promptly, without cost to Owner and as specified by Owner, either correct any Defective Work, whether or not fabricated, installed or completed, or if the Work has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not correct such Defective Work

or remove and replace such rejected Work within a reasonable time, all as specified in a written notice from Owner, Owner may have the deficiency corrected or the rejected Work removed and replaced. All direct or indirect costs of such correction or removal and replacement including compensation for additional professional services shall be paid by Contractor, and an appropriate deductive Change Order shall be issued. Contractor shall also bear the expense of making good all Work of others destroyed or damaged by its correction, removal or replacement of its Defective Work.

- 21.09 If, after the approval of final payment and prior to the expiration of one year after the date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any Work is found to be Defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, either correct such Defective Work or if it has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instructions, Owner may have the Defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by Contractor. The Contractor agrees to pay a reasonable attorney fee and other reasonable attendant costs of the Owner in the event it becomes necessary for the Owner to employ an attorney to enforce this section or to protect itself against suit over the Contractor's responsibilities. Attorney fees shall be at the prevailing hourly rate of the private sector. The attorney fee hourly rate shall not be less than \$175.00 per hour. All attorney fees collected shall be paid to the operating budget of the Office of the Parish President.
- 21.10 If, instead of requiring correction or removal and replacement of Defective Work, Owner (and prior to approval of final payment) prefers to accept it, the Owner may do so. In such case, if acceptance occurs prior to approval of final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price, or, if the acceptance occurs after approval of final payment, an appropriate amount shall be paid by Contractor to Owner.
- 21.11 If Contractor should fail to progress the Work in accordance with the Contract Documents, including any requirements of the Progress Schedule, Owner, after seven (7) days written Notice to Contractor, may, without prejudice to any other remedy Owner may have, make good such deficiencies and the cost thereof including compensation for additional professional services shall be charged against Contractor. In such cases, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents including an appropriate reduction in the Contract Price. If the payments then or thereafter due Contractor are not sufficient to cover such amount, Contractor shall pay the difference to Owner.
- 21.12 The Owner may appoint representatives to make periodic visits to the site and observe the progress and quality of the executed Work. These representatives shall be governed by the same restrictions placed on the Owner by these Specifications. The governing body of the Federal, State or local government exercising authority in the area of the Work may appoint representatives to observe the progress and quality of the Work. Contractor shall cooperate with and assist these representatives in the performance of their duties.

- 21.13 The Contractor shall be responsible for the faithful execution of its Contract and the presence or absence of the Owner's or Government's Representative is in no way or manner to be presumed or assumed to relieve in any degree the responsibility or obligation of the Contractor.
- 21.14 The Contractor shall notify the Owner and the Governmental Agency having jurisdiction as to the exact time at which it is proposed to begin Work so the Owner may provide for inspection of all materials, foundations, excavations, equipment, etc., and all or any part of the Work and to the preparation or manufacture of materials to be used whether within the limits of the Work or at any other place.
- 21.15 The Owner or its representatives shall have free access to all parts of the Work and to all places where any part of the materials to be used are procured, manufactured or prepared. The Contractor shall furnish the Owner all information relating to the Work and the material therefor, which may be deemed necessary or pertinent, and with such samples of materials as may be required. The Contractor, at its own expense, shall supply such labor and assistance as may be necessary in the handling of materials for proper inspection or for inspection of any Work done by it.
- 21.16 No verbal instructions given to the Contractor by the Owner, Project Representative or any of their agents shall change or modify the written Contract. Contractors shall make no claims for additional payments or time based upon verbal instructions.

## 22.00 SUBSURFACE CONDITIONS

- 22.01 It is understood and agreed that the Contractor is familiar with the subsurface conditions that will be encountered and its price bid for the Work includes all of the costs involved for Work in these conditions and it is furthermore agreed that it has taken into consideration, prior to its Bid and acceptance by Owner, all of the subsurface conditions normal or unusual that might be encountered in the location of the Work.
- 22.02 Should the Contractor encounter during the progress of the Work subsurface conditions at the site materially differing from those shown on the Drawings or indicated in the Specifications, the attention of the Owner shall be directed to such conditions before the conditions are disturbed. If the Owner finds that the conditions materially differ from those shown on the Drawings or indicated in the Specifications, it shall at once make such changes in the Drawings or Specifications as it may find necessary, and any increase or decrease in cost or extension of time resulting from such changes shall be adjusted in the same manner as provided for changes for Extra Work. The Contractor shall submit breakdowns of all costs in a manner as instructed and approved by the Owner.

## 23.00 REMOVAL AND DISPOSAL OF STRUCTURES AND OBSTRUCTIONS

- 23.01 Bidder shall thoroughly examine the site of the Work and shall include in its Bid the cost of removing all structures and obstructions in the way of the Work.
- 23.02 The Contractor shall remove any existing structures or part of structures, fence, building or other encumbrances or obstructions that interfere in any way with the Work.

Compensations for the removal of any structure shall be made only if the item(s) to be removed was/were listed as pay item(s) on the Proposal.

- 23.03 If called for in the Special Conditions, all privately and publicly owned materials and structures removed shall be salvaged without damage and shall be piled neatly and in an acceptable manner upon the premises if it belongs to an abutting property owner, otherwise at accessible points along the improvements. Materials in structures which is the property of the Owner or property of any public body, private body or individual which is fit for use elsewhere, shall remain property of the original Owner. It shall be carefully removed without damage, in sections which may be readily transported; same shall be stored on or beyond the right of way. The Contractor will be held responsible for the care and preservation for a period of ten (10) days following the day the last or final portion of the materials stored at a particular location are placed thereon. When privately owned materials are stored beyond the right of way, the Contractor will be held responsible for such care and preservation for a period of ten (10) days responsibility period for care and preservation of the materials begins. The Contractor must furnish the Owner with evidence satisfactory that the proper owner of the materials has been duly notified by the Contractor that the said owner must assume responsibility for its materials on the date following the Contractor's ten (10) day responsibility.

#### 24.00 INSURANCE

- 24.01 Contractor shall secure and maintain at its expense such insurance that will protect it and the Parish from claims for injuries to persons or damages to property which may arise from or in connection with the performance of Services or Work hereunder by the Contractor, his agents, representatives, employees, and/or subcontractors. The cost of such insurance shall be included in Contractor's bid.
- 24.02 The Contractor shall not commence work until it has obtained all insurance as required for the Parish Project. If the Contractor fails to furnish the Parish with the insurance protection required and begins work without first furnishing Parish with a currently dated certificate of insurance, the Parish has the right to obtain the insurance protection required and deduct the cost of insurance from the first payment due the Contractor. Further deductions are permitted from future payments as are needed to protect the interests of the Parish including, but not limited to, renewals of all policies.
- 24.03 Payment of Premiums: The insurance companies issuing the policy or policies shall have no recourse against the Parish of St. Tammany for payment of any premiums or for assessments under any form of policy.
- 24.04 Deductibles: Any and all deductibles in the described insurance policies shall be assumed by and be at the sole risk of the Contractor.
- 24.05 Authorization of Insurance Company(ies) and Rating: All insurance companies must be authorized to do business in the State of Louisiana and shall have an A.M. Best rating of no less than A-, Category VII.
- 24.06 Policy coverages and limits must be evidenced by Certificates of Insurance issued by Contractor's carrier to the Parish and shall reflect:

Date of Issue: Certificate must have current date.

Named Insured: The legal name of Contractor under contract with the Parish and its principal place of business shall be shown as the named insured on all Certificates of Liability Insurance.

Name of Certificate Holder: St. Tammany Parish Government, Office of Risk Management, P. O. Box 628, Covington, LA 70434

Project Description: A brief project description, including Project Name, Project Number and/or Contract Number, and Location.

Endorsements and Certificate Reference: All policies must be endorsed to provide, and certificates of insurance must evidence the following:

Waiver of Subrogation: The Contractor's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance. *Policy endorsements required for all coverages.*

Additional Insured: The Parish of St. Tammany shall be named as additional named insured with respect to general liability, marine liability, pollution/environmental liability, automobile liability and excess liability coverages. *Policy endorsements required.*

Hold Harmless: Contractor's liability insurers shall evidence their cognizance of the Hold Harmless and Indemnification in favor of St. Tammany Parish Government by referencing same on the face of the Certificate(s) of Insurance.

Cancellation Notice: Producer shall provide thirty (30) days prior written notice to the Parish of policy cancellation or substantive policy change.

24.07 The types of insurance coverage the Contractor is required to obtain and maintain throughout the duration of the Contract, include, but is not limited to:

1. Commercial General Liability insurance with a Combined Single Limit for bodily injury and property damage of at least \$1,000,000 per Occurrence/\$3,000,000 General Aggregate/Products-Completed Operations Per Project. The insurance shall provide for and the certificate(s) of insurance shall indicate the following coverages:
  - a) Premises - operations;
  - b) Broad form contractual liability;
  - c) Products and completed operations;
  - d) Personal Injury;
  - e) Broad form property damage;

- f) Explosion and collapse.
2. Marine Liability/Protection and Indemnity insurance is required for any and all vessel and/or marine operations in the minimum limits of \$1,000,000 per occurrence/\$2,000,000 per project general aggregate. The coverage shall include, but is not limited to, the basic coverages found in the Commercial General Liability insurance and coverage for third party liability.
  3. Contractors' Pollution Liability and Environmental Liability insurance in the minimum amount of \$1,000,000 per occurrence, \$2,000,000 general aggregate and include coverage for full contractual liability and for all such environmental and/or hazardous waste exposures affected by this project.
  4. Business Automobile Liability insurance with a Combined Single Limit of \$1,000,000 per Occurrence for bodily injury and property damage, and shall include coverage for the following:
    - a) Any automobiles;
    - b) Owned automobiles;
    - c) Hired automobiles;
    - d) Non-owned automobiles;
    - e) Uninsured motorist.
  5. Workers' Compensation/Employers Liability insurance: worker's compensation insurance coverage and limits as statutorily required; Employers' Liability Coverage shall be not less than \$1,000,000 each accident, \$1,000,000 each disease, \$1,000,000 disease policy aggregate, except when projects include exposures covered under the United States Longshoremen and Harbor Workers Act, Maritime and/or Jones Act and/or Maritime Employers Liability (MEL) limits shall be not less than \$1,000,000/\$1,000,000/\$1,000,000. *Coverage for owners, officers and/or partners shall be included in the policy and a statement of such shall be made by the insuring producer on the face of the certificate.*
  6. Owners Protective Liability (OPL) (formerly Owners and Contractors Protective Liability (OCP) Insurance) shall be furnished by the Contractor naming St. Tammany Parish Government as the Named Insured and shall provide coverage in the minimum amount of \$1,000,000 combined single limit (CSL) each occurrence, \$2,000,000 aggregate. Any project valued in excess of \$3,000,000 shall be set by the Office of Risk Management. The policy and all endorsements shall be addressed to St. Tammany Parish Government, Office of Risk Management, P. O. Box 628, Covington, LA 70434.
  7. Builder's Risk Insurance shall be required on buildings, sewage treatment plants and drainage pumping stations, and shall be written on an "all-risk" or equivalent policy form in the amount of the full value of the initial Contract sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising 100% total value for the entire project including foundations. Deductibles should not exceed \$5,000 and Contractor shall be responsible for any and all policy deductibles. This insurance shall cover portions of the work stored off the site, and also portions of the work in transit. In addition, Installation Floater

Insurance, on an “all-risk” form, will be carried on all pumps, motors, machinery and equipment on the site or installed. Both the Builder’s Risk Insurance and the Installation Floater Insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors and shall terminate only when the Project has been accepted. St. Tammany Parish Government, P. O. Box 628, Covington, LA 70434 shall be the first named insured on the Builder’s Risk and Installation Floater Insurance.

8. Professional Liability (errors and omissions) insurance in the sum of at least One Million Dollars (\$1,000,000) per claim with Two Million Dollars (\$2,000,000) annual aggregate.
  9. An umbrella policy or excess policy may be required and/or allowed to meet minimum coverage limits, subject to the review and approval by St. Tammany Parish Government, Office of Risk Management.
- 24.08 All policies of insurance shall meet the requirements of the Parish of St. Tammany prior to the commencing of any work. The Parish of St. Tammany has the right, but not the duty, to approve all insurance policies prior to commencing of any work. If at any time, it becomes known that any of the said policies shall be or becomes unsatisfactory to the Parish of St. Tammany as to form or substance; or if a company issuing any such policy shall be or become unsatisfactory to the Parish of St. Tammany, the Contractor shall promptly obtain a new policy, timely submit same to the Parish of St. Tammany for approval and submit a certificate thereof as provided above. The Parish agrees to not unreasonably withhold approval of any insurance carrier selected by Contractor. In the event that Parish cannot agree or otherwise authorize said carrier, Contractor shall have the option of selecting and submitting new insurance carrier within 30 days of said notice by the Parish. In the event that the second submission is insufficient or is not approved, then the Parish shall have the unilateral opportunity to thereafter select a responsive and responsible insurance carrier all at the cost of Contractor and thereafter deduct from Contractor's fee the cost of such insurance.
- 24.09 Upon failure of Contractor to furnish, deliver and/or maintain such insurance as above provided, the contract, at the election of the Parish of St. Tammany, may be forthwith declared suspended, discontinued or terminated. Failure of the Contractor to maintain insurance shall not relieve the Contractor from any liability under the contract, nor shall the insurance requirements be construed to conflict with the obligation of the Contractor concerning indemnification.
- 24.10 Contractor shall maintain a current copy of all annual insurance policies and provide same to the Parish of St. Tammany as may be reasonably requested.
- 24.11 It shall be the responsibility of Contractor to require that these insurance requirements are met by all contractors and sub-contractors performing work for and on behalf of Contractor. Contractor shall further ensure the Parish is named as additional insured on all insurance policies provided by said contractor and/or sub-contractor throughout the duration of the project, and that renewal certificates for any policies expiring prior to the Parish’s final acceptance of the project shall be furnished to St. Tammany Parish Government, Department of Legal, Office of Risk Management, without prompting.

**NOTICE:**

*These are only an indication of the coverages that are generally required. Additional coverages and/or limits may be required for projects identified as having additional risks or exposures. Please note that some requirements listed may not necessarily apply to your specific services. St. Tammany Parish Government reserves the right to remove, replace, make additions to and/or modify any and all of the insurance requirement language upon review of the final scope of services presented to Department of Legal, Office of Risk Management prior to execution of a contract for services.*

**For inquiries regarding insurance requirements, please contact:**

**St. Tammany Parish Government**

**Legal Department**

**Office of Risk Management**

**P. O. Box 628**

**Covington, LA 70434**

**Telephone: 985-898-2797**

**Fax: 985-898-3070**

**Email: [riskman@stpgov.org](mailto:riskman@stpgov.org)**

24.12 Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's Responsibility for payment of damages resulting from its operations under this Contract.

25.00 OWNER'S RIGHT TO OCCUPANCY

25.01 The Owner shall have the right to use, at any time, any and all portions of the Work that have reached such a stage of completion as to permit such occupancy, provided such occupancy does not hamper the Contractor or prevent its efficient completion of the Contract or be construed as constituting an acceptance of any part of the Work.

25.02 The Owner shall have the right to start the construction of houses, structures or any other building concurrent with the Contractor's Work.

26.00 SURVEY HORIZONTAL AND VERTICAL CONTROL

26.01 The Owner shall provide surveys for construction to establish reference points which in its judgment are necessary to enable Contractor to layout and proceed with its Work. Contractor shall be responsible for surveying and laying out the Work and shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of the Owner. Contractor shall report to Owner whenever any reference point is lost or destroyed and the Owner shall decide if the reference point shall be replaced by its or the Contractor's forces.

26.02 The Contractor shall establish lines and grades with its own forces in sufficient number and location for the proper execution of the Work.

- 26.03 If the Contractor, during the construction, damages the established property corners and/or other markers and thereafter requests the Owner to re-stake same in order to complete the project, this expense will be borne solely by the Contractor.
- 27.00 TERMINATION OF THE CONTRACT, OWNER'S AND CONTRACTORS RIGHT TO STOP WORK.
- 27.01 If the Contractor should be adjudged bankrupt (voluntarily or involuntarily) or if it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of its insolvency, or if it should persistently or repeatedly refuse or should fail (except in cases for which extension of time is provided) to supply enough properly skilled workmen or proper materials, or if it should fail to make prompt payment to Subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Owner, or otherwise be guilty of a substantial violation of any provision of the Contract, then the Owner, upon the certificate of the Owner that, in its unilateral discretion and judgment, believes sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor ten (10) calendar days written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools and appliances thereon and finish the Work by whatever method the Owner may deem expedient.
- 27.02 Failure of the Contractor to start the Work within the time limit specified herein or substantial evidence that the progress being made by the Contractor is sufficient to complete the Work within the specified time shall be grounds for termination of the Contract by the Owner.
- 27.03 Before the Contract is terminated, the Contractor and its surety will first be notified in writing by the Owner of the conditions which make termination of the Contract imminent. When after ten (10) calendar days' notice is given and if satisfactory effort has not been made by the Contractor or its surety to correct the conditions, the Owner may declare, in its exclusive discretion, that the Contract is terminated and so notify the Contractor and its surety accordingly.
- 27.04 Upon receipt of notice from the Owner that the Contract has been terminated, the Contractor shall immediately discontinue all operations. The Owner may then proceed with the Work in any lawful manner that it may elect until Work is finally completed.
- 27.05 The exclusive right is reserved to the Owner to take possession of any machinery, implements, tools or materials of any description that shall be found upon the Work, to account for said equipment and materials, and to use same to complete the Project. When the Work is finally completed, the total cost of same will be computed. If the total cost is less than the Contract Price, the difference will not be paid to the Contractor or its surety.
- 27.06 In case of termination, all expenses incident to ascertaining and collecting losses under the Bond, including legal services, shall be assessed against the Bond.
- 27.07 If the Work should be stopped under any order of any court or public authority for period of sixty (60) calendar days, through no act or fault of the Contractor or anyone employed

by it, or if the Owner shall fail to pay the Contractor within a reasonable time any sum certified by the Owner, then the Contractor may, upon ten (10) calendar days written notice to the Owner, stop Work or terminate this Contract and recover from the Owner payment for all Work properly and professionally executed in a workmanlike manner. This loss specifically includes actual cost of materials and equipment, together with all wages inclusive of all federal, state, and local tax obligations. This loss specifically includes reimbursement of all insurances on a pro-rata basis from the date of termination to date of policy period. This loss excludes and specifically does not include recovery by the Contractor for lost profit, indirect & direct expenses, overhead, and the like.

## 28.00 PAYMENTS TO THE CONTRACTOR

- 28.01 Monthly certificates for partial payment, in a form approved by the Owner, shall be transmitted to the Owner upon receipt from the Contractor and acceptance by the Owner. In accordance with LSA-R.S. 38:2248(A), when the Contract Price is less than five hundred thousand dollars, these certificates shall be equal to ninety percent (90%) of both the Work performed and materials stored at the site; and when the Contract Price is five hundred thousand dollars or more, these certificates shall be equal to ninety-five percent (95%) of both the Work performed and materials stored at the site. Partial payment certificates shall include only Work, materials and equipment that are included in official Work Order and which meet the requirements of plans, Specifications and Contract Documents. These monthly estimates shall show the amount of the original estimate for each item, the amount due on each item, the gross total, the retained percentage, the amount previously paid and the net amount of payment due.
- 28.02 After final completion and acceptance by the Owner of the entire Work, and when the Contract Price is less than five hundred thousand dollars, the Owner shall issue to the Contractor Certificate of Payment in sum sufficient to increase total payments to ninety percent (90%) of the Contract Price. After final completion and acceptance by the Owner of the entire Work, and when the Contract Price is five hundred thousand dollars or more, the Owner shall issue to the Contractor Certificate of Payment in sum sufficient to increase total payments to ninety-five percent (95%) of the Contract Price.
- 28.03 When the Contract Price is less than five hundred thousand dollars, the final payment certificate of the remaining ten percent (10%) of the Contract Price, minus any deduction for deficient or Defective Work or other applicable deductions, will be issued by the Owner forty-five (45) days after filing acceptance in the Mortgage Office of the Parish and a Clear Liens and Privilege Certificate has been secured. When the Contract Price is five hundred thousand dollars or more, the final payment certificate of the remaining five percent (5%) of the Contract Price, minus any deduction for deficient or Defective Work or other applicable deductions, will be issued by the Owner forty-five (45) days after filing acceptance in the Mortgage Office of the Parish and a Clear Liens and Privilege Certificate has been secured. Before issuance of the final payment certificate, the Contractor shall deposit with the Owner a certificate from the Clerk of Court and Ex-Officio Recorder of Mortgages from the Parish in which the Work is performed to the effect that no liens have been registered against Contract Work.
- 28.04 When, in the opinion of the Contractor, the Work provided for and contemplated by the Contract Documents has been substantially completed, the Contractor shall notify the

Owner in writing that the Work is substantially complete and request a final inspection. The Owner shall proceed to perform such final inspection accompanied by the Contractor. Any and all Work found by this inspection to be Defective or otherwise not in accordance with the plans and Specifications shall be corrected to the entire satisfaction of the Owner and at the sole expense of the Contractor. If the Contract is found to be incomplete in any of its details, the Contractor shall at once remedy such defects, and payments shall be withheld and formal acceptance delayed until such Work has been satisfactorily completed.

- 28.05 If payment is requested on the basis of materials and equipment not incorporated in the Work, but delivered and suitably stored and protected from damage and theft at the site, the Request for Payment shall also be accompanied by such data, satisfactory to the Owner, as will establish Owner's title to the material and equipment and protect its interest therein, including applicable insurance.
- 28.06 Each subsequent Request for Payment shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied to discharge in full all of Contractor's obligations reflected in prior Request for Payment.
- 28.07 Each subsequent request for payment shall include an affidavit by Contractor that Contractor, all subcontractors, agents, material suppliers and all other persons supplying material to the project upon which State of Louisiana and/or St. Tammany sales taxes are lawfully due have paid these taxes and that all supplies and materials purchased for this project and for which Contractor has been paid have had all lawfully due State and/or St. Tammany sales taxes paid.
- 28.08 The Bid Proposal, unless otherwise modified in writing, and the Contract constitute the complete Project. The Contract Prices constitute the total compensation payable to Contractor and the cost of all of the Work and materials, taxes, permits and incidentals must be included into the Bid submitted by the Contractor and included into those items listed on the Proposal.
- 28.09 Any additional supporting data required by the Owner in order to substantiate Contractor's request for payment shall be furnished by Contractor at no cost to the Owner.
- 28.10 Owner may withhold from payment to Contractor as may be necessary to protect itself from loss on account of:
- (1) Defective and/or inferior work;
  - (2) Damage to the property of Owner or others caused by Contractor;
  - (3) Failure by Contractor to make payments properly to sub-contractors or to pay for labor, materials or equipment used on this project;
  - (4) Failure by Contractor to pay taxes due on materials used on this project;
  - (5) Damage by Contractor to another Contractor;
  - (6) Insolvency;
  - (7) Bankruptcy, voluntary or involuntary;
  - (8) Revocation of corporate status;
  - (9) Failure to follow corporate formalities;
  - (10) Unprofessional activities;
  - (11) Unworkmanlike performance;
  - (12) Fraud and/or misrepresentation of any kind.

29.00 ACCEPTANCE AND FINAL PAYMENT(S)

- 29.01 Upon receipt of written notice from Contractor that the work is substantially complete and usable by Owner or the Public in suitable manner, the Owner and the Contractor shall jointly inspect the work.
- 29.02 If the Owner by inspection determines that the work is not substantially complete in a suitable manner for use by the Owner or the Public, then the Owner shall so notify the Contractor in writing stating such reason. All reasons need not be disclosed unless actually known. The Owner is afforded an opportunity to amend said notices as are reasonably possible.
- 29.03 If the Owner by its inspection determines that the work is substantially complete, it shall prepare a list of all items not satisfactorily completed and shall notify the Contractor and Owner in writing that the work is substantially complete and subject to satisfactory resolution of those items on the list (punch list). Punch lists may be amended from time to time by Owner in the event that additional deficiencies are discovered. In accordance with LSA-R.S. 38:2248(B), any punch list generated during a construction project shall include the cost estimates for the particular items of work the design professional has developed based on the mobilization, labor, material, and equipment costs of correcting each punch list item. The design professional shall retain his working papers used to determine the punch list items cost estimates should the matter be disputed later. The contract agency shall not withhold from payment more than the value of the punch list. Punch list items completed shall be paid upon the expiration of the forty-five (45) day lien period. The provisions of this Section shall not be subject to waiver.
- 29.04 Upon determination of substantial completeness with the punch list, the Contract Time is interrupted and the Contractor is given a reasonable time not to exceed thirty (30) consecutive calendar days to effect final completion by correcting or completing all of those items listed on the punch list. If the items on the punch list are not completed in a satisfactory manner within the thirty day period, then the Contract Time will begin to run again and will include for purposes of determining liquidated damages the thirty day period the grace period being withdrawn.
- 29.05 Upon receipt by Owner of written determination that all work embraced by the contract has been completed in a satisfactory manner, the Owner shall provide a written acceptance to Contractor who shall record Owner's written acceptance with the recorder of Mortgages, St. Tammany Parish. The Contractor shall properly prepare, submit and pay for all costs associated with said Acceptance. The Contractor is also responsible for preparation, re-submission and payment of any and all updated certificates.
- 29.06 Retainage monies, minus those funds deducted in accordance to the requirements of this agreement including but not limited to Paragraph 28.10, shall be due Contractor not earlier than forty-six (46) calendar days after recordation of certificate of Owner's acceptance provided the following:
- (1) Contractor shall prepare, secure, pay for and submit clear lien and privilege certificate, signed and sealed by Clerk of Court or Recorder of Mortgages,

Parish of St. Tammany and dated at least forty-six (46) days after recordation of certificate of acceptance;

- (2) Ensure that the official representative of the Owner has accepted as per LSA-R.S. 38:2241.1, *et seq.* and that all following sub-sections have been properly satisfied as per law;
- (3) Ensure that all signatures are affixed and that there exists the requisite authority for all signatures;
- (4) Ensure accurate and proper legal descriptions;
- (5) Properly identify all parties and/or signatories;
- (6) Properly identify all mailing addresses;
- (7) Correctly set for the amount of the contract, together with all change orders;
- (8) Set out a brief description of the work performed;
- (9) Reference to any previously recorded contract, lien or judgment inscription that may affect the property;
- (10) Certification that substantial completion has occurred, together with any applicable date(s);
- (11) Certification that no party is in default and/or that the project has been abandoned.

29.07 After securing the clear lien and privilege certificate the Contractor shall prepare its final application for payment and submit to Owner. The Owner shall approve application for payment, or state its objections in writing and forward to Contractor for resolution.

### 30.00 NOTICE AND SERVICE THEREOF

30.01 Any Notice to Contractor from the Owner relative to any part of this Contract shall be in writing and shall be considered delivered and the service thereof completed when said notice is posted; by certified mail, return receipt requested to the said Contractor at its last given address, or delivered in person to said Contractor or its authorized representative on the Work.

### 31.00 INTENTION OF THESE GENERAL CONDITIONS

31.01 These General Conditions shall be applicable to all contracts entered into by and between the Owner and Contractors, except as may be altered or amended with the consent of the Owner, and/or provided for in the Special Conditions of each contract. Contractor shall be presumed to have full knowledge of these General Conditions which shall be applicable to all contracts containing these General Conditions, whether Contractor has obtained a copy

thereof or not.

### 32.00 SEVERABILITY

32.01 If any one or more or part of any of the provisions contained herein and/or in the Specifications and Contract for the Work shall for any reason be held invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement or attachment, but it shall be construed as if such invalid, illegal, or unenforceable provision or part of a provision had never been contained herein.

32.02 **CHANGING THESE CONDITIONS:** Owner reserves the right to change or modify these General Conditions as it deems best, or as required by law. The General Conditions may also be modified for a particular project by the use of Special Conditions prior to the issuance of the Advertisement for Bid. However, once an advertisement for bid is made for any specific project, any changes to the General Conditions as they affect that specific project must be made in writing and issued via an addendum in accordance with State Law.

### 33.00 LAW OF THE STATE OF LOUISIANA

33.01 The Contract Documents shall be governed by the Law of the State of Louisiana.

33.02 The Contractor agrees to pay reasonable attorney's fees and other reasonable attendant costs, in the event that it becomes necessary for the Owner to employ an attorney in order to enforce compliance with or any remedy relating to any covenants, obligations, or conditions imposed upon the Contractor by this Agreement. Attorney fees shall be based upon the prevailing hourly rate of attorney rates in the private sector. In no case shall the hourly rate be less than \$175.00 per hour. All attorney fees collected shall be paid the operating budget of the Office of the Parish President.

33.03 The jurisdiction and venue provisions shall apply to all contractors, sureties, and subcontractors. The 22nd Judicial District for the Parish of St. Tammany shall be the court of exclusive jurisdiction and venue for any dispute arising from these General Conditions and/or any contract executed in conjunction with these General Conditions. All parties specifically waive any rights they have or may have for removal of any disputes to Federal Court, or transfers to different State District Court.

33.04 Contractor warrants that it has and/or had received a copy of these General Conditions at all times material hereto; Contractor further agrees that it has read and fully and completely understands each and every condition herein.

33.05 The property description will be more fully set out by an attached exhibit.

33.06 The Contractor warrants that it has the requisite authority to sign and enter this agreement.

33.07 It is specifically understood and agreed that in the event Contractor seeks contribution from the Parish or pursues its legal remedies for any alleged breach of this agreement by the Parish, then the following list of damages **SHALL NOT BE RECOVERABLE BY**

CONTRACTOR. This list includes, but is not limited to:

1. indirect costs and/or expenses;
2. direct costs and/or expenses;
3. time-related costs and/or expenses;
4. award of extra days;
5. costs of salaries or other compensation of Contractor's personnel at Contractor's principal office and branch offices;
6. expenses of Contractor's principal, branch and/or field offices;
7. any part of Contractor's capital expenses, including any interest on Contractor's capital employed for the work;
8. any other charges related to change orders;
9. overhead and general expenses of any kind or the cost of any item not specifically and expressly included in Cost of Work.

### 33.08 DEFAULT AND WAIVERS

It is understood that time is of the essence. It is specifically understood between the parties that Contractor waives any and all notice to be placed in default by the Owner. This subsection shall supersede and prime any other subsection herein above that is in conflict. The Owner specifically reserves its right and specifically does not waive the requirement to be placed in default by the Contractor as per law.

33.09 St. Tammany Parish Government contracts to be awarded are dependent on the available funding and/or approval by members designated and/or acknowledged by St. Tammany Parish Government. At any time St. Tammany Parish Government reserves the right to cancel the award of a contract if either or both of these factors is deficient.

33.10 It is the Parish's policy to provide a method to protest exclusion from a competition or from the award of a contract, or to challenge an alleged solicitation irregularity. It is always better to seek a resolution within the Parish system before resorting to outside agencies and/or litigation to resolve differences. All protests must be made in writing, and shall be concise and logically presented to facilitate review by the Parish. The written protest shall include:

1. The protester's name, address, and fax and telephone numbers and the solicitation, bid, or contract number;
2. A detailed statement of its legal and factual grounds, including a description of the resulting prejudice to the protester;
3. Copies of relevant documents;
4. All information establishing that the protester is an interested party and that the protest is timely; and
5. A request for a ruling by the agency; and a statement of the form of relief requested.

The protest shall be addressed to Mr. Anthony Smith, Director of Procurement, St. Tammany Parish Government, P.O. Box 628, Covington, LA 70434.

The protest review shall be conducted by the Parish Procurement Department.

Only protests from interested parties will be allowed. Protests based on alleged solicitation improprieties that are apparent before bid opening, or the time set for receipt of initial proposals must be filed with and received by the Procurement Department BEFORE those deadlines.

Any other protest shall be filed no later than ten (10) calendar days after the basis of the protest is known, or should have been known (whichever is earlier).

The Parish will use its best efforts to resolve the protest within thirty (30) days of the date that it is received by the Parish. The written response will be sent to the protestor via mail and, fax, if a fax number has been provided by the protestor. The protester can request additional methods of notification.

Last day to submit questions and/or verification on comparable products will be no later than 2:00 pm CST, seven (7) working days prior to the opening date of the bid/proposal due date. Further any questions or inquires must be submitted via fax to 985-898-5227, or via email to [Purchasing@stpgov.org](mailto:Purchasing@stpgov.org). Any questions or inquires received after the required deadline to submit questions or inquires will not be answered.

DIVISION

1

GENERAL REQUIREMENTS

## **SECTION GR**

### **GENERAL REQUIREMENTS**

#### **PART 1 - GENERAL**

##### 1.1 GENERAL:

- A. This specification Section is intended to augment the provisions of the General Conditions of the Contract for Construction and Supplementary General Conditions of the Contract for Construction. The specific requirements of those documents shall supersede in the event of direct conflict with any provision of this specification Section as stated herein.

##### 1.2 SUMMARY OF THE WORK:

- A. The project consists of the **New Building for Safe Haven Training/ Education Center**. The work shall include, but not be limited to, **new building construction including civil, structural, architectural, mechanical, electrical, associated site work** and other work as shown in the Contract Documents.

##### 1.3 DEFINITIONS:

- A. When the word "Architect" is used herein it refers to: **Burgdahl and Graves - A.I.A. Architects, 2550 Belle Chasse Hwy - Suite 130, Gretna, LA 70053, 504-366-4433, FAX 504-366-0102.**
- B. When the word "Owner" is used herein it refers to: **The Parish of St. Tammany**, or their designated agent.

##### 1.4 INDEMNITY AND INSURANCE:

- A. General Contractor shall name the Architect as an additional named insured for the required Commercial General Liability Insurance as called for in the General Conditions bound in the Project Manual. Evidence of coverage must be submitted prior to commencement of any work.

##### 1.5 TEMPORARY FACILITIES:

- A. Utilities: The General Contractor may utilize existing site services for all necessary power, water, etc. to prosecute the work of this contract. Absolutely no interruption to any building and adjacent site services will be allowed without specific consent of the Owner and Architect. General Contractor shall furnish heat as required to protect materials and work from cold and dampness.
- B. Telephone: The General Contractor shall maintain a telephone on-site for the duration of the project (cellular phone permitted).
- C. Temporary Toilets: The General Contractor shall provide adequate sanitary facilities in conformance with all Codes for employee use.
- D. Site Office: The General Contractor shall provide an office on the site throughout the course of construction.
- E. Temporary Stairs, Ladders, Scaffolding, and Closures: The General Contractor shall provide and maintain temporary stairs and ladders as required for proper completion of the work by all trades. Special scaffolding required by any trade shall be provided by that trade. Provide closures for all exterior openings as soon as construction warrants protecting the work from the weather, unauthorized entry, etc.

##### 1.6 PROJECT CLOSE-OUT:

- A. Record Drawings: During the process of the work, the General Contractor shall keep on the site a separate set of drawings and specifications used solely for the purpose of marking in red all changes to the work to show deviation from the original Contract Documents. Record Drawings shall also reflect changes in the work due to issued Addenda, Change Orders, and Field Directives. The information from the marked-up drawings and specifications shall then be transferred by General Contractor to reproducible form (bond for drawings, corrected photocopies

for specifications) and returned to the Architect for delivery to Owner upon completion of the work. See specification Section 01700 – Closeout Procedures.

**PART 2 – PRODUCTS**

Not Applicable

**PART 3 – EXECUTION**

Not Applicable

**END OF SECTION**

**SECTION SP**

**SPECIAL PROVISION**

**WORK STOPPAGE DUE TO PUBLICLY DECLARED EMERGENCY**

If there is an emergency declared by the Federal, State or Local government in St. Tammany Parish or in any portion thereof, then all work on this project shall cease until such time as the contractor is instructed to resume work by Department Director (no one else) who has jurisdiction over the project.

If there is any type of work which must proceed to prevent harm to persons or property, or damage to the project itself; then contractor should immediately contact the Department Director for necessary instructions. If contractor is unable to contact the Department Director, contractor may perform the work necessary to prevent such harm in accordance with industry safety standards.

Contractor shall be entitled to an extension of time for the period of the stoppage, but shall not be entitled to any additional compensation by reason thereof.

**END OF SECTION**

## **SECTION 01025**

### **APPLICATIONS FOR PAYMENT**

#### **PART 1 - GENERAL**

##### 1.1 DESCRIPTION OF WORK:

###### A. Work Specified in This Section:

1. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.

###### B. Related Work Specified Elsewhere:

1. Section 01300 - Submittals

##### 1.2 SCHEDULE OF VALUES:

- A. The Schedule of Values shall be submitted on AIA-G702 and AIA-G703 forms and shall be in sufficient detail to show each phase of the work of each section of the Specifications and each line item shall further include a separate listing for Total Cost of Labor and Total Cost for Materials and Equipment.
- B. The Contractor shall submit such data as may be required by the Architect to establish the reasonableness of the value assigned to the labor and/ or materials for each line item.
- C. In phased projects, the Schedule of Values shall be so arranged that each phase of the project is scheduled separately with line items for each of the various portions of the Work which constitute that phase. For each item, the Schedule of Values shall show separate line items for labor and materials.
- D. At the time of submitting the Schedule of Values, the Contractor shall also submit an estimate of the amount of each Request for the Owner's use in planning cash flow for the Project. It is understood that actual amounts requested by the Requests for Payment may not agree with this estimate.

##### 1.3 APPLICATIONS FOR PAYMENT:

- A. Unless otherwise agreed between the Owner and Contractor, the Contractor shall submit his requests for payment in the form provided by the owner not later than the twentieth (20th) day of each month. Requests shall be based on work performed during the period ending with the date of request. The Owner will make a partial payment to the Contractor based on Contractor's requests duly certified and approved by the Architect by the twenty-fifth (25th) of the following month.
- B. Until Substantial Completion, the Owner will hold a retainage from each progress payments in accordance with the General Conditions.
- C. Each Request for Payment shall be accompanied with a monthly updated and signed progress schedule as prepared by the Project Coordinator and all necessary Owner requested forms. No application for Payment(s) received during this project, excluding the Application for Final Payment, will be certified to the Owner for payment until the signed, updated progress schedule has been received by the Architect.

##### 1.4 STORED MATERIALS:

- A. In requesting payment for materials stored on or off the site, the Contractor shall submit with his Application for Payment the following:
  1. An itemized list of the stored material prepared in sufficient detail to identify the materials and their value.
  2. Evidence such as bills of sale or such other proof as may be requested by the Owner or Architect to substantiate that the materials listed have been paid for by the Contractor, or for

materials stored at the site only, a notarized statement from the materials supplier stating that the materials will become the property of the Owner upon payment by the Owner to the Contractor.

B. In addition for material stored off the site, the Contractor shall submit with his Application for Payment the following:

1. Evidence that the materials are stored at the location previously agreed to in writing as provided by the General Conditions. No payment will be made for material stored off the site until the storage location has been agreed upon in writing.
2. Evidence that the storage location is bonded.
3. Evidence that the materials are insured while in storage and while in transit to the site.
4. Evidence that transportation to the site will be provided.

C. The materials may be reviewed in their storage location by the Architect. This inspection, if performed, is an extra service for which the Owner shall pay the Architect and for which the Owner shall be reimbursed by the Contractor by Change Order.

#### 1.5 PROGRESS PAYMENTS:

A. The Contractor shall provide with each Application for Payment:

1. Updated progress schedule
2. Completed Owner requested form and documents
3. Evidence of stored materials, (if any)
4. Review of record documents with A/E

#### 1.6 FINAL PAYMENT:

A. At the completion of the Project prior to receiving final payment, the Contractor shall furnish the Owner, through the Architect, properly signed and notarized waivers of lien from all subcontractors employed and material suppliers furnishing materials for the Project. Such waivers shall be submitted before final payment will be processed to the Owner by the Architect.

B. Administrative actions and submittals that shall proceed or coincide with this application include:

1. Clear Lien and Privilege Certificate
2. Occupancy permits and similar approvals
3. Warranties (guarantees) and maintenance agreements
4. HVAC Systems Test/ adjust balance records
5. Operation and Maintenance instructions
6. Start-up performance reports
7. Final cleaning
8. Consent of Surety
9. Verification of continued insurance
10. Final progress photographs (if required)
11. Completion of Project closeout requirements
12. Completion of items specified for completion after Substantial Completion
13. Assurance that unsettled claims will be settled prior to payment
14. Assurance that Work not complete and accepted will be completed without delay
15. Transmittal of required Project construction records to Owner
16. Certified property survey (if required)
17. Proof that taxes, fees and similar obligations have been paid
18. Removal of temporary facilities and services
19. Removal of surplus materials, rubbish and similar elements
20. Change of door locks to Owner's access
21. Accurate As-Builts and Record Drawings
22. Americans with Disabilities Act – Certificate of ADA/ ABA Compliance

**PART 2 - PRODUCTS**

Not Applicable

**PART 3 - EXECUTION**

Not Applicable

**END OF SECTION**

## **SECTION 01040**

### **PROJECT COORDINATION/ CONTRACTOR'S USE OF PREMISES**

#### **PART 1 - GENERAL**

##### **1.1 SCOPE:**

- A. The scope of this Section includes the General Contractor's responsibilities when performing work in and around occupied sites. Areas of particular concern include the following:
  - 1. Protecting the site from damage, weather, and unauthorized entry
  - 2. Restrictions for General Contractor's use of the premises
  - 3. Work Sequencing
  - 4. Maintaining traffic flow in parking lots, drives, and on public streets
- B. The General Contractor is responsible for construction means, methods and techniques, etc., all to be in accordance with the provisions of these Specifications and applicable Code authorities.

##### **1.2 RELATED WORK:**

- A. The requirements of this Section shall coordinate with and govern all aspects of the work shown in the Bidding and Contract Documents. The General Contractor is responsible for supervising all aspects of the work, whether by their own forces or by subcontractors. He shall also make sure that the provisions of this Section are made a part of contract agreements with all suppliers, subcontractors, trades, etc. involved with the prosecution of the work.

##### **1.3 QUALITY ASSURANCE:**

- A. General: Unless conflicting and more restrictive requirements are indicated, comply with standards and recommendations of the following industry standards.
  - 1. Current edition of local Building Code and Zoning Ordinances
  - 2. Uniform Plumbing Code, latest edition
  - 3. Uniform Mechanical Code, latest edition
  - 4. NFPA #70 National Electric Code, latest edition
  - 5. State Fire Marshal's regulations, including NFPA 101 - Life Safety Code, latest edition
  - 6. State Department of Labor and Industries regulations
  - 7. State General Safety & Health Standards
  - 8. National Fire Protection Association Codes
  - 9. Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines, latest edition
  - 10. International Building Code, latest edition

##### **1.4 SUBMITTALS:**

- A. Provide written work scheduling information for the Owner Representative's use. Tentative schedule of upcoming work and shall be updated on a weekly basis.

##### **1.5 JOB CONDITIONS:**

- A. The General Contractor shall be required to visit the site of the project and shall assume full responsibility for all existing conditions which may affect (or be affected by) work included in his contract. Coordinate location of existing site and building structures, elements, utilities, furniture/ furnishings, and other built conditions, and fully protect during course of construction. Repairs to, or replacement of, any existing conditions, construction, building contents, etc. damaged during course of work shall be the responsibility of the General Contractor, at no additional cost to the Owner. Match existing conditions, details, fit and finish, color, etc.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS:**

- A. General Contractor shall provide all materials and equipment necessary to protect the site and adjacent properties from weather and work-related activity for the entire length of the Contract.
- B. Erosion Control:
  - 1. See drawings and specifications (Section 01401) for erosion control requirements to be maintained for life of contract.
- C. Temporary Fences and Gates:
  - 1. When building temporary fences, gates, etc., the design, materials, installation, and means and methods used shall be as indicated on drawings. Prior to erection, coordinate with Owner and Architect for approval of proposed work. Access gate locations shall be approved by Architect. Gates shall be closed and locked at all times.
- D. Miscellaneous Materials:
  - 1. In addition to the materials listed herein, provide all other materials, components, systems, devices, equipment, etc. recognized in the industry as being effective for the particular task at hand.

## **PART 3 - EXECUTION**

### **3.1 GENERAL REQUIREMENTS:**

- A. It is intended that the General Contractor provide all materials, methods, means, equipment, etc. as necessary to provide necessary protection for adjacent properties and to protect site elements during the course of construction. The lists of materials and services referenced herein are not meant to be all inclusive; the General Contractor shall bear all costs associated with providing all necessary protective measures.
- B. Refer to Section 02110 – Demolition, and provide the protections specified therein as are applicable to the work of this Section. Coordinate as required.

### **3.2 PROTECTION OF SITE:**

- A. The safety of the general public and site workers during the performance of this Contract is of primary importance. Take all precautions to protect users of site and adjacent areas from construction procedures. Install barriers, fences, partitions, etc. as required to prevent entry of unauthorized persons into work areas maintain at all times.
- B. All on-site storage of equipment and materials shall be restricted to areas designated by the Owner's Representative, enclosed by chainlink fences with locking gates. Install locking barriers at perimeter of each work area sufficient to restrict access within to General Contractor's forces.
- C. No storage or staging allowed within drip lines of existing trees.

### **3.3 RESTRICTIONS FOR CONTRACTOR'S USE OF PREMISES:**

- A. Schedule the work and conduct operations in such a manner as to avoid interference with the use of, or passage to and from, adjacent facilities. Streets, drives, and parking lots to remain open for public usage (coordinate with authorities having jurisdiction as required). Do not block exit doors, fire lanes, and other means of egress (buildings and site).

### **3.4 WORK SEQUENCE:**

- A. Coordinate construction schedule and operations with Owner's Representative.
- B. Required means of egress from buildings must be maintained in use and in accordance with the applicable Codes at all times during construction.

3.5 TRAFFIC CONTROL:

- A. Contractor's work affecting the use of public streets shall be coordinated with St. Tammany Parish and St. Tammany Parish Sheriff's Office to maintain free flow of traffic to the site.
- B. No street closures shall be permitted without consent of authorities having jurisdiction.
- C. Comply with all applicable Parish ordinances.

**END OF SECTION**

## **SECTION 01100**

### **ALTERNATES**

#### **PART 1 – GENERAL**

##### 1.1 SCOPE:

A. This Section includes:

1. Administrative and procedural requirements for Alternates.
2. Schedule and general description of Alternates.

##### 1.2 RELATED SECTIONS:

- A. Louisiana Uniform Public Work Bid Form
- B. The general provisions of the Contract, including the conditions of the Contract (General, Supplementary, and other Conditions) and Division 1 as appropriate, apply to the Work specified in this Section.

##### 1.3 DEFINITIONS:

- A. Alternate: An Alternate is a change in either the amount of construction to be completed, or in the products, materials, equipment, systems or installation methods described in Contract Documents.
  1. An Alternate Bid is a cost, proposed by Bidders and stated on the Bid Form, that may be added to or deducted from the Base Bid for the change in construction activities defined by the Alternate.
  2. The decision to accept or not accept any Alternate and the corresponding change in the Bid Sum is at the sole discretion of the Owner.
  3. Bidder must include all Alternates shown in Bid Form. Failure to comply may be a cause for rejection.
  4. The Alternate Bid amount shall include the Contractor's overhead and profit, and all costs for the change in construction activities, including related coordination, submittals, testing, adjusting and cleaning, and modifications and adjustments to other construction necessary for the proper implementation and incorporation of the Alternate.
  5. The stated sum of the Alternates shall not change for a period of 45 days after Bid.

##### 1.4 PROCEDURES:

- A. Coordination: Coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each accepted Alternate is complete and fully integrated into the project.
  1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Schedule: A "Schedule of Alternates" is included at the end of this Section.

#### **PART 2 – PRODUCTS**

Not Applicable

### **PART 3 – EXECUTION**

#### 3.1 **INSTALLATION:**

- A. General: The "Schedule of Alternates" contains requirements for execution necessary to achieve the Work under the Alternates.

#### 3.2 **BASE BID:**

- A. The Base Bid shall include all work included in the Contract Documents except for that work specifically indicated to be work of Alternate Bid items.

#### 3.3 **SCHEDULE OF ALTERNATES:**

- A. General: Provide all materials, labor, equipment and other items as required to fully perform and complete the Work of the Alternates described herein, in the areas delineated on the Drawings.

#### **B. Alternate Bid Item 1 – Additive Alternate – Interior Finishes:**

1. VCT to LVT - Drawings (Base Bid) calls for VCT (vinyl composition tile) on floors in rooms where scheduled per Finish Plan. In lieu of VCT flooring as scheduled, change flooring and install LVT (luxury vinyl tile) in those scheduled rooms.
2. Ceramic Tile Wainscot on Remaining Walls - Drawings (Base Bid) calls for ceramic tile wainscot over 5/8" cement board on restroom wet walls only. Add the ceramic tile wainscot over 5/8" cement board (with accent band pattern) on the remaining restroom walls.

#### **C. Alternate Bid Item 2 – Additive Alternate – Parking Lot Surfacing:**

1. Crushed Concrete to Poured Concrete - Drawings (Base Bid) calls for crushed concrete paving. In lieu of crushed concrete surfaced paving as shown, change to reinforced concrete paving lot as follows:
  - a. Provide 6" thick 4,000 psi concrete paving reinforced with 4x4-4/4 WWF mesh on a 6" minimum sand base compacted to 95% as needed to achieve finished lot elevations as shown on Site Plan. Provide doweled and sealed expansion joints spaced at approx. 24 feet o.c. each way with 24" long #5 smooth dowels at 12" o.c. Confirm joint layout with Architect.
  - b. Provide pre-formed metal key way control joints spaced at approx. 12 feet o.c. each way with 24" long #5 smooth dowels at 24" o.c.
  - c. Where parking lot concrete meets new sidewalk curb and at exist. street paving, provide sealed expansion joints with 24" long #5 smooth dowels at 12" o.c.
  - d. Provide 4" wide painted parking striping (9'-0" wide x 18'-0" long spaces, painted traffic yellow) in layout as shown on Site Plan.
  - e. Dowel the concrete wheel stops as shown on Site Plan with #5 rebar, 12" long into new concrete paving.

**END OF SECTION**

## **SECTION 01200**

### **PROJECT MEETINGS**

#### **PART 1 – GENERAL**

##### 1.1 DESCRIPTION OF WORK:

- A. This Section specifies administrative and procedural requirements for project meetings including but not limited:
  - 1. Pre-Construction Conference
  - 2. Pre-Installation Conference
  - 3. Progress Meetings
  - 4. Called Meetings
  - 5. Coordination Meetings

##### 1.2 RELATED WORK:

- A. Section 01040 – Project Coordination/ Contractor's Use of Premises
- B. Section 01315 – Progress Schedules

##### 1.3 PRE-CONSTRUCTION CONFERENCE:

- A. General: After notification that the Contract has been executed, the Architect shall arrange with the Owner and General Contractor, to conduct a Pre-Construction Conference held at the Project site. General Contractor shall be responsible to see that his principal subcontractors are in attendance and shall furnish to the Architect and Owner the following:
  - 1. Schedule of Values
  - 2. Updated list of subcontractors and material suppliers
  - 3. General Contractor's Construction Schedule
  - 4. Documentation, qualification data and certificates as required by Owner and Architect
- B. Attendees: The Owner, Architect, Architect's consultants, General Contractor, Project Superintendent and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
- C. Minimum Agenda: The Architect shall distribute data and discuss the following:
  - 1. Organizational arrangement of General Contractor's forces, personnel, subcontractors, material suppliers, and Architect
  - 2. Channels and procedures for communications
  - 3. Construction schedule, including sequence of critical Work
  - 4. Contract Documents, including distribution of required copies of original Documents and Revisions; Owner's acceptance/rejection of Alternates
  - 5. Process of Shop Drawings and other submitted data to Architect for review
  - 6. Process for field decisions and Change Orders
  - 7. Rules and regulations governing performance of Work
  - 8. Security
  - 9. Quality control
  - 10. Housekeeping
  - 11. Equipment deliveries and priorities
  - 12. Parking availability
  - 13. Office, work, and storage areas
  - 14. Use of premises
  - 15. Staging areas
  - 16. Preparation of Record Documents
  - 17. Working hours
  - 18. Policy for delay days as indicated by Owner

19. Mechanical systems – testing, adjusting and balancing

1.4 PRE-INSTALLATION CONFERENCES:

- A. Requirements: General Contractor shall arrange and conduct Pre-Installation Conferences at the site before each construction activity that requires coordination with other construction and as required per each individual specification section. General Contractor shall prepare the Pre-Installation Agenda, Meeting Minutes and distribute accordingly. Advise and verify with the Owner and Architect of scheduled meeting dates, as indicated on the General Contractor's Construction Schedule.
- B. Attendees: The Owner, Architect, Installer, Manufacturer Representative and others involved or affected by the installation.
- C. Purpose: Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:
  - 1. Contract Documents
  - 2. Options
  - 3. Related Change Orders
  - 4. Purchases
  - 5. Deliveries
  - 6. Shop Drawings, Product Data and quality control samples
  - 7. Possible conflicts
  - 8. Compatibility problems
  - 9. Time schedules
  - 10. Weather limitations
  - 11. Manufacturer's recommendations
  - 12. Compatibility of materials
  - 13. Acceptability of substrates
  - 14. Temporary facilities
  - 15. Space and access limitations
  - 16. Governing regulations
  - 17. Safety
  - 18. Inspection and testing requirements
  - 19. Required performance requirements
  - 20. Recording requirements
  - 21. Protection
- D. Reporting: Record significant discussions, agreements and disagreements of each conference, along with the approved Construction Schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Architect.
- E. Problems: Do not proceed if the Pre-Installation Conference cannot be held or if any outstanding issues are not resolved in writing. Initiate whatever actions are necessary to resolve outstanding issues to enhance the performance of Work and reconvene the conference at the earliest feasible date.

1.5 PROGRESS MEETINGS:

- A. Requirements: The General Contractor shall schedule and conduct progress meetings at regular monthly intervals, unless otherwise scheduled during construction. The General Contractor shall prepare agenda and meeting minutes and distribute accordingly.
- B. Attendees: The Owner, Architect, and General Contractor shall meet and review the current status and future expected progress of the project.
- C. Agenda: Review, correct and approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.
  - 1. General Contractor's Construction Schedule: Review progress since the last meeting. Determine status of each activity in relation to the General Contractor's Construction Schedule, whether on time, ahead or behind schedule. Determine how the work behind

schedule will be expedited; secure commitments from parties involved to do so. Discuss need for schedule revisions to ensure that current and subsequent activities will be completed within the Contract Time.

2. Review the present and future needs of the contractor, including but not limited to the following items:
  - a. Coordination requirements
  - b. Submittals
  - c. Open RFI's
  - d. Time
  - e. Sequences
  - f. Deliveries
  - g. Off-site fabrication problems
  - h. Access
  - i. Site utilization: The General Contractor's work space (i.e. storage and staging) is limited to the space as coordinated with Owner. The utility service must remain uninterrupted and in service throughout the construction process.
  - j. Temporary facilities and services
  - k. Hours of Work
  - l. Safety
  - m. Housekeeping
  - n. Quality and Work standards
  - o. Change Orders
  - p. Documentation of information for payment requests
- D. Reporting: After each progress meeting date, General Contractor shall send copies of meeting minutes and agendas to the Owner, Architect and other parties affected by the construction progress.
  1. Action: General Contractor is responsible for determining the action and for providing a date for the completion of each item requiring resolution.
- E. Schedule Updating: General Contractor shall revise the construction schedule prior to each progress meeting where revisions have been made. The General Contractor shall revise the General Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. The General Contractor shall issue the revised Schedule as specified.

#### 1.6 CALLED MEETINGS:

- A. Called meetings may be scheduled in addition to regularly scheduled Progress Meetings. All applicable personnel will be required to attend.

#### 1.7 COORDINATION MEETINGS:

- A. The Project Coordinator shall conduct project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special Pre-installation meetings.
- B. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

#### 1.8 RECORDING:

- A. The Owner reserves the right to electronically record the proceedings of any or all meetings.

### **PART 2 – PRODUCTS**

Not Applicable

**PART 3 – EXECUTION**

Not Applicable

**END OF SECTION**

## **SECTION 01300**

### **SUBMITTALS**

#### **PART 1 – GENERAL**

##### 1.1 GENERAL:

- A. This specification Section is intended to augment the provisions of Division 0 documents. The specific requirements of those documents shall supersede in the event of direct conflict with any provision of this specification Section as stated herein.

##### 1.2 DESCRIPTION OF WORK:

- A. Work Included in This Section:
  - 1. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including:
    - a. Submittal Schedule
    - b. Shop Drawings
    - c. Product Data
    - d. Samples

##### 1.3 SUBMITTAL PROCEDURES:

- A. Submittal Preparation:
  - 1. All submittals shall be submitted electronically to the Architect for review. If a submittal is over 25 pages (8-1/2 x 11 sheets) or if submittal is on oversized paper (larger than 11 x 17 sheets), a minimum of 2 hard copies (one for the Architect and one for the General Contractor) are required in addition to the electronic copy.
    - a. If General Contractor wants additional copies of review shop drawings for distribution to Subcontractors, he shall be responsible for making copies of marked-up shop drawings after Architect's review.
    - b. All engineering submittals (mechanical, electrical, structural, etc.) shall be submitted electronically and in hard copy format. A minimum of 5 hard copies shall be submitted for review.
  - 2. Place a permanent label, title block, or submittal data sheet (sample at the end of this Section) to the cover page of each submittal for identification.
  - 3. Include the following information on the label for processing and recording action taken:
    - a. Project name
    - b. Date
    - c. Name and address of Owner
    - d. Name and address of Architect
    - e. Name and address of General Contractor
    - f. Name, phone number, and address of subcontractor
    - g. Name, phone number, and address of supplier
    - h. Name and phone number of manufacturer and his representative
    - i. Number and title of appropriate Specification Section and Article/ Paragraph, as appropriate
    - j. Drawing number and detail references, as appropriate
    - k. General Contractor's review stamp

#### 1.4 SUBMITTAL SCHEDULE:

- A. The General Contractor shall prepare and submit to the Architect within **thirty (30) days** following the Date of Commencement a schedule of Shop Drawings and Submittals as required in the Contract Documents.
- B. Schedule shall list all submittals that have priority due to longer lead time for manufacture or fabrication or that impact other work.
- C. Processing Time:
  - 1. Allow time for submittal review, including time for resubmittals.
  - 2. Time for review shall commence on Architect's receipt of submittal.
  - 3. No extension of the Contract Time will be authorized due to failure to transmit submittals far enough in advance of the Work to permit processing, including resubmittals.
- D. Submittal log shall be updated by the General Contractor monthly until all submittals are approved by the Architect and related Consultants.

#### 1.5 STAFF NAMES:

- A. Within ten (10) days after the Notice to Proceed, submit a list of the General Contractor's principal staff assignments, including the Project Manager, Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their telephone numbers (including emergency telephone numbers).

#### 1.6 LIST OF SUBCONTRACTORS:

- A. The list of subcontractors required shall be submitted to the Architect not later than ten (10) days from Notice to Proceed. This list shall include the names of manufacturers, material suppliers, and installers proposed for each of the products, equipment, and materials to be incorporated into this project.
- B. The General Contractor shall furnish upon request adequate data on any named entity on the list in order to permit the Architect and Owner to conduct a proper evaluation. Failure to object to a manufacturer shall not constitute a waiver of any of the requirements of the Contract Documents, and all products furnished by the listed manufacturer must conform to such requirements.

#### 1.7 SHOP DRAWINGS:

- A. General:
  - 1. Each submittal shall be complete with a "Submittal Data" sheet completely filled out. A sample "Submittal Data" sheet is included at the end of this section.
  - 2. All submittals shall be dated and shall contain the project name; description or names of equipment; materials or equipment which are to be installed, reference to the Section of Specifications where it is specified and Drawing number where shown.
- B. Shop Drawings:
  - 1. Submit legible reproducible prints of each Shop Drawing. Each shall have a clear space for review comments. When phrase "by others" appears on Shop Drawings, the General Contractor shall indicate on drawing who is to furnish material or operations so marked before submitting to Architect.
  - 2. The responsibility for coordinating the Shop Drawings including technical data, capability (warranted and implied), sizing, color, texture, etc. shall be the sole responsibility of the General Contractor. The coordination between subcontractor and/ or material supplier shall be the responsibility of the General Contractor.
  - 3. General Contractor shall review and approve submittals prior to submission to Architect. Failure to do so may result in return of submittal to the General Contractor without Architect's review.

4. By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the General Contractor represents that he has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and the Contract Documents.
5. Architect reserved the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
6. When Shop Drawings are checked "resubmit", or words of like meaning, General Contractor shall correct and submit new reproducible prints for approval to the Architect. After completion of checking of each submission of Shop Drawing prints, the Architect will return prints to General Contractor.
7. The Architect will review each of the General Contractor's submittals one initial time and, should resubmittal be required, one additional time to verify that the reasons for resubmittal have been addressed by the General Contractor and corrections made. Should multiple resubmittals be required, the General Contractor may be subject to reimbursing the Owner for all costs incurred including the reasonable cost of the Architect's services made necessary to review such additional resubmittals.

1.8 SAMPLES:

- A. Unless otherwise specifically directed by the Architect, all Samples shall be of the precise article proposed to be furnished.
- B. When necessary for true color representation, samples shall be actual samples of the item to be installed. Printed color selector charts will not be acceptable.
- C. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.
- D. Refer to Specifications for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
- E. Submit all Samples in the quantity which is required to be returned plus one which will be retained by the Architect.

**PART 2 – PRODUCTS**

Not applicable

**PART 3 – EXECUTION**

Not applicable

SEE SUBMITTAL DATA SHEET NEXT PAGE

**END OF SECTION**

**SUBMITTAL DATA**

SUBMITTAL DATE:

NAME OF PROJECT:

OWNER:

ARCHITECT:

CONTRACTOR:

SUBCONTRACTOR:

SUPPLIER/ MANUFACTURER:

SPECIFICATION DIVISION NO.:

SPECIFICATION PARAGRAPH NO.:

DRAWING REFERENCE:

CONTRACTOR'S APPROVAL STAMP:

## **SECTION 01315**

### **PROGRESS SCHEDULES**

#### **PART 1 - GENERAL**

##### 1.1 GENERAL:

- A. This specification Section is intended to augment the provisions of Division 0 documents. The specific requirements of those documents shall supersede in the event of direct conflict with any provision of this specification Section as stated herein.

##### 1.2 DESCRIPTION OF WORK:

- A. Work Specified in this Section:
  - 1. This Section specifies administrative and procedural requirements for the progress schedules and reporting progress of the Work.
  - 2. Refer to General Conditions and the Agreement, for definitions and specific dates of Contract Time.

##### 1.3 PROGRESS SCHEDULE:

###### A. Schedule Format:

###### 1. Network Analysis Schedule (NAS):

- a. Schedule method requested for use with Large/ Complex projects.
- b. Construction Progress Schedule, utilizing a Critical Path Method (CPM) of scheduling, shall be detailed to a degree which will permit proper and complete coordination of all trades in each portion of the work. Therefore, the schedule shall specifically indicate dates in accordance with General Conditions, which shall include, but is not limited to the following:
  - 1) Date of Notice To Proceed
  - 2) Dates of major activities critical for other work
  - 3) Dates scheduled for delivery of major items of equipment
  - 4) Dates scheduled for completion of installation of major items of equipment
  - 5) The anticipated date of Substantial Completion
  - 6) The date of Substantial Completion of the project, as established by the Contract
  - 7) The date of Final Completion of the project, as established by the Contract

###### 2. Bar Chart Schedule:

- a. Schedule method requested for use with Small projects or as approved by Architect.
- b. Construction project schedule, utilizing a Bar Chart method of scheduling, shall be detailed to a degree which will permit proper and complete coordination of all trades in each portion of the work. Therefore, the schedule shall specifically indicate dates in accordance with General Conditions, which shall include, but is not limited to the following:
  - 1) Date of Notice To Proceed
  - 2) Dates of major activities critical for other work
  - 3) Dates scheduled for delivery of major items of equipment
  - 4) Dates scheduled for completion of installation of major items of equipment
  - 5) The anticipated date of Substantial Completion
  - 6) The date of Substantial Completion of the project, as established by the Contract
  - 7) The date of Final Completion of the project, as established by the Contract

B. Phasing:

1. Provide notations on the schedule to show how the sequence of the Work is affected by requirements for phased completion to permit Work by separate Contractors and partial occupancy by the Owner prior to Substantial Completion.

C. Format:

1. Display the full network or bar chart on opaque prints of sufficient width to show data clearly for the entire construction period. Prints shall be a maximum of 11" x 17" for reproducibility.
2. Mark the critical path. Locate the critical path near the center of the network/ chart; locate paths with the most float near the edges.
3. Sub networks on separate sheets are permissible for activities clearly off the critical path.

D. Schedule Updating:

1. Revise the schedule immediately after each meeting or other activity, where revisions have been recognized or made including all approved CPR's.

**PART 2 - PRODUCTS**

Not Applicable

**PART 3 - EXECUTION**

Not Applicable

**END OF SECTION**

## **SECTION 01400**

### **TESTING LABORATORY SERVICES**

#### **PART 1 - GENERAL**

##### 1.1 SUMMARY:

###### A. Section Includes:

1. Selection and payment
2. Contractor's responsibility
3. Contractor's cooperation
4. Additional tests
5. Rejection of materials
6. Duties of the Testing Agency
7. Submittals
8. Quality Assurance
9. Repair and Protection

##### 1.2 RELATED SECTIONS:

- ###### A. Individual Specification Sections: Inspections and tests required, and standards for testing.

##### 1.3 SELECTION AND PAYMENT:

- ###### A. Selection and Payment: The Owner will select and pay for an independent Testing Laboratory of recognized standing for all testing hereinafter specified and/ or required in the Contract Documents.

1. The Contractor shall pay the Testing Laboratory costs for all tests that indicate nonconformance with the Contract Documents.

##### 1.4 SUBMITTALS:

- ###### A. The independent testing agency shall submit a certified written report of each inspection, test or similar service, to the Owner, Architect, Consultant(s), and General Contractor.

1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
2. Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to:
  - a. Date of issue
  - b. Project title and number
  - c. Name, address and telephone number of testing agency
  - d. Dates and locations of samples and tests or inspections
  - e. Names of individuals making the inspection or test
  - f. Designation of the Work and test method
  - g. Identification of product and Specification Section
  - h. Complete inspection or test data
  - i. Test results and an interpretation of test results
  - j. Ambient conditions at the time of sample-taking and testing
  - k. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements
  - l. Name and signature of laboratory inspector
  - m. Recommendations on retesting

1.5 QUALITY ASSURANCE:

- A. Qualification for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, which are prequalified as complying with ASTM E329 and accredited in the types of inspections and tests to be performed.
  - 1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.

1.6 CONTRACTOR RESPONSIBILITY:

- A. General Contractor's Responsibility: Employment of the Laboratory does not relieve the General Contractor of responsibility to provide materials and construction in conformance with the Contract Documents. Processing or use of specified materials shall be understood as constituting full acceptance and approval by the General Contractor of materials as suitable for the intended purpose, unless previous written exception is taken by the General Contractor and approved by the Architect.

1.7 CONTRACTORS COOPERATION:

- A. General Contractor's Cooperation: The General Contractor shall cooperate with the Laboratory as follows:
  - 1. Make available, without cost, samples of all materials to be tested.
  - 2. Furnish nominal labor and sheltered working space as is necessary to obtain samples at the project.
  - 3. Inform the Laboratory of the material sources and instruct the suppliers to allow tests or inspections by the Laboratory.
  - 4. Notify the Laboratory sufficiently in advance of operations to allow for completion of initial tests and assignment of inspection personnel.

1.8 ADDITIONAL TESTS:

- A. Additional Tests: The Architect and Owner reserve the right to require additional tests to those specified or upon materials not already specified for testing. If such tests disclose noncompliance with the Contract Document requirements, the Architect and Owner reserve the right to require additional tests at the expense of the General Contractor.

1.9 REJECTION OF MATERIALS:

- A. Notification: The Laboratory shall notify the General Contractor, or his authorized representative, of any materials or works, which are not in full conformance with the Contract Documents and the Architect, shall be informed of such notification. Such nonconforming items shall not be incorporated in the finished work unless changed or corrected.

**PART 2- PRODUCTS**

Not Applicable

**PART 3- EXECUTION**

3.1 DUTIES OF THE TESTING AGENCY:

- A. The independent testing agency engaged to perform inspections, sampling and testing of materials and construction specified in individual Specification Sections shall cooperate with the Architect and General Contractor in performance of its duties, and shall provide qualified personnel to perform required inspections and tests.
  - 1. The agency shall notify the Architect and General Contractor promptly of irregularities or

- deficiencies observed in the Work during performance of its services.
2. The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.
  3. The agency shall not perform any duties of the General Contractor.
- B. Coordination: The General Contractor and each agency engaged to perform inspections, tests and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. In addition, the General Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
1. The General Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

3.2 REPAIR AND PROTECTION:

- A. Upon completion of testing laboratory services, repair damaged construction and restore finishes to eliminate visual deficiencies.
- B. Protect construction exposed by testing laboratory services.
- C. Repair and protection is the General Contractor's responsibility.

**END OF SECTION**

## **SECTION 01401**

### **ST. TAMMANY PARISH STORMWATER PLAN**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. Stormwater plan for this project shall be provided in accordance with the following enclosed documents:
  - 1. St. Tammany Parish Stormwater Agreement
  - 2. Guide to Stormwater Requirements for New Construction
  - 3. Stormwater Site Plan Checklist

#### **PART 2 - PRODUCTS**

##### 2.1 MATERIALS:

- A. Materials for use to implement stormwater plan for this project shall be in accordance with the following enclosed documents:
  - 1. St. Tammany Parish Stormwater Agreement
  - 2. Guide to Stormwater Requirements for New Construction
  - 3. Stormwater Site Plan Checklist

#### **PART 3 - EXECUTION**

##### 3.1 INSTALLATION AND MAINTENANCE:

- A. Installation and maintenance of stormwater plan for this project shall be in accordance with the following enclosed documents:
  - 1. St. Tammany Parish Stormwater Agreement
  - 2. Guide to Stormwater Requirements for New Construction
  - 3. Stormwater Site Plan Checklist

**END OF SECTION**



**ST. TAMMANY PARISH**

MICHAEL B. COOPER  
PARISH PRESIDENT

## St. Tammany Parish Stormwater Agreement

Contractor: \_\_\_\_\_ Business Name: \_\_\_\_\_

Email: \_\_\_\_\_ Phone: \_\_\_\_\_

- I will maintain compliance with the St. Tammany Parish Stormwater Ordinance, Section 115-106 on all new construction projects in St. Tammany Parish. <sup>1</sup>
- I will allow reasonable access on my project site for both scheduled and unscheduled St. Tammany Parish stormwater and/or drainage inspections.
- I will employ adequate stormwater Best Management Practices (BMPs) on my new construction projects to control erosion, contain sediment on site, and prevent construction pollutants from entering stormwater conveyances and waterways.
- I will perform regular inspections and maintenance on stormwater BMPs to prevent adverse stormwater impacts related to my project.
- When applicable to my project, I will maintain compliance with either the LPDES General Permit for Discharges of Stormwater from Construction Activities Five Acres or More, for large construction activities, as defined by LDEQ in Master General Permit LAR100000 or the LPDES Stormwater General Permit for Small Construction Activities, one to less than five acres, as defined by LDEQ in Master General Permit LAR200000.<sup>2</sup>
- I will make the Stormwater Pollution Prevention Plan (SWPPP) available on site for scheduled Parish stormwater and/or drainage inspections, if the project is a small or large construction site, as defined by LDEQ in the permits identified above.
- I have read the Guide to Stormwater Requirements for New Construction provided on the reverse side of the St. Tammany Parish Stormwater Agreement and initialed the Guide in the area indicated.

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Signature

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Date

<sup>1</sup> Please refer to St. Tammany Parish Ordinance Section 115-106 for an explanation regarding the relationship between state and parish stormwater requirements.

<sup>2</sup> LPDES Master General Permits for Stormwater Discharges from Construction Activities (Large and Small) are available on the LDEQ website; the LDEQ website address is provided on the reverse side of this document.



ST. TAMMANY PARISH  
MICHAEL B. COOPER  
PARISH PRESIDENT

## GUIDE TO STORMWATER REQUIREMENTS FOR NEW CONSTRUCTION<sup>1</sup>

Small Construction Sites that are less than 1 acre and are not of part of a common plan of development

- [No LPDES General Stormwater Permit required](#)
- St. Tammany Parish Stormwater Agreement and Stormwater Site Plan required

Small Construction Sites that are at least 1 acre to less than 5 acres and are not a part of a larger common plan of development):

- [LPDES Stormwater General Permit LAR200000 required](#)
- Make SWPPP available on site for scheduled Parish drainage/stormwater inspections
- Post notice at construction site noting location of SWPPP, contact name, telephone, LDEQ Permit number, and a brief description of the project
- St. Tammany Parish Stormwater Agreement and Stormwater Site Plan required

Small Construction Sites that are part of a common plan of development:

- [LPDES Stormwater General Permit LAR100000 or LAR200000 required<sup>2</sup>](#)
- Make SWPPP available on site for scheduled Parish drainage/stormwater inspections
- Post notice at construction site noting location of SWPPP, contact name, telephone, LDEQ Permit number, and a brief description of the project
- St. Tammany Parish Stormwater Agreement and Stormwater Site Plan required

Large Construction Sites (5 Acres or More):

- [LPDES Stormwater General Permit LAR100000 Required](#)
- Make SWPPP available on site for scheduled Parish drainage/stormwater inspections
- Post notice at construction site noting location of SWPPP, contact name, telephone number, LDEQ permit, Agency Interest Number, and a brief description of project
- St. Tammany Parish Stormwater Agreement and Stormwater Site Plan required

For more information:

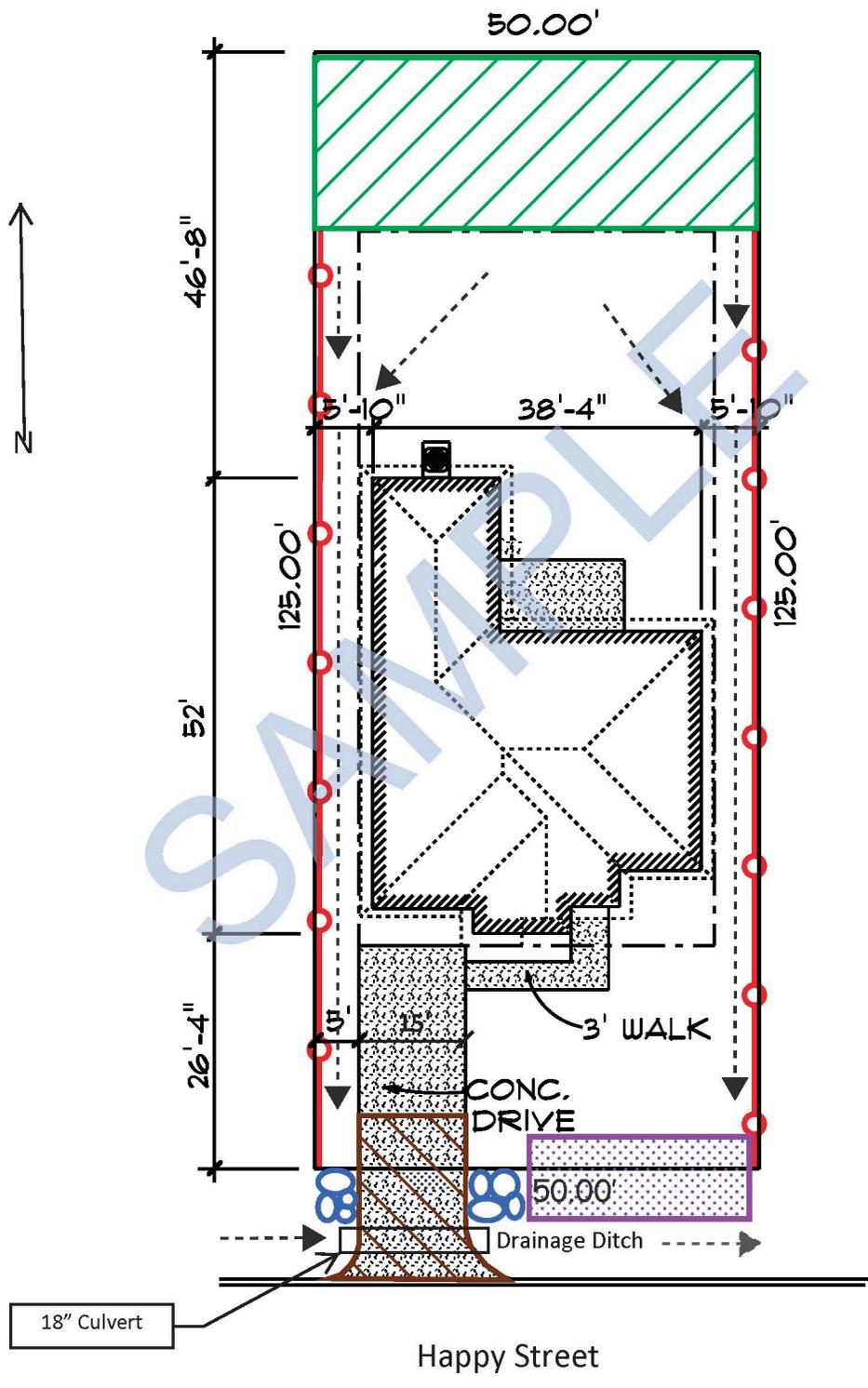
- St. Tammany Parish Stormwater Website: [www.stpgov.org/stormwater-information](http://www.stpgov.org/stormwater-information)
- St. Tammany Parish Department of Development/Engineering
  - Phone: 985-809-7448
  - E-mail: [stormwater@stpgov.org](mailto:stormwater@stpgov.org)
- LDEQ Website: [www.deq.louisiana.gov](http://www.deq.louisiana.gov)

<sup>1</sup>This is for guidance purposes only. It is the responsibility of the owner/contractor to comply with all state, federal, & local stormwater requirements.

<sup>2</sup>LPDES permit type is based on the total amount of disturbed area within the common plan of development. See LPDES General Permits and/or LDEQ website for additional guidance regarding definitions of large construction sites, small construction sites, and common plan of development.

**Stormwater Control Legend:**

|   |            |   |                  |
|---|------------|---|------------------|
|  | Silt Fence |  | Exit Pad         |
|  | Rip Rap    |  | Vegetated Buffer |
|   |            |  | Erosion Mat      |



### PLOT PLAN/STORMWATER SITE PLAN

|  | Home Design by:<br><b>Home Sweet Home Design Service, LLC</b><br>www.homesweethomedesign.com<br>985-555-1234   | <b>PLANS FOR:</b><br>Imagination Builders<br>1234 EZ Street/Covington, LA 70435<br>Lot 14, Happy Life Subdivision, Phase 1<br><b>ST. TAMMANY PARISH, LA</b>   | SHEET 1 of 1<br>Scale: 1" = 20'<br>10/10/2016 |          |           |       |    |      |      |      |  |
|--|--|---|---|----------|-----------|-------|----|------|------|------|--|
|  | <b>NOTES:</b><br>1. This property is not located in the floodplain.<br>2. All drainage to roadside ditch.<br>3. Ultimate discharge to Lake Pontchartrain via Cane Bayou. | <table border="1"> <thead> <tr> <th>CODE</th> <th>LIV AREA</th> <th>AREA U.B.</th> <th>INDEX</th> </tr> </thead> <tbody> <tr> <td>A3</td> <td>1422</td> <td>1456</td> <td>6097</td> </tr> </tbody> </table> | CODE  | LIV AREA | AREA U.B. | INDEX | A3 | 1422 | 1456 | 6097 |  |
| CODE   | LIV AREA   | AREA U.B.   | INDEX   |          |           |       |    |      |      |      |  |
| A3   | 1422   | 1456  | 6097  |          |           |       |    |      |      |      |  |



ST. TAMMANY PARISH  
MICHAEL B. COOPER  
PARISH PRESIDENT

## Stormwater Site Plan Checklist

Owner Name: \_\_\_\_\_ Date: \_\_\_\_\_

Construction Co: \_\_\_\_\_ Permit: \_\_\_\_\_

Site Address: \_\_\_\_\_ Phone: \_\_\_\_\_

E-Mail: \_\_\_\_\_ Cell Phone: \_\_\_\_\_

*\*Please fill in Checklist & Stormwater Site Plan for submission with permit application.*

1. \_\_\_\_\_ Show North arrow
2. \_\_\_\_\_ Label property/lot dimensions
3. \_\_\_\_\_ Show proposed structures/development with distances from lot lines (including driveways).
4. \_\_\_\_\_ Show all natural and manmade drainages such as drainage ditches, canals, bodies of water, and swales, with distances from building/grading pad sites.
5. \_\_\_\_\_ Indicate drainage flow across property
6. \_\_\_\_\_ Show all storm drains, yard drains, culverts, catch basins, etc.
7. \_\_\_\_\_ Show all dirt stockpiles, material storage areas, portable toilets, and trash containers..
8. \_\_\_\_\_ Define limitation of grading area and/or grassy buffers (see questions below)
  - a. Is entire lot to be graded and/or filled? \_\_\_\_ YES or \_\_\_\_ NO
  - b. Will any grassy buffer remain around perimeter of graded/filled area? \_\_\_\_ YES or \_\_\_\_ NO  
If yes, please indicate location and size on plan.
9. \_\_\_\_\_ Show all proposed erosion and sediment protection measures or Best Management Practices (BMPs) utilized to protect drainage infrastructure, roadways, and neighboring properties from sedimentation, erosion, construction debris, or construction related pollutants.
10. \_\_\_\_\_ A stabilized construction entrance/exit is required on all sites to prevent sediment tracking onto roadway.

*NOTE: See attached sample stormwater site plan for guidance in creating a stormwater site plan specific to your site.*

## **SECTION 01420**

### **REFERENCE STANDARDS AND DEFINITIONS**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

###### A. Section Includes:

1. General definitions for Specifications and other Bidding and Contract Documents including the Drawings.
2. Specification format and content explanation.
3. Explanation of Industry Standards.

##### 1.2 DEFINITIONS:

- A. General: Basic Contract definitions are included in the Standard General Conditions of the Construction Contract.
- B. "Indicated": Shown, noted, scheduled and specified on the Drawings and/ or in Specifications.
- C. "Regulations": Laws, statutes, ordinances and lawful orders issued by authorities having jurisdiction.
- D. "Furnish": Supply and deliver to the project site.
- E. "Install": Unload, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean and perform similar operations at the project site.
- F. "Provide": Furnish and install, complete and ready for the intended use.
- G. "Installer": An installer is the General Contractor or another entity engaged by the General Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, and similar operations.
  1. Trades: Using terms such as carpentry does not imply certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as carpenter. It also does not imply that requirements specified apply exclusively to trades persons of the corresponding generic name.
  2. Assigning Specialists: Certain Sections of the Specifications require the specific construction activities shall be performed by specialists who are recognized experts in those operations. The specialists must be engaged for those activities, and their assignments are requirements over which the General Contractor has no option. However, the ultimate responsibility for fulfilling Contract requirements remains with the General Contractor.
    - a. This requirement shall not be interpreted to conflict with enforcing building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.
- H. "Project Site": The site area available to the General Contractor for performing construction activities, either exclusively or in conjunction, with others performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built. The General Contractor's site area is restricted by the public right-of-way.
- I. "Testing Agencies": A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

##### 1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION:

- A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16 Division format.
- B. Specification Content: This Specification uses certain conventions regarding the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations

or circumstances. These conventions are explained as follows:

1. Abbreviated Language: Language used in Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be interpolated as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the General Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the General Contractor, or by others when so noted.
  - a. The words "shall be" are implied wherever a colon (:) is used within a sentence or phrase.

#### 1.4 INDUSTRY STANDARDS:

- A. Applicability of Standards: Except where Contract Documents include more stringent or specific requirements, industry standards, which are referenced in the Specifications are made a part of the Contract Documents and have the same force and effect as if bound or copied directly into Contract Documents.
  1. Where requirements are expressed in SI (metric) units, it is understood that corresponding metric versions of industry standards, if available (such as ASTM A36M for steel members or ANSI B18.22M for steel washers) will be the applicable standards.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to the Architect for a decision before proceeding.
- C. Publication Dates: Where a date of issue or edition is not specified, comply with standard in effect on the date of Contract Documents.
- D. Conflicting Requirements: Where compliance with 2 or more standards are specified and where the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different but apparently equal and uncertainties to the Architect for a decision before proceeding.
  1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to the Architect for a decision before proceeding.
- E. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  1. Where copies of standards are needed to perform a required construction activity, the General Contractor shall obtain copies directly from the publication source.
- F. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Generally recognized acronyms or abbreviations are used in the Contract Documents.

**PART 2 - PRODUCTS**

Not Applicable

**PART 3 - EXECUTION**

Not Applicable

**END OF SECTION**

## **SECTION 01600**

### **PRODUCT REQUIREMENTS**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. This Section includes:
  - 1. Definitions
  - 2. Quality assurance; ADA/ ABA compliance
  - 3. Product delivery, storage and handling
  - 4. General product requirements
  - 5. Product selection procedures
  - 6. Hazardous materials
  - 7. Installation of products

##### 1.2 RELATED SECTIONS:

- A. Section 01420 - Reference Standards and Definitions

##### 1.3 DEFINITIONS:

- A. Definitions: Terms used in the Drawings and Specifications such as “specialties”, “systems”, “structure”, “finishes” and “accessories”, which are self-explanatory and have well recognized meanings in the construction industry are not changed by this Section.
  - 1. Products: Items purchased for incorporation in the work, whether produced for the Project or taken from previously produced stock, including “materials”, “equipment”, “systems” and similar terms.
  - 2. Named Products: Items identified by manufacturer's product name, make or model designation.
  - 3. Materials: Products that are shaped, cut, worked, mixed, finished, fabricated, processed or assembled to form a part of the work.
  - 4. Equipment: Products with operational parts, whether motorized or manually operated, that usually, but not necessarily, requires service connections such as wiring or piping.

##### 1.4 QUALITY ASSURANCE:

- A. Source Limitations: To the fullest extent possible, provide all products of the same kind from a single source.
- B. Compatibility of Options: When the General Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with other products.
- C. Labels and Nameplates: Unless required for evidence of compliance and to display essential operating data, labels and nameplates shall be concealed in the completed construction.
  - 1. Labels: Where required for observation after installation, locate product labels on an accessible surface that is not conspicuous.
  - 2. Equipment Nameplates: Provide a permanent nameplate on service-connected or power-operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces. The nameplate shall contain essential operating data such as:
    - a. Name of product and manufacturer
    - b. Model and serial number
    - c. Capacity
    - d. Speed
    - e. Ratings

- D. ADA/ ABA Compliance: Provide products and installation of products to comply with American with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines and all ADA/ ABA requirements in compliance with the local jurisdiction. Notify the Architect of any observed conflicts or omissions between the requirements indicated for this project and the ADA/ ABA Guidelines.

#### 1.5 PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. General: Deliver, store and handle products in accordance with the manufacturer's recommendations. Prevent damage, deterioration and loss, including theft.
- B. Delivery: Schedule delivery to avoid long-term storage at the site and to prevent overcrowding of construction and storage spaces.
  - 1. Deliver products to the site in the manufacturer's original packaging with labels and instructions for handling, storing, unpacking, protecting and installing.
- C. Inspection: Inspect products upon delivery to ensure that they comply with requirements, undamaged and properly protected.
- D. Storage: Store products at the site to facilitate inspection and quantity, as required.
  - 1. Store heavy products in a manner that will not endanger the supporting construction.
  - 2. Store products subject to damage by the elements above ground and under cover in a weather-tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions and as specified for conditioned space.

### **PART 2 - PRODUCTS**

#### 2.1 GENERAL PRODUCT REQUIREMENTS:

- A. General Product Requirements: Provide products that comply with the Contract Documents, undamaged and previously unused, unless otherwise specified or permitted.
  - 1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details for complete installation, for the intended purpose and use.
  - 2. Where available, provide standard product types that have been used successfully in similar projects and situations as approved by the Architect.
  - 3. As specified in Section 01420 - Reference Standards and Definitions and as specified in the individual specification sections, quantity and quality indicated represent minimum acceptable levels.

#### 2.2 PRODUCT SELECTION PROCEDURES:

- A. Proprietary Specification Requirements: Where two or more products/ manufacturers are named, provide one of the products/ manufacturers indicated or an Architect approved equal through the substitution procedure prior to receipt of Bid. No substitutions will be permitted after award of the Contract except as provided in Section 01630 - Product Substitution Procedures.
  - 1. Quality Standards: Proprietary specifications are used only to denote the quality standard of the products desired and do not restrict Bidders to the specific brand, make or manufacturer specified. Proprietary specifications are used only to set forth and convey to prospective Bidders the general style, type, character and quality of the products desired. Equivalent products will be acceptable, but only with written prior approval as described in the Substitution Procedures.
- B. Reference Standards Specification Requirements: Where products are specified in accordance with an established standard, select any product that meets or exceed those standards; when reference standards are used in the individual specification sections the equivalent products shall

comply and test to the same standards.

- C. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a manufacturer's name, a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
- D. Performance Specification Requirements: Where Specifications require compliance with performance requirements, with or without use of a manufacturer's name, products that comply with these requirements and are recommended by the manufacturer for the application indicated. Appropriate overall performance of a product is implied as the product is specified for a specific application.
- E. Compliance with Standards, Codes and Regulations: Where the Specifications require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified. This applies when Owner's established standards are specified. Refer to Section 01420 - Reference Standards and Definitions for additional provisions.
- F. Visual Matching: Where Specifications require matching an established Sampler to match existing, the Architect's decision will be final on whether a proposed product match satisfactorily.
- G. Visual Selection: Where specified product requirements include the phrase "... as selected from manufacturer's standard colors, patterns, textures ..." or a similar phrase, the Architect will select the color, pattern and texture from the manufacturer's standard range.

### 2.3 HAZARDOUS MATERIALS:

- A. Hazardous Materials: No products containing asbestos shall be used in the construction.

## **PART 3 - EXECUTION**

### 3.1 INSTALLATION OF PRODUCTS:

- A. General: Anchor each product securely in place, accurately located, aligned and coordinated with other Work. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
  - 1. Inspection of Conditions: The Installer shall be required to inspect each major component, including but not limited to the substrate, conditions and complete assembly of components under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected.
  - 2. Visual Effects: Provide uniform joint width and arrange joints to obtain the best visual effect at exposed Work. Refer choices and options to the Architect for the final decision.
- B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations to comply with all warranties, contact the Architect when manufacturer's instructions conflict with requirements contained in Contract Documents. Obtain Architect's determination in writing in case of apparent conflicts.
- C. Preliminary Procedures: Inspect products immediately upon delivery and again prior to installation. Remove damaged and defective items from the Project site.
  - 1. Verify measurements and dimensions, before conducting the pre-installation meeting and beginning each installation.
- D. Protection: Install each component during good weather conditions. Apply protective covering when required to ensure against damage and deterioration at Substantial Completion.
  - 1. Protect products and adjacent construction during and after installation, until acceptance. Prevent components damage, soiling, deterioration, harmful exposure and incompatible materials.
  - 2. Coordinate the erection of temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for inspecting and testing purposes.
- E. Attachment: Where mounting heights are not indicated, install components at standard mounting

heights complying with all applicable codes and regulations. Refer uncertain mounting height determinations to the Architect for decision.

1. Provide attachment, connection devices and methods necessary for securing work. Secure work true to line and level, allowing for thermal and building movement.
- F. Replacement and Repair: Promptly remove damaged, defective and non-conforming products from the Project site and promptly replace with conforming new products.
1. Subject to the Architect's approval, damaged and defective products may be repaired to the condition equivalent to acceptable new products. Products that cannot be satisfactorily repaired shall be removed and replaced without additional cost to the Owner.
  2. Replacement and repairs shall be made by the party responsible for the original installation.

**END OF SECTION**

## **SECTION 01700**

### **PROJECT CLOSEOUT**

#### **PART 1 – GENERAL**

##### 1.1 DESCRIPTION OF WORK:

###### A. Work included in this Section:

1. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
  - a. Inspection procedures
  - b. Project record document submittal
  - c. Operating and maintenance manual submittal
  - d. Submittal of warranties
  - e. Refer to appropriate Sections in Divisions 2 through 16 for additional Closeout requirements for specific construction activities

##### 1.2 RELATED WORK:

- A. Division 0 – General Conditions
- B. Division 0 – Supplementary Conditions to the General Conditions
- C. Section 01300 – Submittals
- D. Section 01420 – Reference Standards and Definitions
- E. Divisions 2 through 16

##### 1.3 SUBSTANTIAL COMPLETION:

###### A. General:

1. The Work or designated portion thereof will not be considered suitable for Substantial Completion until all systems are operational as designed; all designated or required governmental inspections or certifications have been made and posted, designated instruction of Owner's personnel in the operation of systems has been scheduled with Owner, and all final finishes are in place. The project shall be complete for the intended use.
2. As a further condition of Substantial Completion, the Contractor shall complete the remaining work within an acceptable period of time (45 consecutive calendar days unless otherwise stated) following Substantial Completion, and the failure to do so shall automatically reinstate the provisions for liquidated damages due the Owner as contained elsewhere in the Agreement or as provided by law for such period of time as may be required by the General Contractor to fully complete the work whether the Owner has occupied the work or not.

###### B. Forms:

1. All forms to be used shall be American Institute of Architect (AIA) forms, unless noted otherwise.

###### C. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List any exceptions in the request.

1. The General Contractor considers the Work, or a portion thereof which the Owner agrees to with no separation, is substantially complete. The General Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the General Contractor to complete all Work in accordance with the Bidding and Contract Documents.
2. Advise Owner of pending insurance change-over requirements

3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
5. Deliver tools, spare parts, attic stock, and similar items.
6. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.
7. Complete start-up testing of systems, and schedule instruction meetings with the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
8. Remove temporary facilities, dumpsters, construction equipment and temporary services. Restore disturbed items to original condition or better.
9. Complete final cleanup requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.
10. Submit an acceptable copy of the HVAC Test and Balance Reports.
11. Submit all Final Inspections Certificates along with a Use and Occupancy Certificate.

D. Inspection Procedures:

1. On receipt of a request for inspection for Substantial Completion, the Architect will either prepare the Certificate of Substantial Completion documentation (following inspection) or advise the General Contractor of construction that must be completed or corrected before the certificate will be issued.
2. The Architect will repeat inspection when requested in writing by the General Contractor and assured that the Work has been substantially completed and all items that were incomplete have been corrected. Provide copy of original list with GC's initials by each item ensuring that he has personally inspected and deems complete.
3. Results of the completed inspection will form the basis of requirements for final acceptance.

E. Re-inspection Procedure:

1. In the event that more than the two inspections by the Architect (described above) are made necessary by the failure of the General Contractor to complete the work, or to complete or correct items identified on the list of such items, the General Contractor shall reimburse the Owner for all costs incurred by them including the cost of the Architect's services made necessary thereby.
2. Upon completion of re-inspection, the Architect will prepare Certificate of Substantial Completion documentation or advise the General Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for Substantial Completion.
3. If necessary, a CPR will be established for re-inspection and will be issued at the General Contractor's expense with the amount deducted from his Application For Payment.

1.4 FINAL ACCEPTANCE:

- A. At the completion of the contract, the Contractor shall provide documentation signifying the completion of the contractual obligation and the cancellation of the contract. This documentation shall be filed by the Contractor with the Recorder of Mortgages and proof of contract cancellation shall be provided to the Owner.
- B. Preliminary Procedures:
  1. Complete the following (list exceptions in the request):
    - a. Submit a copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance (by initialing each individual item), and the list has been endorsed and dated by the Architect.
    - b. Submit record drawings, maintenance manuals, final project photographs (if any), and similar final record information.
    - c. Submit Consent of Surety to Final Payment (AIA G707).
    - d. Submit proof of final, continuing insurance coverage meeting insurance requirements.

- e. Submit Guarantees, Warranties, and Bonds.
- f. Submit Keys and Keying Schedule.
- g. Submit spare parts and Maintenance Materials.
- h. Submit Certificate of Occupancy, if required.
- i. Submit all other items as required by the Contract Documents, Architect, and/or Owner.

#### 1.5 RECORD DOCUMENT SUBMITTALS:

##### A. General:

1. The Contractor shall record on the Record Drawings maintained at the site all changes and selections made by addendum and during construction and shall locate by dimensions showing actual field measurements of all major items which will be concealed in the completed work. These items shall include underground site utilities such as pipe, conduit, storm drainage, sewer, gas, water, medical gases, oil, telephone, I.T., etc. and items above hard ceilings such as pipe, etc.
2. Dimensions are to be taken from face of building lines to centerline of piping or conduit.
3. The General Contractor will accurately locate all under floor services at slab on grade areas by dimension from building line or column centerlines.
4. Where new lines cross existing installed lines, the location, size and type of line crossed shall be accurately recorded.
5. Where tie-ins to existing floor lines are indicated the elevation of the tie-in point and dimensioned location shall be recorded.
6. Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect's reference during normal working hours.

##### B. Record Drawings:

1. Provide one (1) print copy of record drawings.
2. Record drawings shall be provided in the form of reproducible drawing sheets (reproducible bond) and reflect changes in the work and locations of concealed items for all trades including plumbing, mechanical, electrical and general construction.
3. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown.
4. Mark whichever drawing is most capable of showing conditions fully and accurately. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
5. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.
6. Note related addenda, Change Orders, and RFI response numbers where applicable.

##### C. Record Specifications:

1. Maintain one (1) complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders, RFIs, and modifications issued in printed form during construction. Mark these documents to show variations in actual Work performed in comparison with the text of the Specifications and modifications.

##### D. Shop Drawings:

1. Deliver General Contractor's one (1) approved print copy of all shop drawings submitted during the course of the project.

##### E. Finish Selections:

1. Submit one (1) print copy to the Architect for the Owner's records.
2. Refer to other Specification Sections for all finishes and include colors, textures, formulas, model numbers, etc. as selected for project.

F. Miscellaneous Record Submittals:

1. Submit one (1) print copy to the Architect for the Owner's records.
2. Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference.

1.6 MAINTENANCE MANUAL AND INSTRUCTIONS:

- A. Deliver to the Architect one (1) print copy of a manual, assembled, indexed, and bound; presenting for the Owner's guidance, full details for care and maintenance of mechanical, electrical, and other equipment included in Contract. Manuals shall include parts lists for each item of equipment furnished under the Contract.
- B. General Contractor shall, for this manual, obtain from Subcontractors, literature of manufacturers relating to equipment, including motors; also furnish cuts, wiring diagrams, instruction sheets, and other information pertaining to same that will be useful to Owner in overall operation and maintenance. Include the name, address, and phone number of the nearest sales and service organization for each item.
- C. General:
1. Organize each manual into separate Sections for each piece of related equipment.
  2. Index all data as per the Table of Contents.
  3. As a minimum each manual shall contain a title page, a table of contents, copies of Product Data, supplemented by drawings and written text, and copies of each warranty, bond and service Contract issued.
- D. Binders:
1. Identify each binder on the front and spine, with the typed or printed title "OPERATION AND MAINTENANCE MANUAL", Project title or name, and subject matter covered. Indicate the volume number for multiple volume sets of manuals.
  2. The binders shall be hard-cover, three-ring type with heavy duty rings. Provide the number of binders (identified by volume) required to properly contain all information required.
- E. Drawings:
1. Where drawings or diagrams are required as part of the manual, provide reinforced punched binder tabs on the drawings and bind in with the text.
  2. Where oversize drawings are necessary, fold the drawings to the same size as the text pages and use as a fold-out.
  3. If drawings are too large to be used practically as a fold-out, place the drawing, neatly folded, in the front or rear pocket of the binder. Insert a typewritten page indicating the drawing title, description of contents and drawing location at the appropriate location in the manual.
- F. Text Material:
1. Include the manufacturer's standard printed material as required as part of the manual.
  2. Such data called for under separate Sections of the Specifications, shall be included in the manual described in this Section.
- G. Title Page:
1. Provide a title page as the first sheet of each manual. Include the following information:
    - a. Subject matter covered by the manual.
    - b. Name and address of the Project.
    - c. Date of submittal.

- d. Name, address, and telephone number of the General Contractor.
- e. Name and address of the Architect.
- I. Table of Contents:
  - 1. After the Title Page, include a typewritten table of contents for each volume, arranged systematically according to the Project Manual format.
- J. General Information:
  - 1. Provide a general information Section immediately following the Table of Contents, listing each product included in the manual, identified by product name. Under each product, list the name, address, and telephone number of the Subcontractor or installer, and the maintenance contractor.
- K. Product Data:
  - 1. Where manufacturer's standard printed data is included in the manuals, include only sheets that are pertinent to the part or product installed. Mark each sheet to identify each part or product included in the installation.
- L. Written Text:
  - 1. Where manufacturer's standard printed data is not available, and information is necessary for proper operation and maintenance of equipment or systems, or it is necessary to provide additional information to supplement data included in the manual, prepare written text to provide necessary information.
- M. Warranties, Bonds and Service Contracts:
  - 1. Provide a copy of each warranty, bond or service contract in the appropriate manual for the information of the Owner's operating personnel. Provide written data outlining procedures to be followed in the event of product failure. List circumstances and conditions that would affect validity of the warranty or bond.

1.7 ELECTRONIC RECORD DOCUMENTS:

- A. Provide three (3) copies of electronic version on thumb drives of sufficient capacity to include record drawings, record specifications, shop drawings, miscellaneous record submittals, maintenance manuals, instructions, and warranties.

1.8 INSTRUCTIONS:

- A. The Owner's delegated representative shall be given personal instructions by trained personnel, in the care, use, maintenance, and operation procedures for each item. This shall be done in accordance with, and in addition to, the above required manual.
- B. Operating and Maintenance Instructions:
  - 1. Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a review of the following items:
    - a. Maintenance manuals
    - b. Record documents
    - c. Spare parts and materials
    - d. Tools
    - e. Identification systems
    - f. Control sequences

2. As part of instruction for operating equipment, demonstrate the following procedures:
  - a. Start-up
  - b. Shutdown
  - c. Emergency operations
  - d. Noise and vibration adjustments
  - e. Safety procedures
  - f. Economy and efficiency adjustments
  - g. Effective energy utilization

C. Maintenance Procedures:

1. Provide information detailing essential maintenance procedures, including the following:
  - a. Routine operations
  - b. Trouble-shooting guide
  - c. Disassembly, repair and reassembly
  - d. Alignment, adjusting and checking

D. Operating Procedures:

1. Provide information on equipment and system operating procedures, including the following:
  - a. Start-up procedures
  - b. Equipment or system break-in
  - c. Routine and normal operating instructions
  - d. Regulation and control procedures
  - e. Instructions on stopping
  - f. Shut-down and emergency instructions
  - g. Summer and winter operating instructions
  - h. Required sequences for electric or electronic systems
  - i. Special operating instructions

E. Servicing Schedule:

1. Provide a schedule of routine servicing and lubrication requirements, including a list of repaired lubricants for equipment with moving parts.

F. Controls:

1. Provide a description of the sequence of operation and as-installed control diagrams by the control manufacturer for systems requiring controls.

G. Coordination Drawings:

1. Provide as-installed color-coded piping diagrams, where required for identification.

H. Valve Tags:

1. Provide charts of valve tag numbers, with the location and function of each valve, where required for identification.

**PART 2 – PRODUCTS**

Not Applicable

**PART 3 – EXECUTION**

Not Applicable

**END OF SECTION**

## **SECTION 01710**

### **FINAL CLEANING**

#### **PART 1 - GENERAL**

##### 1.1 DESCRIPTION OF WORK:

###### A. Work Included In This Section:

1. The Section specifies administrative and procedural requirements for final cleaning at Substantial Completion.
2. Special cleaning requirements for specific elements of the Work are included in appropriate Sections of Divisions 2 through 16.

###### B. Single Prime Contract:

1. The Contractor for General Construction is responsible for coordination of final cleaning.

###### C. Environmental Requirements:

1. Conduct cleaning and waste disposal operations in compliance with all laws and ordinances. Comply fully with federal and local environmental and anti-pollution regulations.
2. Burning or burying of debris, rubbish or other waste material on the premises shall not be permitted.

#### **PART 2 - PRODUCTS**

##### 2.1 MATERIALS:

###### A. Cleaning Agents:

1. Use cleaning materials and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property, or that might damage finished surfaces.

#### **PART 3 - EXECUTION**

##### 3.1 FINAL CLEANING:

###### A. General:

1. Employ experienced workers or cleaners for final cleaning. Clean each surface or unit (horizontal, vertical, high, and low) of Work to the condition expected from a professional building cleaning and maintenance program. Comply with manufacturer's instructions.
2. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion for the entire Project or a portion of the Project:
  - a. Clean the Project site, yard and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste materials, litter and foreign substances. Sweep paved areas broom clean. Remove petro-chemical spills, stains and other foreign deposits. Rake grounds that are neither planted nor paved, to a smooth even-textured surface.
3. Remove tools, construction equipment, machinery and surplus material from the site.
4. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original condition.
5. Remove labels that are not permanent labels.

6. Touch-up and otherwise repair and restore marred exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored, or that show evidence of repair or restoration.
7. Carefully, remove all paint over "UL" and similar labels, including mechanical and electrical nameplates. All labels shall be like new and readable.
8. Wipe surfaces of mechanical and electrical equipment, elevator equipment and similar equipment. Remove excess lubrication, paint and mortar droppings and other foreign substances.
9. Clean light fixtures, lamps, globes and reflectors to function with full efficiency. Replace burned out bulbs, and defective and noisy starters in fluorescent and mercury vapor fixtures.
10. Leave the Project clean and ready for occupancy.

**END OF SECTION**

## **SECTION 01740**

### **WARRANTIES AND BONDS**

#### **PART 1 - GENERAL**

##### 1.1 DESCRIPTION OF WORK:

###### A. Work Included In This Section:

1. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.
2. Specific requirements for warranties for the Work and products and installations that are specified to be warranted are included in the individual Sections of Divisions 2 through 16.
3. Certifications and other commitments and agreements for continuing services to Owner are specified in the Contract Documents.

###### B. Disclaimers and Limitations:

1. Manufacturer's disclaimers and limitations on product warranties do not relieve the General Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign warranties with the General Contractor.
2. At no time shall any warranties/ guarantees be submitted to the Owner for this project which supersedes or voids any of the Owner's rights as established by the State's General Statutes for which the project is located.
3. Failure of the General Contractor and/ or its suppliers, manufacturers and its subcontractors to enter into such warranties as required by the Contract Documents shall be considered a breach of contract.

##### 1.2 WARRANTY REQUIREMENTS:

###### A. Related Damages and Losses:

1. When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work. Do not reuse damaged materials.

###### B. Assignment:

1. All warranties/ guaranties of any systems and products shall be assigned to the Owner.

##### 1.3 SUBMITTALS:

###### A. Written Warranties:

1. Submit written warranties to the Architect prior to the date certified for Substantial Completion. The Architect's Certificate of Substantial Completion designates a commencement date for warranties.
2. Prepare a written document utilizing the appropriate form, ready for execution by the General Contractor, or the General Contractor and subcontractor, supplier or manufacturer.
3. Refer to individual Section of Division 2 through 16 for specific content requirements, and particular requirements for submittal of special warranties.

###### B. Form of Submittal:

1. At Final Completion compile three (3) copies of each required warranty and bond properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer.

Organize the warranty documents into an orderly sequence based on the Table of Contents of the Project Manual. Deliver all warranties to the Architect before or with the Request for Substantial Completion.

C. Reinstatement of Warranty:

1. When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement.
2. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

D. Replacement Cost:

1. Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents.
2. The General Contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefitted from use of Work through a portion of its anticipated useful service life.

E. Owner's Recourse:

1. Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

F. Rejection of Warranties:

1. The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

**PART 2 - PRODUCTS**

Not Applicable

**PART 3 - EXECUTION**

3.1 FORMS FOR WARRANTIES:

- A. General Contractor and Manufacturer shall fill out forms attached to end of this document. Do not use forms included herein, however photocopies may be made.

**GAURANTEE FORMS TO FOLLOW**

**END OF SECTION**

**GENERAL BUILDING GUARANTEE**

DATE: \_\_\_\_\_  
(DATE OF SUBSTANTIAL COMPLETION)

STATE OF \_\_\_\_\_

PARISH OF \_\_\_\_\_

The \_\_\_\_\_ hereby guarantees all products and  
(NAME OF CONTRACTOR)

workmanship incorporated in the \_\_\_\_\_ at  
(NAME OF PROJECT)

\_\_\_\_\_, against defect for a period of 12 months for the General  
(LOCATION)

Guarantee as set forth in the General Conditions. This guarantee is binding where defects occur due to normal usage conditions and does not cover willful or malicious damage, damage caused by acts of God, or other casualty.

Respectfully submitted this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_  
by:

\_\_\_\_\_  
(NAME OF FIRM OR CORPORATION MAKING BID)

By: \_\_\_\_\_

Title: Owner, Partner, or Corp. President or Vice President

WITNESS:

\_\_\_\_\_  
(Proprietorship Or Partnership)

ATTEST:

\_\_\_\_\_  
(Surety Company)

By: \_\_\_\_\_

Title: \_\_\_\_\_  
(Attorney in Fact)

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_  
(Corp. Sec., or Assist. Sec.)

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Name and Address of Surety Agency

**WATER TIGHTNESS GUARANTEE**

DATE: \_\_\_\_\_  
(DATE OF SUBSTANTIAL COMPLETION)

STATE OF \_\_\_\_\_

PARISH OF \_\_\_\_\_

The \_\_\_\_\_ for  
(NAME OF CONTRACTOR)

\_\_\_\_\_ at \_\_\_\_\_  
(NAME OF PROJECT) (LOCATION)

shall guarantee for a period of 24 months that the work of his Contract shall be watertight and leak-proof at every area, except where leaks can be attributed to damage to the Work by external forces beyond his control. He shall, immediately upon notification by the Owner of water penetration, determine the source of water penetration and, at his own expense, do any work necessary to make the Work of his Contract watertight and leak-proof. He shall also, at his own expense, repair or replace any other damaged material, finishes, and furnishings, damaged as a result of this water penetration.

Respectfully submitted this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_  
by:

\_\_\_\_\_  
(NAME OF FIRM OR CORPORATION MAKING BID)

By: \_\_\_\_\_

\_\_\_\_\_  
Title: Owner, Partner, or Corp. President or Vice President

WITNESS:

\_\_\_\_\_  
(Proprietorship Or Partnership)

ATTEST: \_\_\_\_\_  
(Surety Company)

By: \_\_\_\_\_

Title: \_\_\_\_\_  
(Attorney in Fact)

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_  
(Corp. Sec., or Assist. Sec.)

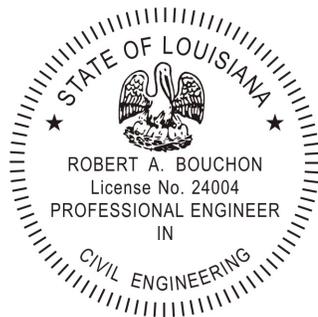
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\_\_\_\_\_

\_\_\_\_\_  
Name and Address of Surety Agency

# DIVISION

# 2



SECTION 02200

*Robert Bouchon*

07/03/20



# SITE WORK

## **SECTION 02100**

### **SITE PREPARATION**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE OF WORK:

- A. This section covers clearing, grubbing, and stripping at the construction site.
- B. The Contractor shall clear and grub all of the area within the limits of construction or as required, which includes, but is not limited to, utility easements (servitudes, where applicable). The width of the area to be cleared shall be reviewed by the Architect/ Engineer prior to the beginning of any clearing.
- C. Burning of trees, brush, debris, etc. shall not be allowed on or off site. All debris to be disposed in legal approved manner.

##### 1.2 RELATED WORK:

- A. Section 01040 – Project Coordination/ Contractor's Use of Premises
- B. Section 02200 – Earthwork for Building Foundations
- C. Section 02210 – Earthwork for Site

#### **PART 2 - PRODUCTS**

(NOT USED)

#### **PART 3 - EXECUTION**

##### 3.1 CLEARING:

- A. The surface of the ground, for the area to be cleared and grubbed, shall be completely cleared of all timber, brush, stumps, roots, grass, weeds, rubbish, and all other objectionable obstructions resting on or protruding through the surface of the ground. However, those trees which are designated by the Architect shall be preserved as hereinafter specified. Clearing operations shall be conducted so as to prevent damage to existing structures and installations, and to those under construction, so as to provide for the safety of employees and others.

##### 3.2 GRUBBING:

- A. Grubbing shall consist of the complete removal of all stumps, roots larger than 1-1/2 inches in diameter, matted roots, brush, timber, logs, and any other organic or metallic debris not suitable for foundation purposes, resting on, under or protruding through the surface of the ground to a depth of 18 inches below the subgrade. All depressions excavated below the original ground surface for or by the removal of such objects, shall be refilled with suitable materials and compacted to a density conforming to the surrounding ground surface.

##### 3.3 STRIPPING:

- A. In areas so designated and when specifically called for in drawings, topsoil shall be stockpiled. Topsoil so stockpiled shall be protected until it is placed as specified. Any topsoil remaining after all work is in place shall be disposed of by the Contractor.

##### 3.4 DISPOSAL OF CLEARED AND GRUBBED MATERIAL:

- A. The Contractor shall dispose of all material and debris from the clearing and grubbing operation by hauling such material and debris off site. The cost of disposal (including hauling) of cleared and grubbed material and debris shall be considered a subsidiary obligation of the Contractor; the cost of which shall be included in the contract prices for the various classes of work.

3.5 PRESERVATION OF TREES:

- A. Those trees of which are designated for preservation by the Architect/ Engineer shall be carefully protected from damage. The Contractor shall erect such barricades, guards, and enclosures as may be considered necessary for the protection of the trees during all construction operations.
- B. The Contractor shall trim all branches that are liable to damage because of his operations, but in no case shall any tree be cut or removed without prior notification of the Architect/ Engineer. All injuries to bark, trunk, limbs, and roots of trees shall be repaired by dressing, cutting, and painting according to approved methods, using only approved tools and materials.
- C. Where pipe passes beneath live oak trees, it shall pass a minimum of 3 feet beneath the natural ground surface surrounding the tree. Prior to digging, the Contractor shall schedule a meeting with the Parish Arborist and the Architect/ Engineer to discuss any possible conflicts.

3.6 PRESERVATION OF DEVELOPED PRIVATE PROPERTY:

- A. The Contractor shall exercise extreme care to avoid unnecessary disturbance of developed private property adjacent to construction. Trees, shrubbery, gardens, lawns, and other landscaping, which in the opinion of the Architect must be removed, shall be replaced and replanted to restore the construction easement to the condition existing prior to construction.
- B. Improvements to the land, such as fences, walls, outbuildings, and other structures which of necessity must be removed, shall be replaced with equal quality materials and workmanship.
- C. The Contractor shall clean up the construction site across developed private property directly after construction is completed, upon approval of the Architect.

3.7 PRESERVATION OF PUBLIC PROPERTY:

- A. The appropriate paragraphs of Articles 3.5 and 3.6 of these specifications shall apply to the preservation and restoration of public lands, parks, rights-of-way, easements, servitudes, and all other damaged areas.

**END OF SECTION**

## **SECTION 02110**

### **DEMOLITION**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of this Section shall include all demolition and/ or removal work as necessary to prepare the site for new construction. This shall include all demolition/ removal shown on the drawings AND as necessary to accomplish the work under this contract (whether specifically indicated or not). See all drawings and all other related sections of the specifications for additional direction.

##### 1.2 SUMMARY:

- A. This section includes, but is not limited to, the following:
  - 1. Demolition and removal of existing site construction, miscellaneous site elements, and construction as indicated on drawings.
  - 2. Reworking of existing utilities and systems (water, sewer, gas, electric, etc.) and existing site work as required for new construction work.
  - 3. All other miscellaneous associated demolition and removal work as shown or as otherwise required.

##### 1.3 RELATED SECTIONS:

- A. Section 01040 – Project Coordination/ Contractor’s Use Of Premises
- B. Divisions 2 thru 16 – Specific technical demolition requirements

##### 1.4 DEFINITIONS:

- A. Demolish: Completely remove and legally dispose of off-site.
- B. Recycle: Recovery of demolition waste for subsequent processing in preparation for reuse.
- C. Salvage: Owner shall have salvage rights to all wanted items and materials.

##### 1.5 MATERIALS OWNERSHIP:

- A. Unless otherwise indicated, demolition waste becomes the property of the General Contractor.

##### 1.6 SUBMITTALS:

- A. Qualification Data: Certification and license information from licensed tradesmen.
- B. Schedule of Demolition Activities: Indicate the following:
  - 1. Detailed sequence of demolition work, with starting and ending dates for each activity.

##### 1.7 QUALITY ASSURANCE:

- A. Pre-demolition Conference: Conduct meeting at Project Site with Owner, Architect, General Contractor and associated subcontractors present. Review methods and procedures related to demolition including, but not limited to, the following:
  - 1. Inspect and discuss conditions of construction to be demolished.
  - 2. Review and finalize demolition schedule.
  - 3. Review and finalize protection requirements.
  - 4. Review items, if any, to be salvaged and returned to Owner.
  - 5. Review and finalize project phasing.

1.8 PROJECT CONDITIONS:

- A. Site will not be occupied during project demolition and construction. Conduct demolition so operations of adjacent building/ site spaces will not be disrupted.
  - 1. Provide not less than 72 hours' notice of activities that will affect operations of adjacent spaces.
  - 2. Maintain access to existing corridors, drives, walkways, exits, etc.
    - a. Do not close or obstruct means of egress, exits, drives, walkways or other facilities used by occupants without written permission from authorities having jurisdiction.

1.9 SAFETY AND COORDINATION:

- A. The safety of site occupants and the public in general during any demolition procedure is of primary importance.
- B. The General Contractor shall be required to visit the site of the project and shall assume full responsibility for all existing conditions which may affect (or be affected by) work included in his contract.
  - 1. Coordinate location of existing construction, structures, elements, utilities (exposed and subsurface), and all other built conditions scheduled to remain, and fully protect during course of construction.
  - 2. Repairs to any existing conditions (on or off-site) and construction damaged during course of work under this contract shall be the responsibility of the General Contractor, at no additional cost to the Owner. Match existing conditions, details, fit and finish.

**PART 2 - PRODUCTS**

2.1 REUSED MATERIALS:

- A. Existing removed materials and components may be reused only where specifically noted in Contract Documents.

2.2 SALVAGE MATERIALS:

- A. All demolition items, shall remain the property of the Owner. These items shall be stored in a secure and protected area of the site. Any salvage items not claimed by the Owner's representative shall become the property of the General Contractor, who shall remove same from site in a timely manner at no additional cost. Coordinate with Owner and Architect.
  - 1. General Contractor to submit list of salvageable demolition items to Owner, who will review and advise which items shall be stored for pick-up.

**PART 3 - EXECUTION**

3.1 PROTECTION:

- A. General Contractor shall provide for the proper protection of all persons, property, landscaping, building elements, utilities, etc., both onsite and offsite, in accordance with requirements of these specifications and all prevailing codes and ordinances.
- B. Take all precautions to protect users of site from demolition procedures. Install barriers, fences, partitions, covered passageways, etc. as required to protect on and off-site occupants and to prevent entry of unauthorized persons into work areas.
- C. All debris, excess fill, demolition and construction materials, etc., shall be hauled away from the site on a periodic basis at the General Contractor's cost. Temporary storage of demolition trash shall be maintained in an approved on-site area, with location to be coordinated with the Owner in advance. Burning of waste material is NOT permitted. General Contractor shall figure all disposal fees and costs within Bid.

- D. General Contractor shall be responsible for protecting any existing utilities interfering with construction. Coordinate with Owner, Architect, and Utility Owner prior to proceeding.

3.2 DEMOLITION:

- A. All demolition and removal work, as indicated on the drawings AND as necessary to accomplish the new work, shall be included in the Contract and shall be carried out in a neat and workmanlike manner.
  - 1. It is possible that not all required demolition and/ or removal work is specifically shown in the drawings, but it is the intent of these specifications that all demolition and/ or removal be performed where necessary to build a complete project as outlined in the Contract Documents, at no additional cost to Owner. Bidders shall inspect existing conditions prior to submitting bid and include all costs in bid.

3.3 DUST CONTROL:

- A. See drawings for construction of temporary walls/ barriers, etc.
- B. Provide all measures as necessary to prevent movement of airborne dust into adjacent building spaces, hvac systems, and nearby properties. Full clean-up of spaces affected by demolition shall be done by General Contractor's forces on a daily basis before start of business day.
- C. Where applicable, General Contractor shall utilize enclosed trash chutes to transfer demolition materials into dumpsters. Seal joints in chutes, cover dumpster tops, utilize water misting, and provide other measures as necessary to control and limit airborne dust.
- D. Building interiors and exterior concrete surfaces affected by dust generated by this project (sidewalks, drives, parking areas, etc.) shall be maintained in a broom clean condition.

3.4 SHORING AND BRACING:

- A. When working in and around existing buildings, the design, installation, use, and removal of temporary shoring and bracing for existing and new walls, floors, structure, etc. shall be the sole responsibility of the General Contractor, who is also responsible for project sequencing, construction methods and techniques, etc. Project sequencing shall be coordinated with the Owner.

**END OF SECTION**

## SECTION 02200

### EARTHWORK FOR BUILDING FOUNDATIONS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

###### A. Section Includes:

1. Preparation of subgrades for building foundations.
2. Excavation and backfill within building lines for foundation and beams.
3. Excavation and backfill within building lines for under-slab mechanical and electrical work.
4. Placement and compaction of fill beneath foundations.

###### B. Related Sections:

1. Testing Laboratory Services.
2. Cast-In-Place Concrete.
3. Excavation and backfill associated with mechanical and electrical utilities and appurtenances.

##### 1.2 DEFINITIONS

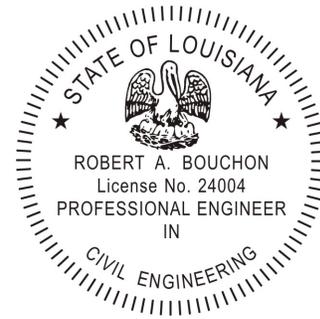
A. Excavation: Removal of material to subgrade elevations indicated and subsequent disposal of materials removed.

B. Unauthorized Excavation: Removal of materials beyond indicated dimensions and subgrade elevations without specific direction of Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be at Contractor's expense.

1. Under grade beams, footings, foundation bases, or retaining walls, fill unauthorized excavation by extending bottom of concrete to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Architect.
2. In locations other than those above, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Architect.

C. Subgrade: The undisturbed earth or the compacted soil layer immediately below subsequent construction.

D. Structure: Buildings and foundations.



*Robert Bouchon*

07/03/20

- E. Borrow: Fill or backfill material obtained off-site.
- F. Earthwork for Building Foundations: Operations within limits as indicated on Drawings.

### 1.3 QUALITY ASSURANCE

- A. Codes and Standards: Perform earthwork in compliance with local codes, ordinances, and applicable requirements of authorities having jurisdiction.
- B. Testing and Inspection Service: An independent testing and inspection laboratory selected and paid for by the OWNER will perform soil testing and inspection service during earthwork operations.

### 1.4 PROJECT CONDITIONS

- A. Existing Utilities: Contact owners of known and suspected underground utilities to identify types and locations of existing underground utilities in areas of excavation work. If utilities are indicated to remain in place, provide adequate means of support and protection during earthwork operations.
  - 1. If uncharted, or incorrectly charted, piping or other utilities are encountered during excavation, consult Architect immediately for directions. Cooperate with Owner and utility companies in keeping services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
  - 2. Do not interrupt in-use utilities except when permitted in writing and then only after acceptable temporary utility services have been provided.
  - 3. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shutoff of services if lines are active.
- B. Use of Explosives: Use of explosives is not permitted.
- C. Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.
  - 1. Operate warning lights as recommended by authorities having jurisdiction.
  - 2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
  - 3. Provide erosion control to prevent displacement of soils and deposit of soil-bearing water runoff or airborne dust on adjacent properties and

pavements.

4. Perform excavation by hand within drip line of large trees to remain. Protect root systems from damage or dry-out to the greatest extent possible. Maintain moist condition for root system and cover exposed roots with moistened burlap.

- D. Geotechnical Report: A geotechnical report by Building and Earth Sciences dated May 30, 2017 is available from the Architect for the Contractor's general information and reference. No warranty of uniformity of soil conditions or depth to groundwater is implied by making the geotechnical report available to the Contractor.

## PART 2 - PRODUCTS

### 2.1 SOIL MATERIALS

- A. Structural Fill Material: Structural fill at building foundations shall be free of organic material, clay lumps, and other deleterious materials. Structural fill shall meet the requirements of the geotechnical report have a maximum particle size of less than 2 inches, and have a liquid limit less than 40 and plasticity index more than 10 but less than 20. A locally available clayey sand or sandy clay may be used. All fill shall be compacted in 8" lifts to at least 95% Standard Proctor Density.
- B. Unacceptable Materials: Materials from on-site excavation shall not be used for any purpose, unless approved by Architect. Excavated material shall be removed from the site unless otherwise directed by the Architect.

### 2.2 OTHER MATERIALS

- A. Warning Tape: Acid- and alkali-resistant polyethylene film tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility.
  1. Detectable Tape: Provide tape with metallic core encased for corrosion protection, detectable by a metal detector when tape is buried up to 2'-6" deep.
  2. Tape Colors: Identify utility types by permanently colored tapes as follows:
    - a. Electric - Red.
    - b. Gas, oil, steam, dangerous materials - Yellow.
    - c. Telephone and other communications - Orange.
    - d. Water - Blue.
    - e. Sewers - Green.

## PART 3 - EXECUTION

### 3.1 PROTECTION

- A. General: Perform the work and provide temporary facilities to protect structures, utilities, sidewalks, pavements and other existing facilities and new construction from damage due to earthwork operations.
- B. Cold Weather Protection: Provide enclosures and insulating covers necessary to protect subgrades from damage due to freezing.

### 3.2 SITE PREPARATION

- A. General: Fill site by placing and compacting specified fill material in layers to grade elevations required.
- B. Preparation of Ground Surface: Remove debris, obstructions, and deleterious materials including wet and unsatisfactory soil to a minimum depth of 8" below existing grade . This removal shall extend at least 5 feet beyond the building footprint. In addition, muck out and dispose of accumulations of organic materials in low areas. Thoroughly clean holes and depressions to undisturbed natural soil and fill with acceptable material to approximate uniform grade elevation before starting general fill. Operations shall not be done during or in anticipation of inclement weather. Subgrade shall be proof rolled with a loaded tandem axle dump truck or similar heavy rubber-tire vehicle.

### 3.3 EXCAVATION

- A. Description: Excavation is unclassified and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered.
  - 1. Include removal of pavements and other surface obstructions, underground structures, utilities, and other items which are encountered, unless such items are indicated to remain.
- B. Unauthorized Excavation: Correct over-excavation as specified in PART 1.

### 3.4 DEWATERING

- A. Water Control: Prevent surface water and subsurface or ground water from flowing into excavations, from ponding on prepared subgrades, and from flooding project site and surrounding area. Protect subgrades from softening and damage

by water accumulation.

- B. Water Removal: Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations and subgrades.
- C. Temporary Earthwork: Establish and maintain temporary dikes, drainage ditches and other diversions to control water flow and to convey rain water and water removed from excavations to collecting or runoff areas. Do not use trench excavations as temporary drainage ditches.

### 3.5 STORAGE OF EXCAVATED MATERIALS

- A. Stockpiling: Stockpile acceptable excavated materials and borrow materials for backfill and fill where directed. Place, grade, and shape stockpiles for proper drainage.
  - 1. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.
- B. Disposal: Dispose of excess excavated soil material and materials not acceptable for use as backfill or fill.

### 3.6 EXCAVATION FOR STRUCTURES

- A. Extent of Excavations: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 foot, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, and other construction and for inspection. Do not disturb bottom of excavations intended for bearing.
- B. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive subsequent work. Concrete at footing excavations shall be placed same day as excavation is made. Concrete at grade beams shall be placed as soon as possible after excavation to avoid exposure of the grade beam bottoms to wetting and drying.

### 3.7 BACKFILL

- A. General: Place soil material in layers to required subgrade elevations, using materials specified in Part 2 of this Section. Compact each layer to required density. Where compaction using hand-operated tampers is necessary, place and compact soil in layers one-half the thickness specified below.
  - 1. At building foundations, place backfill in maximum 8-inches loose

thickness layers and compact to at least the density specified under heading COMPACTION.

- B. Related Work: Backfill excavations as promptly as work permits, but not until completion of the following:
  - 1. Acceptance of construction below finish grade including, where applicable, dampproofing.
  - 2. Inspection, testing, approval, and recording locations of underground utilities.
  - 3. Removal of concrete formwork.
  - 4. Removal of shoring and bracing, and backfilling of voids with satisfactory materials.
  - 5. Removal of trash and debris from excavation.
  - 6. Permanent or temporary horizontal bracing is in place on horizontally supported walls.
- C. Conditions: Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Do not place backfill on surfaces that are muddy, frozen, or contain frost or ice.
- D. Placement: Place backfill evenly adjacent to structures, piping, or conduit to required elevations. Prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

### 3.8 COMPACTION

- A. General: Control compaction, providing minimum percentage of density specified for each area classification indicated below. Correct improperly compacted areas or lifts if soil density tests indicate inadequate compaction.
- B. Density Requirements: Compact each layer of fill and backfill to not less than the following percentages of maximum density, in accordance with ASTM Standards.
  - 1. At building foundations, under structures, each layer of backfill and fill material at 95 percent maximum dry density. ASTM D-698 (Standard Proctor).
- C. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, aerate soil to dry it, or uniformly apply water to surface of subgrade or layer of soil material. Apply water in minimum quantity as necessary to prevent free water from appearing on surface during or subsequent to compaction operations.
  - 1. Remove and replace, or scarify and air dry, soil material that is too wet to

- permit compaction to specified density.
2. Stockpile or spread soil material that has been removed because it is too wet to permit compaction. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

### 3.9 GRADING

- A. General: After compacting properly, uniformly grade areas, including adjacent transition areas, to provide smooth finished surface within specified tolerances, with uniform levels or slopes between points where elevations are indicated or between such points and existing grades.
- B. Outside Structures: Grade areas adjacent to structures to drain away from structures and to prevent ponding. Finish surfaces free from irregular surface changes and as follows:
  1. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10 foot above or below required subgrade elevations.
- C. Under Structures: Grade surfaces smooth and even, free of voids, to required elevation. Provide final grades within a tolerance of ½ inch when tested with a 10-foot straightedge.
- D. Compaction: After grading, compact surfaces to the indicated density.

### 3.10 FIELD QUALITY CONTROL

- A. Quality Control Testing During Construction: Testing service to inspect and approve each subgrade, fill layer and pavement base before further backfill or construction work is performed.
- B. Samples of the proposed structural fill shall be obtained from the borrow pit and tested to verify conformance with these specifications prior to transporting the material to the site.
- C. Perform field density tests in accordance with ASTM D 1556 (sand cone method) or ASTM D 2167 (rubber balloon method), as applicable.
  1. Field density tests may also be performed by the nuclear method in accordance with ASTM D 2922, providing that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D 1556. In conjunction with each density calibration check, check the calibration curves furnished with the moisture gages in accordance with ASTM D 3017.
  2. If field tests are performed using nuclear methods, make calibration

checks of both density and moisture gages at beginning of work, on each different type of material, and at intervals as directed by the Architect.

- B. Building Foundation Areas: Perform at least one field density test for every 1,000 sq. ft. of area but in no case fewer than three tests. Perform tests on each layer of fill / backfill
- D. Corrective Work: When testing agency reports that fills or backfills are below specified density, the Contractor shall perform additional compaction and testing, without additional cost to the Owner, until specified density is obtained.

### 3.11 MAINTENANCE

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
- B. Corrections: Reconstruct subgrades damaged by freezing, rain, accumulated water, and construction activities, before subsequent construction commences. Repair and reestablish grades in settled, eroded, and rutted areas to specified tolerances. Scarify or remove and replace material to depth necessary; reshape and recompact at optimum moisture content to the required density.
- C. Settling: Where pavement subgrade settling is measurable or observable before pavement is placed, add fill material, compact, and re-grade. Restore appearance, quality, and condition of surface to match adjacent work.

### 3.12 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Removal from Owner's Property: Remove waste materials, including excess borrow and excavated materials, trash, and debris, and dispose of it off Owner's property.

END OF SECTION

## **SECTION 02210**

### **EARTHWORK FOR SITE**

#### **PART 1 - GENERAL**

##### 1.1 DESCRIPTION OF WORK:

- A. The extent of excavation, filling and grading is shown on the Drawings.
  - 1. Preparation of subgrade for site, pavements, parking lot surfacing, and landscaped areas is included as part of this work.
  - 2. Backfilling of trenches under pavement is included as part of this work.

##### 1.2 RELATED WORK:

- A. Section 01401 – St. Tammany Parish Stormwater Plan
- B. Section 02100 – Site Preparation
- C. Section 02200 – Earthwork for Building Foundations
- D. Section 02600 – Concrete Paving
- E. Section 02910 – Hydromulch Work
- F. Section 02930 – Grass Sod

##### 1.3 DEFINITIONS:

- A. Excavation: Excavation means the removal of material to subgrade elevations indicated (or as necessary to meet the requirements of the Contract Documents) and subsequent disposal of materials removed.
- B. Unauthorized Excavation: Unauthorized excavation means the removal of materials beyond indicated dimensions and subgrade elevations without specified direction of Engineer. Unauthorized excavation, as well as remedial work directed by Engineer as a result, shall be at the Contractor's expense. Report unauthorized excavation to the Engineer.
- C. Subgrade: Subgrade means the undisturbed earth or the compacted soil layer immediately below subsequent construction.
- D. Structure: Structure means pavements, walks, curbs, appurtenances for drainage, mechanical and electrical systems, or other stationary construction occurring at above or below ground surface.

##### 1.4 QUALITY ASSURANCE:

- A. Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Testing: Testing for this Section shall be fully coordinated by Contractor. The Owner shall select testing laboratory and pay directly costs for testing services.

##### 1.5 JOB CONDITIONS:

- A. Protection: Contractor shall provide proper protection of all persons, property, landscaping, utilities, etc.
- B. Protection of Persons and Property:
  - 1. Barricade open excavations occurring as part of this work and post with warning devices. Operate warning devices as recommended by Authorities having jurisdiction.
  - 2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

## 1.6 EXISTING UTILITIES:

- A. Locate existing underground utilities in areas of excavation work. If utilities are indicated to remain in place, provide adequate means of support and protection during earthwork operations.
  - 1. If uncharted, or incorrectly chartered, piping or other utilities are encountered during excavation, consult Engineer immediately for directions. Cooperate with Owner and utility companies in keeping services and facilities in operation. Repair damaged utilities to satisfaction of utility Owner.
  - 2. Do not interrupt in-use utilities except when permitted in writing and then only after acceptable temporary utility services have been provided.

## **PART 2 - PRODUCTS**

### 2.1 GENERAL FILL:

- A. General Fill shall be used for raising grade outside the area of present construction. General Fill shall be same as specified for structural fill as indicated below.
- B. General Fill to construct finished grades and berms shall be constructed using fill that contains both river sand and clay. This fill shall be select fill to resist erosion and washout until grass is established at the finish surfaces.

### 2.2 STRUCTURAL FILL:

- A. Structural Fill shall be used beneath or next to structures, slabs, and under site paving, parking lot surfacing, or other load-bearing units and shall be free of roots, wood, debris, and other deleterious materials.
- B. Structural Fill shall be free of organic material, clay lumps, and other deleterious materials. Structural Fill shall meet the requirements of the geotechnical report having a maximum particle size of less than 2 inches, and have a liquid limit less than 40 and plasticity index more than 10 but less than 20. A locally available clayey sand or sandy clay may be used. All fill shall be compacted in 8 inch lifts to at least 95 percent Standard Proctor Density.

### 2.3 GEOTEXTILE FABRIC:

- A. The Contractor shall furnish Mirafi 500x geotextile fabric as manufactured by Mirafi, Inc., or approved equal.

### 2.4 EQUIPMENT:

- A. Utilize commercial quality machinery, equipment, and other accessories as are standard to the industry for trenching, scraping, tilling, rolling, compacting, tamping, etc. of the earthwork specified in this section.
- B. When fill is required next to a wall or retaining structure, only lightweight construction equipment shall be allowed within 5 feet of the wall. Furthermore, fill within 5 feet of the wall shall be placed in 6 inch thick loose lifts and compacted with hand-operated compaction equipment.

## **PART 3 - EXECUTION**

### 3.1 INSPECTION:

- A. Examine the areas and conditions under which excavating, filling and grading are to be performed and notify the Engineer in writing, of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.

### 3.2 SHORING AND BRACING:

- A. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross-

braces, in good serviceable condition.

1. Vertical-side excavations in clay should be limited to a depth of 4 feet.
2. Excavations in or through near-surface fill or granular soil may need to be sloped back 1-vertical on 3-horizontal.
3. Sides of temporary excavations deeper than about 4 feet should be braced or sloped back to at least 1-vertical on 1-horizontal. Bracing requirements for excavations deeper than 4 feet shall conform to applicable federal, state, and local regulations.
4. Establish requirements for trench shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

### 3.3 DEWATERING:

- A. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.
- B. Do not allow water to accumulate in excavations. Remove water to prevent soil changes detrimental to stability of subgrades and foundations.
- C. If soils become wet, weak, or unstable during construction and schedules do not permit waiting for them to dry out, chemical stabilization (using lime, cement, fly ash, or a combination of these admixtures) can be used to expedite construction. As an alternative, they can be removed and replaced with appropriate fill.

### 3.4 SITE DRAINAGE:

- A. Contractor shall establish adequate drainage before site development begins and maintain same throughout construction. It is his sole responsibility to incorporate proper drainage features into the site development plans.
  1. The intent of the construction site drainage program shall be to prevent the accumulation of water on the site and reduce the potential for rainwater infiltration into the subgrade soils. A typical construction drainage program could consist of a series of shallow interconnected ditches designed to remove water from the site.
  2. Contractor shall figure all costs for preparing, building, and maintaining the construction site drainage program and include same into bid.

### 3.5 EXCAVATIONS FOR PAVEMENTS:

- A. Shape surface under pavements to comply with cross-sections, elevations and grades as shown. Cut existing fill where required to ensure the proper depth of specified fill type, and at the specified compaction, in each area as indicated on drawings.

### 3.6 EXCAVATIONS FOR TRENCHES:

- A. Dig trenches to the uniform width required for the particular item to be installed, sufficiently wide to provide ample working room.
- B. Excavate trenches to the depth indicated or required. Carry the depth of trenches for piping to establish the indicated flow lines and invert elevations. Beyond the building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freezing.
- C. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for the entire body of the pipe.
- D. Do not backfill trenches until tests and inspections have been made. Use care in backfilling to avoid damage or displacement of pipe systems.

### 3.7 COLD WEATHER PROTECTION:

- A. Protect excavation bottoms against freezing when atmospheric temperature is less than 40 degrees F and the temperature is dropping.

### 3.8 BACKFILL AND FILL:

#### A. Ground Surface Preparation:

1. Remove all shrubs, weeds, vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface to a depth as required for complete removal of same. Stumps and roots exposed in the preparation shall be excavated to a depth of 1 foot and filled.
2. To detect weak or soft zones, subgrade shall be firmly proof rolled by means of a roller (or a heavily loaded dump truck) weighing not less than 3 tons. The contractor shall make at least two complete passes over the construction area, with the second pass perpendicular to the first. All weak or soft materials thus developed shall be cleaned out, backfilled with structural fill and compacted as specified for that area. Proof rolling operations shall be done in the presence of qualified geotechnical personnel hired and paid for by the Owner.
3. It is essential to establish and maintain adequate site drainage. All traffic, including proof rolling, should be minimized during extended period of wet weather and for some time afterward.
4. The subgrade exposed after site stripping shall be scarified to about a 1 foot depth and then recompacted to about 95 percent of the standard Proctor (ASTM D698) maximum dry density at a moisture content that is 1 percent dry to 3 percent wet of the optimum moisture content determined in the above test.
5. The subgrade's moisture content must be maintained within 1 percent dry to 3 percent wet of the optimum moisture content until the subgrade is permanently covered by additional fill, paving, or the final structure.

### 3.9 PLACEMENT AND COMPACTION:

#### A. General Fill:

1. Fill shall be placed in loose lifts not exceeding 8 inches. Clean granular fill shall be compacted to at least 70 percent relative density determined using appropriate test procedures (ASTM D4253).
2. Fill placed below or next to soil supported structures should meet structural fill specifications.

#### B. Structural Fill:

1. Sand fill shall be placed in loose lifts not exceeding 10 inches, and it shall be compacted to 80 percent of the relative density. In those cases where a Proctor test shows that the sand has a unique, well-defined moisture-density curve, the sand must be compacted to 95 percent of the standard Proctor maximum dry density.

#### C. Sand Cushion:

1. Backfill placed directly below paving can consist of select non-plastic sand on a properly prepared subgrade per the plan thickness. Select sand should be free of clay lumps, have less than 10 percent of the material passing a No. 200 sieve, and have an organic content of less than 5 percent. Sand shall be compacted to a minimum of 95 percent of standard Proctor maximum dry density.

D. Vibratory rollers are typically well suited for compacting granular soils. However, the use of vibratory rollers should be limited due to the shallow depth to water and the moisture sensitivity of the shallow soils.

E. Before compaction, moisten or aerate each layer as necessary to provide moisture content within the limits specified herein. Compact each layer to required percentage of maximum dry density. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

3.10 COMPACTION:

- A. Percentage of Maximum Density Requirements: Compact soil to not less than the percentages of maximum dry density as specified herein.

3.11 TESTING METHODS:

A. Paved Areas Subgrade:

1. Perform at least 1 field density test of subgrade for every 1,500 sq. ft. of paved area, but not fewer than 4 tests per lift.
2. If in opinion of the Engineer, based on testing service reports and inspection, subgrade of fills that have been placed are below specified density, perform, "at no additional cost," additional compaction and testing until specified density is obtained.

3.12 MOISTURE CONTROL:

- A. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade or layer of soil material. Apply water in minimum quantity as necessary to prevent free water from appearing on surface during or subsequent to compaction operations.

3.13 MAINTENANCE:

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
- B. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.
- C. Settling: Where pavement subgrade settling is measurable or observable before pavement is placed, add fill material, compact, and re-grade. Restore appearance, quality, and condition of surfaced or finish to match adjacent work.

3.14 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Removal from Owner's Property:

1. Remove waste materials, including excess and unacceptable excavated material, trash, and debris, and dispose of it off Owner's property.
2. Owner reserves the right to retain excavated fill material judged acceptable for use elsewhere. When conditions warrant, contact Owner for specific direction.

**END OF SECTION**

## **SECTION 02250**

### **SOIL TREATMENT FOR TERMITE CONTROL**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. Provide soil treatment for subterranean termite control as herein specified. All building slabs and foundations shall be treated (including exterior pile and non-pile supported paved areas and/ or walks that are against buildings).
- B. Related Documents: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section

##### 1.2 QUALITY ASSURANCE:

- A. Company and Personnel Requirements:
  - 1. The company and all of its employees must comply, where applicable, with Act 237 of the Louisiana Legislative Sessions.
  - 2. The company and all of its employees must comply with Louisiana Structural Pest Control Law and all the rules and regulations promulgated by the Louisiana Structural Pest Control Commission.
  - 3. The company and all of its employees must comply with Louisiana Structural Pest Control Commission, Louisiana Department of Agriculture and Forestry "Pre-Construction Standard Contract for Treatment of Subterranean Termites" requirements.
  - 4. The company and all of its employees must comply with all Federal, State and Local laws dealing with storage, handling, transportation and the use of the termiticide.
- B. Materials: Provide certification that toxicants conform to requirements of authority having jurisdiction.
- C. Material Packaging: Manufacturer's labels and seal identifying content.

##### 1.3 SUBMITTALS:

- A. Product Data:
  - 1. Submit copies of manufacturer's technical data indicating toxicants to be used, composition by percentage, and dilution schedule and application instructions and intended application rates. Transmit copy of instructions to the Applicator.
  - 2. Submit Material Safety Data and transmit a copy to the Applicator.
- B. Submit documentation that manufacturer and installer comply with quality assurance requirements.
- C. Submit sample warranty for review.

##### 1.4 GUARANTEE:

- A. Furnish to the Owner a written, state approved contract with warranty that will continue for five (5) years from the date of Substantial Completion and also provide the Owner with the option to renew the contract with warranty for an extended period of time. This five (5) year contract with warranty cannot be canceled by the Contractor during the five (5) years.
- B. Warranty: Cover against invasion by propagation of subterranean termites, damage to building or building contents caused by termites, repairs to building or building contents so caused.
- C. Inspect work annually and report in writing to Owner.
- D. Owner reserves the right to renew warranty for an additional five (5) years.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS:**

- A. Only insecticides containing the active ingredients of FIPRONIL or IMIDACLOPRID may be used. The product must be registered by the U.S. Environmental Protection Agency (EPA) and the Louisiana Department of Agriculture and Forestry.
- B. Acceptable Products:
  - 1. Termidor 80WG Termiticide as manufactured by BASF
  - 2. Termidor SC as manufactured by BASF
  - 3. Premise 2 Insecticide as manufactured by Bayer
  - 4. Premise 75 WSP as manufactured by Bayer
  - 5. Prior Approved Equal

## **PART 3 - EXECUTION**

### **3.1 INSPECTION:**

- A. Verify the soil surfaces are unfrozen, sufficiently dry to absorb toxicant, ready to receive treatment.
- B. Remove foreign matter, which could decrease effectiveness of treatment on areas to be treated. Loosen, rake and level soil to be treated, except previously compacted areas under slabs and foundations.
- C. Beginning of application means acceptance of soil conditions.

### **3.2 APPLICATION:**

- A. Acceptable products will be applied to create horizontal and vertical termite barriers.
- B. Do not apply soil treatment solution until excavating, filling and grading operations are completed, except as otherwise required in construction operations. To ensure penetration, do not apply soil treatment to excessively wet soils or during inclement weather.
- C. Application Rates:
  - 1. Application rates and percentage of active ingredients in the finished solutions shall be in strict accordance with the manufacturer's label.
    - a. Particular attention shall be made to properly treat all slab penetrations (plumbing, electrical, etc.)
    - b. The depth of the foundation wall must be properly accessed in order to provide a proper soil barrier. FOLLOW MANUFACTURER'S LABEL DIRECTIONS CLOSELY.
  - 2. All foundation pre-treatments shall include a post treatment of the soil adjacent to the exterior sides of the foundation walls. This treatment shall take place after all potentially interfering construction activities have occurred.
  - 3. The Pest Control Contractor must coordinate closely with the General Contractor in order to successfully install all the necessary barriers. Should the construction plans call for other hard surface slabs (concrete, asphalt, etc.), to be butted up against the main foundation walls (i.e. loading docks, chiller/ equipment pads, driveways sidewalks, etc.), the vertical treatment zone must be put down before those slab areas are installed. Drilling and rod treatment after the fact is an acceptable alternative and must be approved by the Architect prior to proceeding with alternative installation.

### **3.3 RETREATMENT:**

- A. If inspection identifies the presence of termites, retreat soil and retest.
- B. Use the same toxicant as for original treatment. Follow manufacturer's strict guidelines for the methods of retreatment and chemical application rates.
- C. Retreatment shall be required if it rains on the area to receive concrete before the waterproofing

membrane is laid and the concrete poured.

**END OF SECTION**

## **SECTION 02600**

### **CONCRETE PAVING**

#### **PART 1 - GENERAL**

##### 1.1 RELATED DOCUMENTS:

- A. The General Provisions of the Contract, including General and Supplementary Conditions and Division 1 – General Requirements, apply to the work specified in this Section.

##### 1.2 DESCRIPTION OF WORK:

- A. This section includes all materials, equipment, and labor necessary to prepare subgrade to receive base course materials for concrete paving and to furnish and install base course material and concrete paving as shown on Drawings complete with reinforcement. Concrete paving work shall include, but is not limited, to the following:

- 1. The extent of concrete curbs, walks and paving is shown on the drawings.

##### 1.3 RELATED WORK:

- A. Section 02210 – Earthwork for Site
- B. Section 03300 – Cast-In-Place Concrete

##### 1.4 QUALITY ASSURANCE:

- A. Codes and Standards: Comply with local governing regulations if more stringent than herein specified.

#### **PART 2 - PRODUCTS**

##### 2.1 MATERIALS:

- A. Forms: Steel, wood or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.
  - 1. Use flexible spring steel forms or wood boards to form radius bends as required.
  - 2. Coat forms with a non-staining form release agent that will not discolor or deface the surface of the concrete.
- B. Welded Wire Mesh: Welded plain cold-drawn steel wire fabric, ASTM A185.
  - 1. Furnish in flat sheets or rolls.
- C. Reinforcing Bars: Deformed steel bars, ASTM A615, Grade 60.
- D. Dowel Bars: Dowel bars shall be plain steel bars conforming to ASTM A615, ASTM A616, or ASTM A617, free from burring or other deformation restricting slippage in the concrete. A minimum of two-thirds of the length of each dowel bar shall be painted with one coat of zinc-chromate. If plastic or epoxy-coated steel dowels are used, no zinc-chromate coating is required. Coated dowels shall conform to the requirements given in AASHTO M 254.
  - 1. The sleeves for dowel bars used in expansion joints shall be metal, or an approved design to cover 2 to 3 inches (50 mm to 75 mm) of the dowel, with a closed end and with a suitable stop to hold the end of the bar at least 1 inch (25 mm) from the closed end of the sleeve.
- E. Concrete Materials: Comply with requirements of Section 03300 for concrete materials, admixtures, bonding materials, and others as required.

- F. Joint Filler: Resilient and non-extruding type pre-molded bituminous impregnated fiberboard units complying with ASTM D1751 and FS HH-F-341, Type 1.
- G. Joint Sealant: Sealant shall conform to ASTM C920, Type S, Grade P, Class 25, use T for pavement joints. The primer shall be as recommended by the sealant manufacturer.
  - 1. Available Products: Subject to compliance with requirements, provide one of the following acceptable products/ manufacturers, or an approved equal:
    - a. Pourthane SL – W.R. Meadows
    - b. Sikaflex 1cSL - Sika Corporation
    - c. Sonolastic SL 1 – BASF
    - d. Prior Approved Equal
- H. Keyed Construction Joint: Standard sheet metal keyway liner, galvanized or of similar rust-resistant material. Sufficiently stiff to support upper keyway flanges. Top edge shall have a removable plastic cap that, when removed after concrete placement, leaves a joint sealant pocket.
- I. Expansion and Control Joints: Expansion and control joint locations and detailing shall be as shown in drawings.
- J. Curing Materials: One of the following:
  - 1. Liquid membrane-forming compounds for curing concrete shall conform to the requirements of ASTM C309, Type 2.
  - 2. White polyethylene film for curing concrete shall conform to the requirements of ASTM C171.
  - 3. White burlap-polyethylene sheeting for curing concrete shall conform to the requirements of ASTM C171.
  - 4. Waterproof paper for curing concrete shall conform to the requirements of ASTM C171.
- K. Pavement Marking: Comply with FS TT-P-1952E for traffic zone marking paint.
  - 1. Painting: All light standard bases, sidewalk risers, directional arrows and striping to indicate parking areas and traffic lanes shall be painted yellow. Ramps shall also be striped yellow and all edges yellow. Also, if handicap vehicle spaces are included in the project, see drawings for special handicapped striping requirements.
  - 2. See Section 09900 – Painting for traffic zone marking paint.
- L. Concrete Mix, Design and Testing:
  - 1. Comply with requirements of applicable Division 3 sections for concrete mix design, sampling and testing and quality control and as herein specified.
  - 2. Testing for this Section shall be fully coordinated by the Contractor. The Owner shall select and pay directly all costs for testing services.
  - 3. Design the mix, to produce standard-weight concrete consisting of Portland cement, aggregate, air-entraining admixture and water to produce the following properties:
    - a. Compressive Strength: Paving, sidewalks, and curbs shall be 4,000 psi (min) at 28 days.
    - b. Slump Range: 2" to 4"

### **PART 3 - EXECUTION**

#### **3.1 SURFACE PREPARATION:**

- A. Remove loose material from the compacted sub-base surface immediately before placing concrete.

#### **3.2 FORM CONSTRUCTION:**

- A. Set forms to the required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of the work and so that forms can remain in place at least

24 hours after concrete placement.

- B. Clean forms after each use and coat with form release agent as often as required to ensure separation from concrete without damage.

### 3.3 REINFORCEMENT:

- A. Locate, place and support reinforcement as specified in Division 3 sections.

### 3.4 CONCRETE PLACEMENT:

- A. General: Comply with the requirements of Division 3 sections for mixing and placing concrete and as herein specified.
- B. Per Louisiana Department of Transportation and Development Standard Specifications for Roads and Bridges, Section 901.11, paragraph (c), concrete shall not be placed if the US Weather Service forecasts the temperature to be less than 35 degrees F within the 24 hour period following placement.
- C. Do not place concrete until sub-base and forms have been checked for line and grade. Moisten sub-base if required to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Place concrete using methods which prevent segregation of the mix. Consolidate concrete along the face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent discoloration of reinforcing, dowels and joint devices.
- E. Deposit and spread concrete in a continuous operation between transverse joints, as far as possible. If work is interrupted for more than 1/2 hour, place a construction joint.
- F. When adjacent pavement lanes are placed in separate pours, do not operate equipment on the concrete until the pavement has attained sufficient strength to carry the loads without injury.

### 3.5 JOINTS:

- A. General: Construct expansion, contraction and construction joints true-to-line with face perpendicular to surface of the concrete, unless otherwise indicated. Construct transverse joints at right angles to the centerline, unless otherwise indicated.
- B. Contraction Joints: Provide contraction joints, sectioning concrete into areas as shown on the drawings. Form joints in fresh concrete by grooving top portion with a recommended cutting tool and finishing edges with a jointer. Contraction joints to be used at sidewalks only, continuous through curbs.
- C. Construction Joints: Place construction joints at the end of all pours and at locations where placement operations are stopped for a period of more than 1/2 hour, except where such pours terminate at expansion joints.
  - 1. Construct joints as shown or, if not shown, use standard galvanized metal keyway-section forms at longitudinal joints. All construction joints shall receive continuous sealant.
- D. Expansion Joints: Provide pre-molded joint filler for expansion joints abutting building, concrete curbs, catch basins, manholes, inlets, structures, walks and other fixed objects, 3/4 inch wide unless otherwise indicated. Joints shall be continuous through concrete curbs.
  - 1. Extend joint fillers full-width and depth of joint and not less than 1/2 inch or more than 1 inch below finished surface and fill with sealer level with pavement.
  - 2. Protect the top edge of the joint filler during concrete placement with a metal cap or other temporary material. Remove protection after concrete has been placed on both sides of joint.

### 3.6 CONCRETE FINISHING:

- A. After striking-off and consolidating concrete, smooth the surface by screeding and floating. Use hand methods only where mechanical floating is not possible. Adjust the floating to compress the

surface and produce a uniform texture.

- B. Distribute concrete as required to remove surface irregularities and re-float repaired areas to provide a continuous smooth finish.
- C. Work edges of slabs, gutters, back top edge of curb and formed joints with an edging tool and round to 1/2" radius, unless otherwise indicated. Eliminate any tool marks on concrete surface.
- D. After completion of floating and when excess moisture or surface sheen has disappeared, complete surface finishing, as follows:
  - 1. Broom finish by drawing a fine-hair broom across concrete surface, perpendicular to line of traffic at sidewalks and other exterior concrete paving surfaces. Repeat operation if required to provide a fine line texture acceptable to Architect.
  - 2. On inclined slab surfaces, provide a coarse, non-slip finish by scoring surface with a stiff-bristled broom, perpendicular to line of traffic.
  - 3. On concrete ramps, provide texture and scoring as shown in drawings.
  - 4. Curbs: Finish smooth with wood float, brush and water.
  - 5. Scoring: Provide scoring pattern as indicated on drawings.
- E. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point-up any honeycombed areas. Remove and replace areas or sections with major defects, as directed by Architect.

### 3.7 TESTING:

- A. Sets of four (4) field control cylinder specimens shall be taken for every one-hundred (100) cubic yards of concrete placed. During cold weather concreting, one additional test cylinder shall be taken and cured on the job site under the same conditions as the concrete it represents. Not less than one set of specimens shall be taken on any one day when concrete is being placed. At least one slump test shall be performed for each set of test cylinders taken and for each concrete mixer truckload delivery. All specimens shall be taken in conformance with ASTM C31. When average ultimate twenty-eight (28) day strength of control cylinders in any set falls below the required ultimate strength or below proportional minimum seven (7) day strengths where proper relation between seven (7) and twenty-eight (28) day strengths have been established by tests, proportions, water content, or temperature conditions shall be changed to secure the required strength.

**END OF SECTION**

## **SECTION 02900**

### **LANDSCAPING**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of the project shall include all landscaping work as indicated on the drawings and as specified herein, including, but not limited to, the following:
  - 1. Topsoil preparation as required to receive landscaping material.
  - 2. Planting of landscaping materials (trees, shrubs, groundcover, planting materials, etc.). See allowance in Part 2.
  - 3. Watering and maintenance of landscaping materials to establish the health, vigor, natural habit, and symmetry.

##### 1.2 SUBMITTALS:

- A. General: Submit each item according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data: Submit product data for top soil, soil amendments, fertilizer, planting materials, etc.
- C. Installation and maintenance procedures.

##### 1.3 QUALITY ASSURANCE:

- A. The Contractor performing the work of this Section shall have at least five (5) years' experience as a Landscape Contractor. He shall also hold a current license from the State Horticultural Commission. Provide license number to General Contractor with price submittal.
- B. Provide trees, shrubs, and other planting materials grown in a recognized nursery in accordance with good horticultural practices. Provide healthy, vigorous stock grown under climatic conditions similar to those in the locality of the project, free of disease, insects, eggs, larvae, and defects such as knots, sun-scald, injuries, abrasions, or disfigurement.
- C. The General Contractor shall fully and satisfactorily maintain and protect all work performed under this Contract until completion and acceptance. He shall also replace and/ or repair at his own expense any work damaged during the course of construction.
- D. Any portions of the site or adjacent properties which have been disturbed by cause due to or incidental to work performed under this Contract shall be repaired and restored to match original existing conditions.

##### 1.4 DELIVERY, STORAGE, AND HANDLING:

- A. Trees, Shrubs, Groundcover, Landscaping Materials.: Harvest, deliver, store, and handle materials according to the requirements of the Louisiana Department of Agriculture and Forestry.”
- B. Fertilizer Delivery: Fertilizer shall be delivered in the manufacturer's unopened containers, labeled to indicate manufacturer's name and product identification.
- C. In general, work shall proceed as rapidly as the site becomes available, consistent with normal seasonal limitations for planting work.
- D. Furnish standard products in manufacturer's standard containers bearing original labels showing quantities, analysis, and name of manufacturer.
- E. Store products with protection from weather or other conditions which would damage or impair the effectiveness of the product.

##### 1.5 COORDINATION AND SCHEDULING:

- A. Planting Season: Install landscaping materials during normal planting seasons for type of work required. Correlate planting with specified maintenance periods to provide required

maintenance from date of Substantial Completion.

- B. Weather Limitations: When conditions are such that by reason of drought, excessive moisture, or other factors, than satisfactory results are not likely to be obtained, work shall cease and be resumed when desired results are likely to be obtained.

#### 1.6 MAINTENANCE:

- A. Begin maintenance of landscaped areas immediately after each area is planted and continue until acceptable growth is established.
- B. Maintenance shall consist of watering, replanting, maintaining existing grades, and repair of erosion damage as specified and any other work incidental to proper maintenance.
- C. Maintenance watering shall consist of weekly watering. Water shall be applied over the entire planted area until the soil is thoroughly wet to a depth of four (4") inches. During and following effective rainfall, watering shall be discontinued. If no irrigation system is available, water shall be applied using portable aluminum lines with rotating sprinklers.
- D. Inspection and Acceptance: Final acceptance will be made on completion of maintenance period and reviewed/ approved by Architect. Acceptance of the established areas will be determined by visual inspection. Existence of erosion problems or dead and drying planting will not be acceptable

#### 1.7 GUARANTEE:

- A. Trees, Shrubs, Ground Cover, and Misc. Planting Materials: For a period of 6 months from the date that the work under this Contract is certified complete (Substantial Completion), the General Contractor shall; (1) guarantee all trees, shrubs, groundcover, and misc. planted materials under this Contract; (2) replace, during this period, those materials not showing healthy growth with those as originally specified, at no additional cost. At the end of guarantee period, planted materials shall be healthy and vigorous, showing new seasonal growth, and be free of insects, disease, and other imperfections.
- B. Replacement made within 3 months after the beginning of the "Guarantee Period" shall not extend the "Guarantee Period" of this planting. Those replacements made 3 months or more after the beginning of the "Guarantee Period" shall be maintained and guaranteed for a period of 6 months from time of replacement.
- C. Guarantee assumes proper watering and maintenance procedures by Owner, as recommended by the landscaping contractor, after acceptance and for the duration of the 6 month guarantee period. The landscaping contractor shall provide to the Owner written instructions on the proper maintenance and care of all landscaping.

### **PART 2 - PRODUCTS**

#### 2.1 TOPSOIL:

- A. Shall be topsoil comprised of loamy sand, sandy loam, clay loam, loam, sandy clay loam or other soil as prior approved by the Architect. It shall be fertile, friable, and shall contain no subsoil, slag, cinders, stones, lumps of soil, sticks, roots, trash or other extraneous materials larger than 1-1/2" diameter. Topsoil must also be free of viable plants or plant parts of quackgrass, johnsongrass, nutsedge, poison ivy, Canada thistle, or others. Topsoil should be free of "trash" plants that could bloom.
- B. If needed, a pH correction material shall be applied at a rate sufficient to correct the pH to a range of 6.0 - 7.0. Soluble salts shall not be higher than 500 parts per million. Soil treated with chemicals shall not be planted until toxic residues are allowed to dissipate. Note: Coordinate with Earthwork (Division 2).

#### 2.2 LANDSCAPING MATERIALS - (TREES, SHRUBS, & MISC. PLANTING MATERIALS):

- A. Labor and Material Allowance: A lump sum allowance of \$5,000.00 shall be included in the bid to cover materials and installation costs for landscaping materials (trees, shrubs, groundcover, and misc. planting materials) to be selected by Architect for this project. Material type shall be as specified hereunder. **This lump sum allowance does NOT include sodding as indicated on**

**drawings, which shall be priced in Base Bid.**

- B. Materials in conformance with ANSI Z60.1 "Standard for Nursery Stock".

2.3 MISCELLANEOUS ITEMS:

- A. Mulch: No. 1 cypress mulch
- B. Equipment: Utilize commercial quality machinery, equipment, and other accessories as are standard to the industry for tilling, disking, seeding, and fertilization procedures as applicable to this project. Refer to Installation section which follows. Means and methods used for accomplishing the work shall be approved by Architect prior to commencement.

**PART 3 - EXECUTION**

3.1 GENERAL:

- A. Prior to proceeding with work, General Contractor shall repair any ruts, depressions, eroded areas, etc. to the satisfaction of the Architect. Verify proper slopes to drain and fill elevations as indicated on drawings.

3.2 BED PREPARATION:

- A. Tilling as required to loosen subsoil shall be by disking or scarifying, to a depth of at least 6 inches, to permit bonding of the topsoil to the subsoil. Fill in landscaped areas (planted areas) shall be topsoil as specified, brought to finish grades as indicated. In no case shall topsoil depth be less than 4 inches in depth after firming. Spreading shall be performed in such a manner such that planting can proceed with a minimum of additional soil preparation and tillage.

3.3 FINISH GRADING:

- A. Immediately prior to planting, the bed soil shall be pulverized to a minimum depth of 1 inch and smoothed by means of raking or other approved methods. Finished surface shall be smooth, finely textured, and free of all sticks, debris, rubbish, etc.

3.4 PLANTING:

- A. Trees: Excavate pits to twice the diameter of balls or containers. Backfill around ball with topsoil compacted to eliminate voids and air pockets, watering thoroughly as layers are placed. Build 4" high berm of topsoil beyond edge of excavation. Apply 4" mulch of no. 1 grade cypress mulch. Wrap deciduous tree trunks of 2" or greater up to first branches. Guy and stake trees with nylon straps or galvanized wire, through garden hose protectors, with wooden stake anchors. Prune trees to remove damaged branches, improve natural shape, and to thin out structure as required. Paint cuts more than 1-1/2" with pine tar.
- B. Shrubs: Excavate pits to twice the size of balls or containers. Backfill around plants with topsoil, compacted to eliminate voids and air pockets. Form grade dished slightly, with berms at edges of excavation. Apply 4" of wood chip mulch and water thoroughly.

3.5 WATERING AND MAINTENANCE:

- A. All newly planted areas shall be watered and maintained in accordance with the following:
  1. First Week: Provide all labor and arrange for all watering necessary for rooting of planted materials. Soil shall be kept moist at all times. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during first week and in sufficient quantities to maintain moist soil to a depth of at least 4 inches. Watering should be done during the heat of the day to help prevent wilting.
  2. Second and Subsequent Weeks: Water as required to maintain adequate moisture in the upper 4 inches of the soil as necessary for the promotion of deep root growth in planted materials.
  3. Protection: Planting material areas shall be protected against traffic and other use by

- placement of warning signs and single strand rope barricades at all perimeters.
4. Time Limitation: Duration of maintenance and guarantee period responsibilities length shall be as specified herein.

**END OF SECTION**

## **SECTION 02930**

### **GRASS SOD**

#### **PART 1 – GENERAL**

##### 1.1 SCOPE:

- A. The scope of sodding work shall be as shown on drawings and as specified herein. It shall include all materials, equipment, and labor as required for a complete installation. Sodding work shall include, but is not limited to, the following:
  - 1. Fine grading and preparing lawn areas
  - 2. Furnishing and applying topsoil
  - 3. Furnishing and applying lawn amendments and fertilizer
  - 4. Furnishing and applying sod and clean-up
  - 5. Providing maintenance, guarantee and replacement
  - 6. Miscellaneous work as required for installation and maintenance

##### 1.2 SUBMITTALS:

- A. General: Submit each item according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data: Submit product data for top soil, top soil analysis, soil amendments, fertilizer, sod, etc.
- C. Installation and maintenance procedures.
- D. Certification: Provide certification for each type of sod and fertilizer specified. Certification shall accompany the delivery indicating compliance with USDA, FSA, and local codes.

##### 1.3 QUALITY ASSURANCE:

- A. General Contractor to schedule a pre-installation meeting. This meeting shall include the Architect, Owner, General Contractor, Installer, and all associated trades. This meeting shall review all design requirements, detailing, installation, and maintenance programs specific to this project.
- B. Installer Qualifications: Engage an experienced Installer who has completed landscaping work similar in material, design, and extent to that indicated for this Project and with a record of successful grass establishment.
- C. Topsoil Analysis: Furnish a soil analysis made by a qualified independent soil-testing agency stating percentages of organic matter, inorganic matter (silt, clay, and sand), deleterious material, pH, and mineral and plant-nutrient content of topsoil.
- D. Report suitability of topsoil for lawn growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and any limestone, aluminum sulfate, or other soil amendments to be added to produce satisfactory topsoil.

##### 1.4 DELIVERY, STORAGE, AND HANDLING:

- A. Sod: Harvest, deliver, store, and handle sod according to the requirements of the American Sod Producers Association's (ASPA) "Specifications for Turfgrass Sod Materials and Transplanting/ Installing."
- B. Fertilizer Delivery: Fertilizer shall be delivered in the manufacturer's unopened containers, labeled to indicate manufacturer's name and product identification.
- C. In general, work shall proceed as rapidly as the site becomes available, consistent with normal seasonal limitations for planting work.
- D. Furnish standard products in manufacturer's standard containers bearing original labels showing quantities, analysis, and name of manufacturer.
- E. Store products with protection from weather or other conditions which would damage or impair the effectiveness of the product.

## 1.5 COORDINATION AND SCHEDULING:

- A. Planting Season: Install sod during normal planting seasons for type of work required. Correlate planting with specified maintenance periods to provide required maintenance from date of Substantial Completion.
- B. Weather Limitations: When conditions are such that by reason of drought, excessive moisture, or other factors, than satisfactory results are not likely to be obtained, work shall cease and be resumed when desired results are likely to be obtained.

## 1.6 MAINTENANCE:

- A. Begin maintenance of sod areas immediately after each area is planted and continue until acceptable lawn is established.
- B. Maintenance shall consist of watering, replanting, maintaining existing grades, and repair of erosion damage as specified and any other work incidental to proper maintenance.
- C. Maintenance watering shall consist of weekly watering. Water shall be applied over the entire planted area until the soil is thoroughly wet to a depth of four (4") inches. During and following effective rainfall, watering shall be discontinued. If no irrigation system is available, water shall be applied using portable aluminum lines with rotating sprinklers.
- D. When the surface to be grassed becomes gullied or otherwise damaged or repair work is required due to faulty operations or negligence on the part of the General Contractor, repair work shall be performed at no additional cost to the Owner.
- E. Inspection and Acceptance: Final acceptance will be made on completion of maintenance period and reviewed/ approved by Architect. Acceptance of the established lawn areas will be determined by visual inspection. Existence of erosion problems or dead and drying sod will not be acceptable. Healthy growing lawn is expected with not more than five percent (5%) bare areas. Sodded lawns will be acceptable provided all requirements, including maintenance, have been complied with, and a healthy uniform close stand of the specified grass is established, free of weed, bare spots greater than 5 inches and irregularities.
- F. Post fertilization: Apply fertilizer to lawn after first mowing and when grass is dry.
- G. Use fertilizer that will provide actual nitrogen of at least 1 lb. per 1,000 sq. ft. of lawn area.

## **PART 2 – MATERIALS**

### 2.1 TOPSOIL:

- A. Topsoil: ASTM D5268, pH range of 5.5 to 7.4 percent organic material minimum, free of stones 1 inch or larger in any dimension, and other extraneous materials harmful to plant growth.

### 2.2 SOIL AMENDMENTS:

- A. Lime: ASTM C602, Class T, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent. Provide lime in the form of dolomitic limestone.
- B. Aluminum Sulfate: Commercial grade, unadulterated

### 2.3 FERTILIZER:

- A. Commercial Fertilizer: Commercial grade complete fertilizer of neutral character, consisting of fast and slow release nitrogen, 50 percent derived from natural organic sources of urea-form, phosphorous, and potassium in the amounts recommended in soil reports from a qualified soil-testing agency.

### 2.4 SOD:

- A. Sod shall match existing site in species.
- B. For Bidding Purposes: General Contractor shall figure into bid the cost for strongly rooted "419" Bermuda sod, certified Class "A", not less than 3 years old, from off-site source; free of weeds, undesirable plants, large stones and other materials detrimental to development and maintenance of the lawn. Sod shall consist of ninety-five (95%) of the specified grass ("419"

- Bermuda). Sod that fails to meet requirements shall be rejected.
- C. Schedule deliveries to coincide with grading operations and laying. During wet weather allow sod to dry sufficiently to prevent tearing. During dry weather protect sod from drying out. Water as necessary to ensure vitality and to prevent excess loss of soil while handling. Sod which dries out will be rejected.

## 2.5 WATER:

- A. Water: Potable, from municipal suppliers approved by the state or city health departments.

## **PART 3 – EXECUTION**

### 3.1 EXAMINATION:

- A. Verify existing conditions before start of work.
- B. Examine areas to receive sod for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until satisfactory conditions have been corrected.
- C. Final grades to be approved by Architect and Owner prior to sodding.
- D. Report in writing to Architect the prevailing conditions that will adversely affect satisfactory execution of the Work. Do not proceed until unsatisfactory conditions have been corrected.
- E. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

### 3.2 PREPARATION:

- A. Protect structures, utilities, sidewalks, pavements, other facilities, trees, shrubs, and plantings from damage caused by sodding operations.
- B. Take care in work preparation to avoid conditions which will create hazards. Post signs or barriers as required.
- C. Provide adequate means for protection from damage through excessive erosion, flooding, heavy rains, etc. Repair or replace damaged areas.

### 3.3 PLANTING PREPARATION:

- A. Limit subgrade preparation to areas that will be planted in the immediate future.
- B. Loosen subgrade to a maximum depth of 1 inch. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter.
- C. Mix soil amendments and fertilizers with topsoil at rates recommended based on topsoil analysis report. Delay mixing fertilizer if planting does not follow placing of planting soil within a few days. Either mix soil before spreading or apply soil amendments on surface of spread topsoil and mix thoroughly into top 4 inches of topsoil before planting.
- D. Spread topsoil to depth required to meet thickness, grades, and elevations shown on the Grading Plan after light rolling and natural settlement. Do not spread if topsoil or subgrade is frozen.
- E. Preparation of Unchanged Grades: Where lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, or where existing topsoil is insufficient to support plant growth, prepare soil as follows:
  - 1. No sod cutting and/ or application of herbicides shall be permitted beneath the canopies of existing trees except at the direction of the Landscape Architect.
  - 2. Apply approved grass and weed herbicide on area to be sodded at manufacturer's recommended rate and under weather condition to be effective. Avoid overspray onto adjacent areas and other plant materials.
  - 3. Allow a minimum of 48 hours for herbicide to take effect. Remove and dispose of existing grass, vegetation, and soil utilizing a sod cutter at a two inch (2") depth and dispose off-site.
  - 4. Scarify surface soil to a depth of one inch (1"). Apply required soil amendments and initial fertilizers and mix thoroughly into scarified soil to meet proposed grade. Trim high areas

- and fill in depressions. Rake and spread soil to a homogenous mixture of fine texture.
5. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
  6. Remove waste material, including grass, vegetation, and turf, and legally dispose of it off the Owner's property.

- F. Grade lawn and grass areas smooth, even surface with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future. Remove trash, debris, stones larger than 1-1/2 inches in any dimension, and other objects that may interfere with planting or maintenance operations.
- G. Moisten prepared lawn areas before planting when soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- H. Restore prepared areas if eroded or otherwise disturbed after fine grading and before planting.

#### 3.4 SODDING NEW LAWNS:

- A. Lay sod to form a solid mass with tightly fitted joints. Tamp or roll lightly to form a uniform surface. Top dress all joints between sod squares and minor cracks with fine sand. Saturate sod with a fine water spray immediately after planting. If no irrigation system is available, water as necessary until a sufficient root system is established.

#### 3.5 MAINTENANCE:

- A. Maintenance shall begin immediately after sodding; continue until satisfaction of specified guarantee/ maintenance period after Substantial Completion as stipulated herein including all watering operations (permanent irrigation, temporary irrigation, and hand watering).
- B. Maintenance shall include watering, weeding, mowing, resodding, removal of dead materials, fertilizing and applying sprays or chemicals as necessary to keep the grass free of insects and disease.

#### 3.7 CLEANUP AND PROTECTION:

- A. Promptly clean the entire project area of all trash and other debris and all unused or salvaged materials resulting from sodding operations. After completion of the work, remove all spoil piles and sweep or rake the entire project area clean. Protect newly planted areas from traffic until lawn is established.

#### 3.8 SATISFACTORY LAWN:

- A. Sodded lawns will be satisfactorily accepted by Architect with healthy, uniform, and well rooted lawn is established, free of weeds, open joints, bare spots exceeding 5 inches diameter, and surface irregularities.
- B. Replant lawns that are unsatisfactory.

#### 3.9 INSPECTION AND ACCEPTANCE:

- A. Work under this Section will be accepted by Owner's Representative and Architect upon satisfactory completion of all work, maintenance, and punch list items generated by Substantial Completion review.

#### 3.10 SPECIAL PROJECT WARRANTY:

- A. Contractor shall warrant unconditionally that grass planted under this Contract will be healthy and in flourishing condition of active growth for one (1) year from the date of Substantial Completion.
- B. Any delay in completion of planting operations which extends the planting into more than one season will extend the Warranty Period correspondingly.
- C. Replace without cost to the Owner, and as soon as weather conditions permit, all dead grass

as determined by the Owners Representative during and at the end of the Warranty Period.  
Replacements shall be warranted through one full growing season.

**END OF SECTION**

# APPENDIX A



REPORT OF SUBSURFACE EXPLORATION  
AND GEOTECHNICAL EVALUATION  
PROPOSED SAFE HAVEN-QUAD-A RENOVATIONS  
MANDEVILLE, LOUISIANA  
BUILDING & EARTH PROJECT NO: NO170018

*PREPARED FOR:*  
VergesRome Architects, APAC

*MAY 30, 2017*



Geotechnical, Environmental, and Materials Engineers

May 30, 2017

VergesRome Architects, APAC  
320 N. Carrollton Ave. Suite 100  
New Orleans, Louisiana 70119

Attention: Stephanie A. Calamari

Subject: Report of Subsurface Exploration and Geotechnical Evaluation  
Proposed Safe Haven-Quad-A Renovations  
Mandeville, Louisiana  
Building & Earth Project No: NO170018

Dear Ms. Calamari:

Building & Earth Sciences, Inc. has completed the authorized subsurface exploration and geotechnical engineering evaluation for the proposed Safe Haven-Quad-A Renovations located at 23515 Hwy 190, in Mandeville, Louisiana.

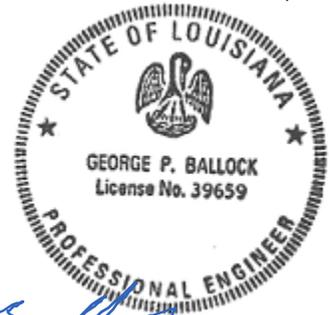
The purpose of this exploration and evaluation was to determine general subsurface conditions at the site and to address applicable geotechnical aspects of the proposed construction and site development. The recommendations in this report are based on a physical reconnaissance of the site and observation and classification of samples obtained from three (3) soil test borings conducted at the site. Confirmation of the anticipated subsurface conditions during construction is an essential part of geotechnical services.

We appreciate the opportunity to provide consultation services for the proposed project. If you have any questions regarding the information in this report or need any additional information, please call us.

Respectfully Submitted,  
**BUILDING & EARTH SCIENCES, INC.**



Feng Zhu, Ph.D.  
Senior Geotechnical Engineer



  
George P. Ballock, P.E. 5/30/2017  
Regional Vice President

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## APPENDIX

## 1.0 PROJECT & SITE DESCRIPTION

The subject site is located at 23515 Hwy 190, in Mandeville, Louisiana. We understand that the construction will consist of new handicap access ramps at various locations around the existing building.

At the time of our field exploration, one large building was located within the bounds of our test borings. There was one parking lot and multiple sidewalks throughout the property. There were also maintained lawns with sporadic trees randomly scattered throughout the site. The site was flat and maintained a consistent elevation throughout.

Photographs depicting the current site conditions are presented on the following page.

| Development Item          | Detail               | Description   |
|---------------------------|----------------------|---|
| <b>General Site</b>       | Size (Ac.)           | Unknown   |
|                           | Existing Development | Existing building, parking area and sidewalks, all to be retained |
|                           | Vegetation           | Grass   |
|                           | Slopes               | No  |
|                           | Retaining Walls      | No  |
|                           | Drainage             | Moderate  |
|                           | Cuts & Fills         | Less than 1 foot (assumed)  |
| <b>Proposed Buildings</b> | No. of Bldgs         | Three (3) concrete ramps  |
|                           | Square Ft.           | N/A   |
|                           | Stories              | N/A   |
|                           | Construction         | Concrete  |
|                           | Column Loads         | N/A   |
|                           | Wall Loads           | Less than 1 kip/ft (assumed)                                      |
|                           | Preferred Foundation | Shallow   |
|                           | Preferred Slab       | N/A   |

**Table 1: Project and Site Description**



**Figure 1: Proposed Site Location**



**Figure 2: Site Photo: Looking at parking lot from TB-1**



**Figure 3: Site Photo: TB-2 Location**



**Figure 4: Site Photo: TB-3 Location**

## **2.0 SCOPE OF SERVICES**

The authorized subsurface exploration was performed on May 11, 2017 in conformance with our proposal NO19020, dated February 13, 2017. Occasionally some modification of the scope outlined in our proposal is required to provide for proper evaluation of the encountered subsurface conditions. One of the proposed borings was omitted, due to site access issues. A fence prevented access to the northern side of the building.

The purpose of the geotechnical exploration was to determine general subsurface conditions at specific boring locations and to gather data on which to base a geotechnical evaluation with respect to the proposed construction. The subsurface exploration for this project consisted of three (3) soil test borings. The site was drilled using a RBT Rig Buggy, and continuous undisturbed sampling was performed.

The soil boring locations were determined in the field by a representative of our staff by measuring distances from existing site features. As such, the boring locations shown on the Boring Location Plan attached to this report should be considered approximate.

The soil samples recovered during our site investigation were visually classified and specific samples were selected by the project engineer for laboratory analysis. The laboratory analysis consisted of:

- Four (4) Natural Moisture Content Tests.
- Two (2) Atterberg Limits Tests.

The results of the laboratory analysis are presented on the enclosed Boring Logs and in tabular form in the Appendix of this report. Descriptions of the laboratory tests that were performed are also included in the Appendix.

The information gathered from the exploration was evaluated to determine general subsurface conditions and to gather data on which to base a geotechnical evaluation with respect to the proposed site development plan.

The results of the work are presented within this report that addresses:

- Site geology and potential impact on site development.
- Summary of existing surface conditions.
- A description of the subsurface conditions encountered at the soil test boring locations, including a description of the groundwater conditions observed in the borehole during drilling. Long-term monitoring is not included in this report.

- Presentation of laboratory test results.
- Site preparation considerations including material types to be expected at the site and treatment of unsuitable soils, if encountered.
- Soil settlement recommendations based on the foundation design.
- Compaction requirements and recommended criteria to establish suitable material for structural backfill.
- Recommendations to be used for foundation design, including appropriate foundation types, bearing pressures, and depths.

### **3.0 GEOTECHNICAL SITE CHARACTERIZATION**

The following discussion is intended to create a general understanding of the site from a geotechnical engineering perspective. It is not intended to be a discussion of every potential geotechnical issue that may arise, nor to provide every possible interpretation of the conditions identified. The following conditions and subsequent recommendations are based on the assumption that significant changes in subsurface conditions do not occur between boreholes. However, anomalous conditions can occur due to variations in existing fill that may be present at the site, or the geologic conditions at the site, and it will be necessary to evaluate the assumed conditions during site grading and foundation installation.

#### **3.1 GEOLOGY**

Based on the published Geological Survey of Louisiana, the subject site is underlain by Prairie Terraces of Phanerozoic/Cenozoic/Quaternary/Pleistocene Age. The Prairie Terraces soils consist of light gray to light brown clay, sandy clay, silt, sand, and some gravels. The conditions encountered in the borings in the residual material correlate to the published geology information.

#### **3.2 EXISTING SURFACE CONDITIONS**

At the time of our field exploration, the site contained a building and areas primarily covered with grass, with sporadic trees randomly scattered throughout the site. One parking lot and multiple sidewalks were also located on the site. The site was relatively flat.

Approximately 5 inches of topsoil were encountered in all of the borings. The topsoil depths reported on the boring logs should only be construed as an estimate and actual conditions during construction will vary. The topsoil and root zone layer may be thicker

in unexplored areas of the site, which can affect the quantities of materials removed during site grading.

### **3.3 SUBSURFACE CONDITIONS**

A generalized stratification summary has been prepared using data from the soil test borings and is presented in the table below. The stratification depicts the general soil conditions and strata types encountered during our field investigation.

| <b>Stratum No.</b> | <b>Typical Thickness</b> | <b>Description</b>   | <b>Consistency</b>         |
|--------------------|--------------------------|--|----------------------------|
| 1                  | 5 in.                    | Topsoil  | N/A                        |
| 2                  | 1 – 4.5 ft.              | Existing Fill – Sandy Lean Clay (CL), and Silty Clay (CL-ML) | Very Stiff to Hard         |
| 3                  | 5 – 8.5 ft.              | Alluvial - Sandy Lean Clay (CL), and Silty Clay (CL-ML)      | Medium Stiff to Very Stiff |

**Table 2: Stratification Summary**

A subsurface soil profile has also been prepared based on the data obtained at the specific boring locations. The subsurface soil profile is presented in the Appendix. For specific details on the information obtained from individual soil borings, please refer to the Boring Logs included in the Appendix. The elevations of the borings indicated in this report were estimated based on Google Earth elevation information.

#### **3.3.1 EXISTING FILL MATERIAL**

Previously placed fill material was encountered at all boring locations. The existing fill material was encountered immediately beneath the topsoil and extended to a depth of about 1.5 to 5 feet below the existing surface. The existing fill consisted of sandy lean clay (CL) or silty clay (CL-ML), and was generally dark brown, grayish brown, and light whitish brown in color. Traces of rocks and organics were observed in some of the samples from the existing fill layer in borings TB-1 and TB-3.

Results of pocket penetrometer tests (PPqu) performed within the fill layer ranged from 1.0 to 5.0 tsf, indicating stiff to hard consistency. Moisture contents of the soil samples tested in existing fill material was approximately 9 percent.

#### **3.3.2 ALLUVIAL SOILS**

Alluvial soils, which are both transported and deposited by water, were encountered beneath the existing fill material in all of the borings and extended to boring termination depth. The alluvial soils consisted primarily of sandy lean clay (CL), and silty clay (CL-ML).

Sandy lean clay (CL) was encountered in TB-2 and TB-3 immediately beneath the fill and extended to boring termination. The field pocket penetrometer (PPqu) values in the CL layer typically ranged from 1.0 to 3.0 tsf, indicating that the CL layer has a stiff to very stiff consistency. Atterberg Limits tests performed on selected CL soils sampled exhibited medium plasticity with Liquid Limits (LL) of 42 and Plasticity Index (PI) of 20.

Alternating layers of silty clay (CL-ML) and sandy lean clay (CL) were encountered in TB-1 below the existing fill layer and extending to boring termination depth. The PPqu values ranged from 2.0 to 3.0 tsf, indicating very stiff consistency.

### **3.3.3 AUGER REFUSAL**

Auger refusal is the drilling depth at which the borehole can no longer be advanced using soil drilling procedures. Auger refusal can occur on hard soil, boulders, buried debris or bedrock. Coring is required to sample the material below auger refusal. Auger refusal was not encountered in any of the boring locations. All of the borings were extended to their planned termination depth of 10 feet below the existing surface elevation.

### **3.3.4 GROUNDWATER**

At the time of drilling, groundwater was not encountered in the boreholes. Water levels reported are accurate only for the time and date that the borings were drilled. Long term monitoring of the boreholes was not included as part of our subsurface exploration. The borings were backfilled the same day that they were drilled.

## **4.0 SITE DEVELOPMENT CONSIDERATIONS**

A grading plan was not available at the time of this report. Based on the surrounding topography, we anticipate cuts and fills of less than 1 foot will be required to reach finished grades. ***When a grading plan is available, Building & Earth Sciences should be allowed to review our recommendations for site preparation.***

Based on our evaluation of the subsurface soil information, and the anticipated loads, it appears that a conventional shallow foundation system is feasible for support of the proposed ramp construction. The site development recommendations outlined below are intended for development of the site to support construction with a shallow foundation system. ***If a different type of foundation system is preferred, Building & Earth should be allowed to review the site development recommendations to verify that they are appropriate for the preferred foundation system.***

The primary geotechnical concern for this project is:

- Moisture sensitive soils encountered throughout the site.

Recommendations addressing the site conditions are presented in the following sections.

#### **4.1 INITIAL SITE PREPARATION**

All trees, roots, topsoil and deleterious materials should be removed from the proposed construction areas. Approximately 5 inches of topsoil were observed in the borings. A geotechnical engineer should observe stripping and grubbing operations to evaluate that all unsuitable materials are removed from locations for proposed construction.

Materials disturbed during clearing operations should be stabilized in place or, if necessary, undercut to undisturbed materials and backfilled with properly compacted, approved structural fill.

During site preparation activities, the contractor should identify borrow source materials that will be used as structural fill and provide samples to the testing laboratory so that conformance to the Structural Fill requirements outlined below and appropriate moisture-density relationship curves can be determined.

#### **4.2 SUBGRADE EVALUATION**

We recommend that the project geotechnical engineer or a qualified representative evaluate the subgrade after the site is prepared. Some unsuitable or unstable areas may be present in unexplored areas of the site. All areas that will require fill or that will support structures should be carefully proofrolled with a heavy (40,000 # minimum), rubber-tired vehicle at the following times.

- After an area has been stripped, and undercut if required, prior to the placement of any fill.
- After grading an area to the finished subgrade elevation in a building or pavement area.
- After areas have been exposed to any precipitation, and/or have been exposed for more than 48 hours.

Some instability may exist during construction, depending on climatic and other factors immediately preceding and during construction. If any soft or otherwise unsuitable soils are identified during the proofrolling process, they must be undercut or stabilized prior to fill placement, pavement construction, or floor slab construction. All unsuitable material

identified during the construction shall be removed and replaced in accordance with the Structural Fill section of this report.

### 4.3 MOISTURE SENSITIVE SOILS

Moisture sensitive lean clays (CL) were encountered across most of the site during the subsurface exploration. These soils will degrade if allowed to become saturated. Therefore, not allowing water to pond by maintaining positive drainage and temporary dewatering methods (if required) is important to help avoid degradation and softening of the soils.

The contractor should anticipate some difficulty during the earthwork phase of this project if moisture levels are moderate to high during construction. Increased moisture levels will soften the subgrade and the soils may become unstable under the influence of construction traffic. Accordingly, construction during wet weather conditions should be avoided, as this could result in soft and unstable soil conditions that would require ground modification, such as in place stabilization or undercutting.

### 4.4 STRUCTURAL FILL

Requirements for structural fill on this project are as follows:

| Soil Type       | USCS Classification                    | Property Requirements                 | Placement Location                             |
|-----------------|--|---------------------------------------|--|
| Sand and Gravel | GW, GP, GM, SW, SP, SM or combinations | Maximum 2" particle size              | All locations and depths with proper drainage. |
| Clay            | CL, SC, GC                             | LL<50, PI<25, $\gamma_d \geq 100$ pcf | All locations and depths.                      |
| Silt            | CL-ML, ML, MH                          | N/A                                   | Not suitable for structural fill.              |
| On-site soils   | CL, CL-ML                              | LL<50, PI<25, $\gamma_d \geq 100$ pcf | As listed above.                               |

**Table 3: Structural Fill Requirements**

Notes:

1. LL indicates the soil Liquid Limit; PI indicates the soil Plasticity Index;  $\gamma_d$  indicates the maximum dry density as defined by the density standard outlined in the table below.
2. Laboratory testing of the soils proposed for fill must be performed in order to verify their conformance with the above recommendations.
3. Any fill to be placed at the site should be reviewed by the geotechnical engineer.

Placement requirements for structural fill are as follows:

| Specification             | Requirement   |
|---------------------------|---|
| Lift Thickness            | Maximum 8-inch loose lifts when compacted with large heavy compaction equipment. Maximum 6-inch loose lifts when compacted with lightweight compaction equipment (thinner lifts may be required in confined locations).   |
| Density                   | Minimum of 98 percent of maximum dry density as defined by ASTM D698 at all locations and depths.   |
| Moisture                  | ± 2 percent of optimum moisture as defined by ASTM D698 for cohesive soils. For cohesionless soils with greater than 12 percent passing the US Standard No. 200 sieve, ± 3 of optimum moisture as defined above. Moisture requirement is waived for cohesionless soils with less than 12 percent passing the No. 200 sieve. |
| Density Testing Frequency | One test per 2,500 sf in building areas and one test per 5,000 sf in pavement areas with minimum of 3 tests per lift. One test per 200 feet of trench backfill with minimum of 2 tests per lift.  |

**Table 4: Structural Fill Placement Requirements**

#### **4.5 EXCAVATION CONSIDERATIONS**

All excavations performed at the site should follow OSHA guidelines for temporary excavations. Excavated soils should be stockpiled according to OSHA regulations to limit the potential cave-in of soils.

#### **4.6 UTILITY TRENCH BACKFILL**

All utility trenches must be backfilled and compacted in the manner specified above for structural fill. It may be necessary to reduce the lift thickness to 4 to 6 inches to achieve compaction using hand-operated equipment.

#### **4.7 LANDSCAPING AND DRAINAGE CONSIDERATION**

The potential for soil moisture fluctuations within pavement subgrades should be reduced to lessen the potential of subgrade movement. Site grading should include positive drainage away from buildings and pavements. Excessive irrigation of landscaping poses a risk of saturating and softening soils below shallow footings and pavements, which could result in settlement of footings and premature failure of pavements.

#### **4.8 WET WEATHER CONSTRUCTION**

Excessive movement of construction equipment across the site during wet weather may result in ruts, which will collect rainwater, prolonging the time required to dry the subgrade soils.

During rainy periods, additional effort will be required to properly prepare the site and establish/maintain an acceptable subgrade. The difficulty will increase in areas where clay or silty soils are exposed at the subgrade elevation. Grading contractors typically postpone grading operations during wet weather to wait for conditions that are more favorable. Contractors can typically disk or aerate the upper soils to promote drying during intermittent periods of favorable weather. When deadlines restrict postponement of grading operations, additional measures such as undercutting and replacing saturated soils or stabilization can be utilized to facilitate placement of additional fill material.

## **5.0 FOUNDATION RECOMMENDATIONS**

Specific structural loading conditions were not known at the time of this report; however, based on our experience with similar projects, we anticipate continuous loads will be less than 1 kip per linear foot. ***If these assumptions concerning structural loading are incorrect, our office should be contacted, such that our recommendations can be reviewed.***

Based on the conditions encountered during our field investigation and after our site preparation and grading recommendations are implemented, the proposed ramps structures can be supported on conventional shallow foundations designed using an allowable soil bearing capacity of 1,500 psf.

Even though computed footing dimensions may be less, column footings should be at least 24 inches wide and strip footings should be at least 18 inches wide. These dimensions facilitate hand cleaning of footing subgrades disturbed by the excavation process and the placement of reinforcing steel. They also reduce the potential for localized punching shear failure. ***All exterior footings should bear at least 12 inches below the adjacent exterior grade.*** Total settlement of footings designed and constructed as recommended above should be 1 inch or less.

## **6.0 CONSTRUCTION MONITORING**

Field verification of site conditions is an essential part of the services provided by the geotechnical consultant. In order to confirm our recommendations, it will be necessary for Building & Earth personnel to make periodic visits to the site during site grading. Typical construction monitoring services are listed below.

- Periodic observations and consultations by a member of our engineering staff during site grading.
- Field density tests during structural fill placement on a continuous basis.

## **7.0 CLOSING AND LIMITATIONS**

This report was prepared for VergesRome Architects, APAC, for specific application to the proposed Safe Haven-Quad-A Renovations located in Mandeville, Louisiana. The information in this report is not transferable. This report should not be used for a different development on the same property without first being evaluated by the engineer.

The recommendations in this report were based on the information obtained from our field exploration and laboratory analysis. The data collected is representative of the locations tested. Variations are likely to occur at other locations throughout the site. Engineering judgment was applied in regards to conditions between borings. It will be necessary to confirm the anticipated subsurface conditions during construction.

This report has been prepared in accordance with generally accepted standards of geotechnical engineering practice. No other warranty is expressed or implied. In the event that changes are made, or anticipated to be made, to the nature, design, or location of the project as outlined in this report, Building & Earth must be informed of the changes and given the opportunity to either verify or modify the conclusions of this report in writing, or the recommendations of this report will no longer be valid.

The scope of services for this project did not include any environmental assessment of the site or identification of pollutants or hazardous materials or conditions. If the owner is concerned about environmental issues Building & Earth would be happy to provide an additional scope of services to address those concerns.

This report is intended for use during design and preparation of specifications and may not address all conditions at the site during construction. Contractors reviewing this information should acknowledge that this document is for design information only.

An article published by the Geoprofessional Business Association (GBA), titled *Important Information About Your Geotechnical Report*, has been included in the Appendix. We encourage all individuals to become familiar with the article to help manage risk.

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## GEOTECHNICAL INVESTIGATION METHODOLOGIES

The subsurface exploration, which is the basis of the recommendations of this report, has been performed in accordance with industry standards. Detailed methodologies employed in the investigation are presented in the following sections.

### *CONTINUOUS UNDISTURBED SAMPLING*

At each of the boring locations, soil samples are obtained at standard sampling intervals using two feet long Shelby tube samplers. The Shelby tube is a three (3) inch diameter, thin walled sampling tube that allows for relatively undisturbed sampling of soil. The undisturbed or thin-walled tube sampling was conducted in general accordance with ASTM D1587.

The sampling procedure consists of augering to the sample depth, then cleaning out the open borehole and continuously pushing the thin-walled, metal Shelby tube into the soil. The Shelby tubes were carefully withdrawn from the borehole to reduce the possibility of disturbing the sample. The Shelby tubes were extruded on site and Pocket Penetrometer tests were performed for estimation of the unconfined compressive strength of the soil. Samples retrieved from each of the boring locations were labeled, wrapped in foil, and stored in plastic bags at the jobsite before being transported to our laboratory for analysis. The soil samples were visually classified at the time they were extruded.

## BORING LOG DESCRIPTION

Building & Earth Sciences, Inc. used the gINT software program to prepare the attached boring logs. The gINT program provides the flexibility to custom design the boring logs to include the pertinent information from the subsurface exploration and results of our laboratory analysis. The soil and laboratory information included on our logs is summarized below:

### *DEPTH AND ELEVATION*

The depth below the ground surface and the corresponding elevation are shown in the first two columns.

### *SAMPLE TYPE*

The method used to collect the sample is shown. The typical sampling methods include Split Spoon Sampling, Shelby Tube Sampling, Grab Samples, and Rock Core. A key is provided at the bottom of the log showing the graphic symbol for each sample type.

### *SAMPLE NUMBER*

Each sample collected is numbered sequentially.

### *BLOWS PER INCREMENT, REC%, RQD%*

When Standard Split Spoon sampling is used, the blows required to drive the sampler each 6-inch increment are recorded and shown in column 5. When rock core is obtained the recovery ratio (REC%) and Rock Quality Designation (RQD%) is recorded.

### *SOIL DATA*

Column 6 is a graphic representation of four different soil parameters. Each of the parameters use the same graph, however, the values of the graph subdivisions vary with each parameter. Each parameter presented on column 6 is summarized below:

- **N-value**- The Standard Penetration Test N-value, obtained by adding the number of blows required to drive the sampler the final 12 inches, is recorded. The graph labels range from 0 to 50.
- **Qu** – Unconfined Compressive Strength estimate from the Pocket Penetrometer test in tons per square foot (tsf). The graph labels range from 0 to 5 tsf.
- **Atterberg Limits** – The Atterberg Limits are plotted with the plastic limit to the left, and liquid limit to the right, connected by a horizontal line. The difference in the plastic and liquid limits is referred to as the Plasticity Index. The Atterberg Limits test results are also included in the Remarks column on the far right of the boring log. The Atterberg Limits graph labels range from 0 to 100%.
- **Moisture** – The Natural Moisture Content of the soil sample as determined in our laboratory.

### *SOIL DESCRIPTION*

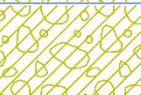
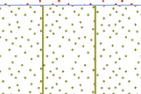
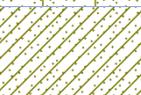
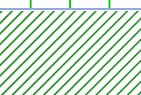
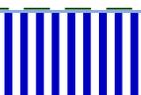
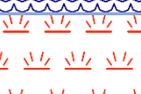
The soil description prepared in accordance with ASTM D2488, Visual Description of Soil Samples. The Munsel Color chart is used to determine the soil color. Strata changes are indicated by a solid line, with the depth of the change indicated on the left side of the line and the elevation of the change indicated on the right side of the line. If subtle changes within a soil type occur, a broken line is used. The Boring Termination or Auger Refusal depth is shown as a solid line at the bottom of the boring.

### *GRAPHIC*

The graphic representation of the soil type is shown. The graphic used for each soil type is related to the Unified Soil Classification chart. A chart showing the graphic associated with each soil classification is included.

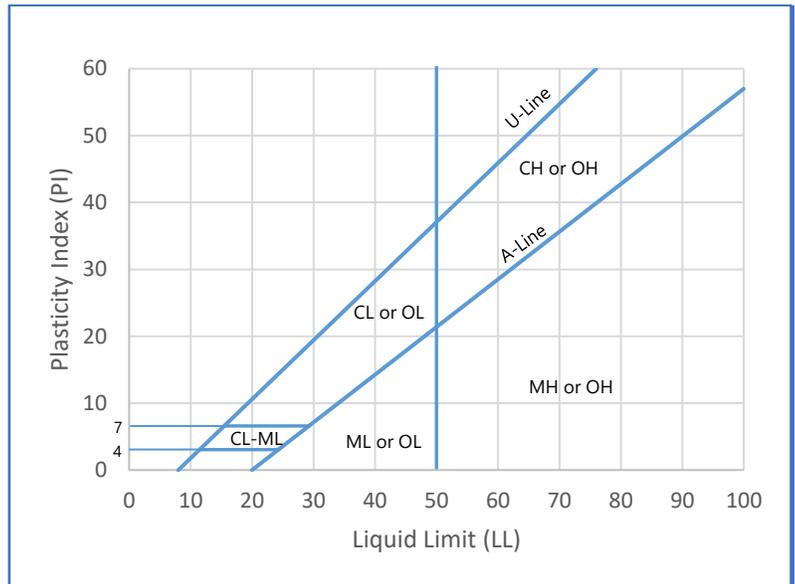
### *REMARKS*

Remarks regarding borehole observations, and additional information regarding the laboratory results and groundwater observations.

| Major Divisions  |   |  | Symbols   |   | Group Name & Typical Description  |
|--|---|--|---|---|---|
|  |   |  | Lithology   | Group   |   |
| <b>Coarse Grained Soils</b><br><br>More than 50% of material is larger than No. 200 sieve size | <b>Gravel and Gravelly Soils</b><br><br>More than 50% of coarse fraction is larger than No. 4 sieve | <b>Clean Gravels</b><br>(Less than 5% fines)       |    | <b>GW</b>   | Well-graded gravels, gravel – sand mixtures, little or no fines   |
|  |   |  |    | <b>GP</b>   | Poorly-graded gravels, gravel – sand mixtures, little or no fines   |
|  |   | <b>Gravels with Fines</b><br>(More than 12% fines) |    | <b>GM</b>   | Silty gravels, gravel – sand – silt mixtures  |
|  |   |  |    | <b>GC</b>   | Clayey gravels, gravel – sand – clay mixtures   |
|  | <b>Sand and Sandy Soils</b><br><br>More than 50% of coarse fraction is smaller than No. 4 sieve     | <b>Clean Sands</b><br>(Less than 5% fines)         |    | <b>SW</b>   | Well-graded sands, gravelly sands, little or no fines   |
|  |   |  |   |  | <b>SP</b>   |
|  |   | <b>Sands with Fines</b><br>(More than 12% fines)   |   | <b>SM</b>   | Silty sands, sand – silt mixtures   |
|  |   |  |  | <b>SC</b>   | Clayey sands, sand – clay mixtures  |
| <b>Fine Grained Soils</b><br><br>More than 50% of material is smaller than No. 200 sieve size  | <b>Silts and Clays</b><br><br>Liquid Limit less than 50   | <b>Inorganic</b>                                   |  | <b>ML</b>   | Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silt with slight plasticity |
|  |   |  |  | <b>CL</b>   | Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays                 |
|  |   | <b>Organic</b>                                     |  | <b>OL</b>   | Organic silts and organic silty clays of low plasticity   |
|  | <b>Silts and Clays</b><br><br>Liquid Limit greater than 50 sieve                                    | <b>Inorganic</b>                                   |  | <b>MH</b>   | Inorganic silts, micaceous or diatomaceous fine sand, or silty soils  |
|  |   |  |  | <b>CH</b>   | Inorganic clays of high plasticity  |
|  |   | <b>Organic</b>                                     |  | <b>OH</b>   | Organic clays of medium to high plasticity, organic silts   |
| <b>Highly Organic Soils</b>  |   |  |  | <b>PT</b>   | Peat, humus, swamp soils with high organic contents   |

**Table 1: Soil Classification Chart (based on ASTM D2487)**

Building & Earth Sciences classifies soil in general accordance with the Unified Soil Classification System (USCS) presented in ASTM D2487. Table 1 and Figure 1 exemplify the general guidance of the USCS. Soil consistencies and relative densities are presented in general accordance with Terzaghi, Peck, & Mesri's (1996) method, as shown on Table 2, when quantitative field and/or laboratory data is available. Table 2 includes Consistency and Relative Density correlations with N-values obtained using either a manual hammer (60 percent efficiency) or automatic hammer (90 percent efficiency). The *Blows Per Increment* and *SPT N-values* displayed on the boring logs are the unaltered values measured in the field. When field and/or laboratory data is not available, we may classify soil in general accordance with the Visual Manual Procedure presented in ASTM D2488.

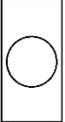
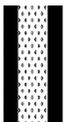


**Figure 1: Plasticity Chart (based on ASTM D2487)**

| Non-cohesive: Coarse-Grained Soil |               | Cohesive: Fine-Grained Soil |                              |               |              |  |
|-----------------------------------|---------------|-----------------------------|------------------------------|---------------|--------------|--|
| SPT Penetration (blows/foot)      |               | Relative Density            | SPT Penetration (blows/foot) |               | Consistency  | Estimated Range of Unconfined Compressive Strength (tsf) |
|                                   |               |                             | Automatic Hammer*            | Manual Hammer |              |  |
| Automatic Hammer*                 | Manual Hammer |                             | < 2                          | < 2           | Very Soft    | < 0.25   |
| 0 - 3                             | 0 - 4         | Very Loose                  | 2 - 3                        | 2 - 4         | Soft         | 0.25 – 0.50  |
| 3 - 8                             | 4 - 10        | Loose                       | 3 - 6                        | 4 - 8         | Medium Stiff | 0.50 – 1.00  |
| 8 - 23                            | 10 - 30       | Medium Dense                | 6 - 12                       | 8 - 15        | Stiff        | 1.00 – 2.00  |
| 23 - 38                           | 30 - 50       | Dense                       | 12 - 23                      | 15 - 30       | Very Stiff   | 2.00 – 4.00  |
| > 38                              | > 50          | Very Dense                  | > 23                         | > 30          | Hard         | > 4.00   |

**Table 2: Soil Consistency and Relative Density (based on Terzaghi, Peck & Mesri, 1996)**

\* - Modified based on 80% hammer efficiency

|   |  |   |  |
|---|--|---|--|
|  | Standard Penetration Test<br>ASTM D1586 or<br>AASHTO T-206 |  | Dynamic Cone Penetrometer<br>(Sower DCP)<br>ASTM STP-399 |
|  | Shelby Tube Sampler<br>ASTM D1587                          |  | No Sample Recovery                                       |
|  | Rock Core Sample<br>ASTM D2113                             |  | Groundwater at Time of Drilling                          |
|  | Auger Cuttings   |  | Groundwater as Indicated                                 |

**Table 1: Symbol Legend**

| Soil            | Particle Size        | U.S. Standard          |
|-----------------|----------------------|------------------------|
| <b>Boulders</b> | Larger than 300 mm   | N.A.                   |
| <b>Cobbles</b>  | 300 mm to 75 mm      | N.A.                   |
| <b>Gravel</b>   | 75 mm to 4.75 mm     | 3-inch to #4 sieve     |
| Coarse          | 75 mm to 19 mm       | 3-inch to ¾-inch sieve |
| Fine            | 19 mm to 4.75 mm     | ¾-inch to #4 sieve     |
| <b>Sand</b>     | 4.75 mm to 0.075 mm  | #4 to #200 Sieve       |
| Coarse          | 4.75 mm to 2 mm      | #4 to #10 Sieve        |
| Medium          | 2 mm to 0.425 mm     | #10 to #40 Sieve       |
| Fine            | 0.425 mm to 0.075 mm | #40 to #200 Sieve      |
| <b>Fines</b>    | Less than 0.075 mm   | Passing #200 Sieve     |
| Silt            | Less than 5 µm       | N.A.                   |
| Clay            | Less than 2 µm       | N.A.                   |

**Table 2: Standard Sieve Sizes**

|  |   |   |   |
|--|---|---|---|
| N-Value<br> | Standard Penetration Test Resistance calculated using ASTM D1586 or AASHTO T-206. Calculated as sum of original, field recorded values. | Atterberg Limits<br> | A measure of a soil's plasticity characteristics in general accordance with ASTM D4318. The soil Plasticity Index (PI) is representative of this characteristic and is bracketed by the Liquid Limit (LL) and the Plastic Limit (PL). |
| Qu<br>      | Unconfined compressive strength, typically estimated from a pocket penetrometer. Results are presented in tons per square foot (tsf).   | % Moisture<br>       | Percent natural moisture content in general accordance with ASTM D2216.   |

**Table 3: Soil Data**

|                        |  |
|------------------------|--|
| Hollow Stem Auger      | Flights on the outside of the shaft advance soil cuttings to the surface. The hollow stem allows sampling through the middle of the auger flights. |
| Mud Rotary / Wash Bore | A cutting head advances the boring and discharges a drilling fluid to support the borehole and circulate cuttings to the surface.                  |
| Solid Flight Auger     | Flights on the outside bring soil cuttings to the surface. Solid stem requires removal from borehole during sampling.                              |
| Hand Auger             | Cylindrical bucket (typically 3-inch diameter and 8 inches long) attached to a metal rod and turned by human force.                                |

**Table 4: Soil Drilling Methods**

| Descriptor | Meaning             |
|------------|---------------------|
| Trace      | Likely less than 5% |
| Few        | 5 to 10%            |
| Little     | 15 to 25%           |
| Some       | 30 to 45%           |
| Mostly     | 50 to 100%          |

**Table 5: Descriptors**

|   |   |
|---|---|
| <b>Manual Hammer</b>                                      | The operator tightens and loosens the rope around a rotating drum assembly to lift and drop a sliding, 140-pound hammer falling 30 inches.  |
| <b>Automatic Trip Hammer</b>                              | An automatic mechanism is used to lift and drop a sliding, 140-pound hammer falling 30 inches.  |
| <b>Dynamic Cone Penetrometer (Sower DCP) ASTM STP-399</b> | Uses a 15-pound steel mass falling 20 inches to strike an anvil and cause penetration of a 1.5-inch diameter cone seated in the bottom of a hand augered borehole. The blows required to drive the embedded cone a depth of 1-3/4 inches have been correlated by others to N-values derived from the Standard Penetration Test (SPT). |

**Table 6: Sampling Methods**

|                    |   |
|--------------------|---|
| <b>Non-plastic</b> | A 1/8-inch thread cannot be rolled at any water content.  |
| <b>Low</b>         | The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.  |
| <b>Medium</b>      | The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be re-rolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.                          |
| <b>High</b>        | It takes considerable time rolling and kneading to reach the plastic limit. The thread can be re-rolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit. |

**Table 7: Plasticity**

|              |  |
|--------------|--|
| <b>Dry</b>   | Absence of moisture, dusty, dry to the touch.          |
| <b>Moist</b> | Damp but no visible water.                             |
| <b>Wet</b>   | Visible free water, usually soil is below water table. |

**Table 8: Moisture Condition**

|                     |   |
|---------------------|---|
| <b>Stratified</b>   | Alternating layers of varying material or color with layers at least 1/2 inch thick.                          |
| <b>Laminated</b>    | Alternating layers of varying material or color with layers less than 1/4 inch thick.                         |
| <b>Fissured</b>     | Breaks along definite planes of fracture with little resistance to fracturing.                                |
| <b>Slickensides</b> | Fracture planes appear polished or glossy, sometimes striated.  |
| <b>Blocky</b>       | Cohesive soil that can be broken down into small angular lumps which resist further breakdown.                |
| <b>Lensed</b>       | Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay. |
| <b>Homogeneous</b>  | Same color and appearance throughout.   |

**Table 9: Structure**

| Hatch | Description   | Hatch | Description                   | Hatch | Description                          |
|-------|---|-------|-------------------------------|-------|--------------------------------------|
|       | <b>GW</b> - Well-graded gravels, gravel – sand mixtures, little or no fines   |       | Asphalt                       |       | Clay with Gravel                     |
|       | <b>GP</b> - Poorly-graded gravels, gravel – sand mixtures, little or no fines   |       | Aggregate Base                |       | Sand with Gravel                     |
|       | <b>GM</b> - Silty gravels, gravel – sand – silt mixtures  |       | Topsoil                       |       | Silt with Gravel                     |
|       | <b>GC</b> - Clayey gravels, gravel – sand – clay mixtures   |       | Concrete                      |       | Gravel with Sand                     |
|       | <b>SW</b> - Well-graded sands, gravelly sands, little or no fines   |       | Coal                          |       | Gravel with Clay                     |
|       | <b>SP</b> - Poorly-graded sands, gravelly sands, little or no fines   |       | <b>CL-ML</b> - Silty Clay     |       | Gravel with Silt                     |
|       | <b>SM</b> - Silty sands, sand – silt mixtures   |       | Sandy Clay                    |       | Limestone                            |
|       | <b>SC</b> - Clayey sands, sand – clay mixtures  |       | Clayey Chert                  |       | Chalk                                |
|       | <b>ML</b> - Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silt with slight plasticity |       | Low and High Plasticity Clay  |       | Siltstone                            |
|       | <b>CL</b> - Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays                 |       | Low Plasticity Silt and Clay  |       | Till                                 |
|       | <b>OL</b> - Organic silts and organic silty clays of low plasticity   |       | High Plasticity Silt and Clay |       | Sandy Clay with Cobbles and Boulders |
|       | <b>MH</b> - Inorganic silts, micaceous or diatomaceous fine sand, or silty soils  |       | Fill                          |       | Sandstone with Shale                 |
|       | <b>CH</b> - Inorganic clays of high plasticity  |       | Weathered Rock                |       | Coral                                |
|       | <b>OH</b> - Organic clays of medium to high plasticity, organic silts   |       | Sandstone                     |       | Boulders and Cobbles                 |
|       | <b>PT</b> - Peat, humus, swamp soils with high organic contents   |       | Shale                         |       | Soil and Weathered Rock              |

**Table 1: Key to Hatches Used for Boring Logs and Soil Profiles**

# BORING LOCATION PLAN



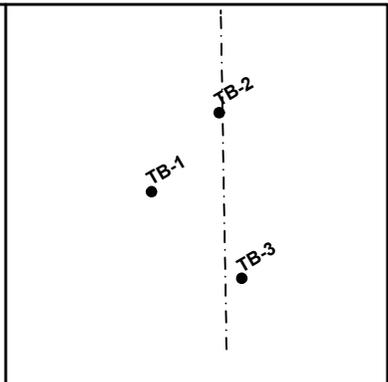
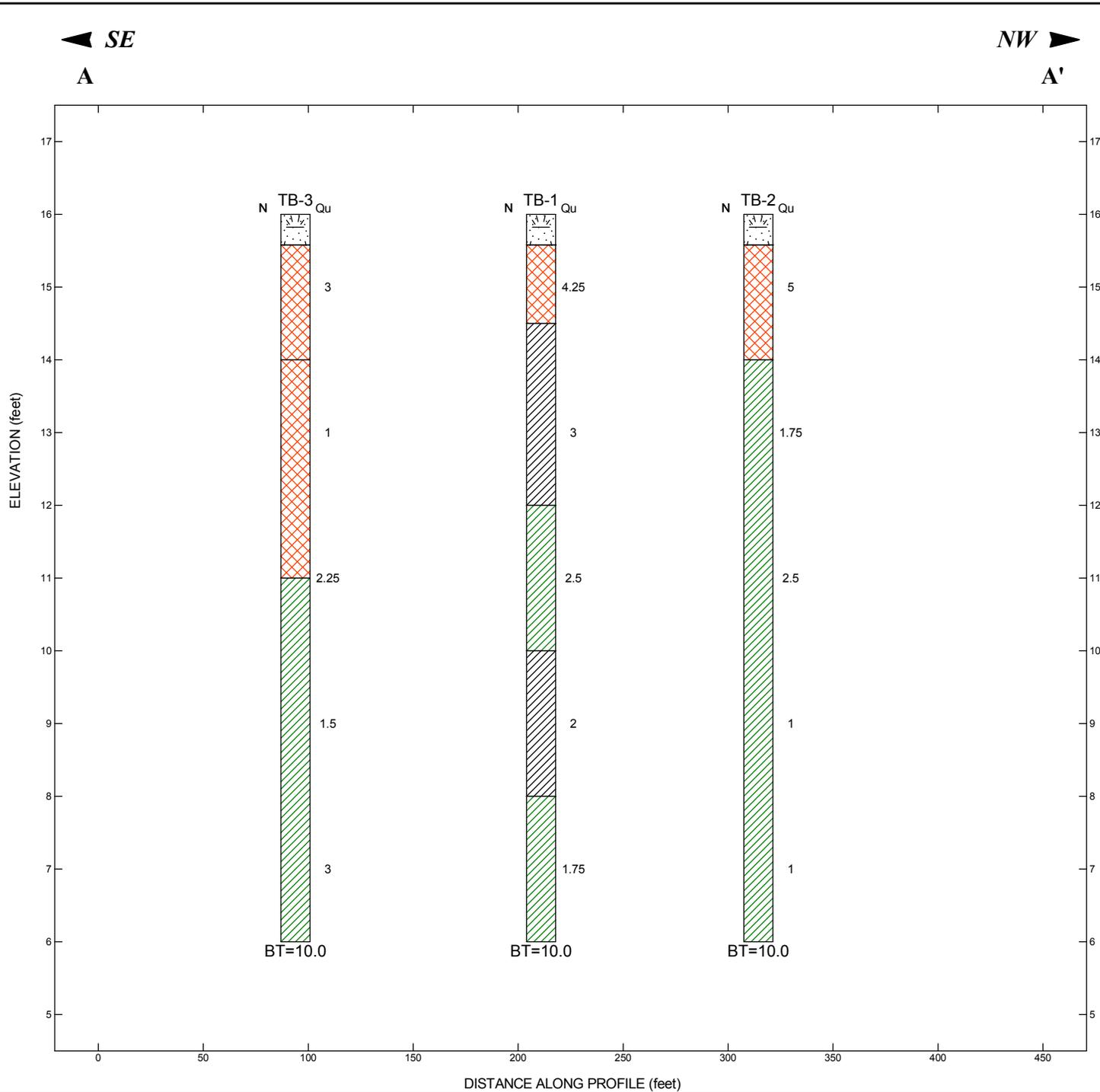
**BUILDING & EARTH**

Geotechnical, Environmental, and Materials Engineers

|  |                             |                                  |
|--|-----------------------------|----------------------------------|
| <b>Reference used to create this drawing:</b>                    | <b>BORING LOCATION PLAN</b> |                                  |
| Partial Site Plan Unit A<br>Prepared by VergesRome<br>01/23/2017 | <b>PROJECT NO.</b>          | <b>PROJECT NAME / LOCATION</b>   |
|  | NO170018                    | Safe Haven<br>Quad-A Renovations |
|  | <b>SCALE:</b>               | <b>DATE:</b>                     |
|  | N.T.S.                      | 6/1/2017                         |

# SUBSURFACE SOIL PROFILE

ALDOTT PROFILE SAFE HAVEN QUAD-A FIELD BORINGS GPJ\_BESI.GDT\_5/26/17



**Explanation**

BT=Boring Termination  
 AR=Auger Refusal  
 PPqu=Unconfined compressive strength estimate from pocket penetrometer test (tsf)  
 N=Standard Penetration Test N-Value

|  |                                |  |                          |
|--|--------------------------------|--|--------------------------|
|  | Topsoil                        |  | Fill                     |
|  | USCS Low Plasticity Silty Clay |  | USCS Low Plasticity Clay |

▽ Water Level Reading at time of drilling.  
 ▼ Water Level Reading after drilling.

0 69  
 Horizontal Scale (feet)  
 Vertical Exaggeration: 34.5x

**Building & Earth Sciences, Inc.**  
 5545 Derby Drive  
 Birmingham, AL 35210

**Parking Area A-A'  
 Subsurface Profile**

Safe Haven Quad-A Renovations  
 Mandeville, Louisiana

| JOB NUMBER | PLATE NUMBER | DATE    |
|------------|--------------|---------|
| NO170018   | Plate A-1    | 5/26/17 |

**BORING LOGS**



Geotechnical, Environmental, and Materials Engineers

# LOG OF BORING

Designation: TB-1

Sheet 1 of 1

5545 Derby Drive  
 Birmingham, AL 35210  
 Office: (205) 836-6300  
 Fax: (205) 836-9007  
 www.BuildingAndEarth.com

**Project Name:** Safe Haven Quad-A Renovations

**Project Number:** NO170018

**Drilling Method:** Hollow Stem Auger

**Equipment Used:** RBT Rig Buggy

**Hammer Type:** N/A

**Boring Location:** Front Ramp closest to Pelican Blvd.

**Project Location:** Mandeville, Louisiana

**Date Drilled:** 5/11/17

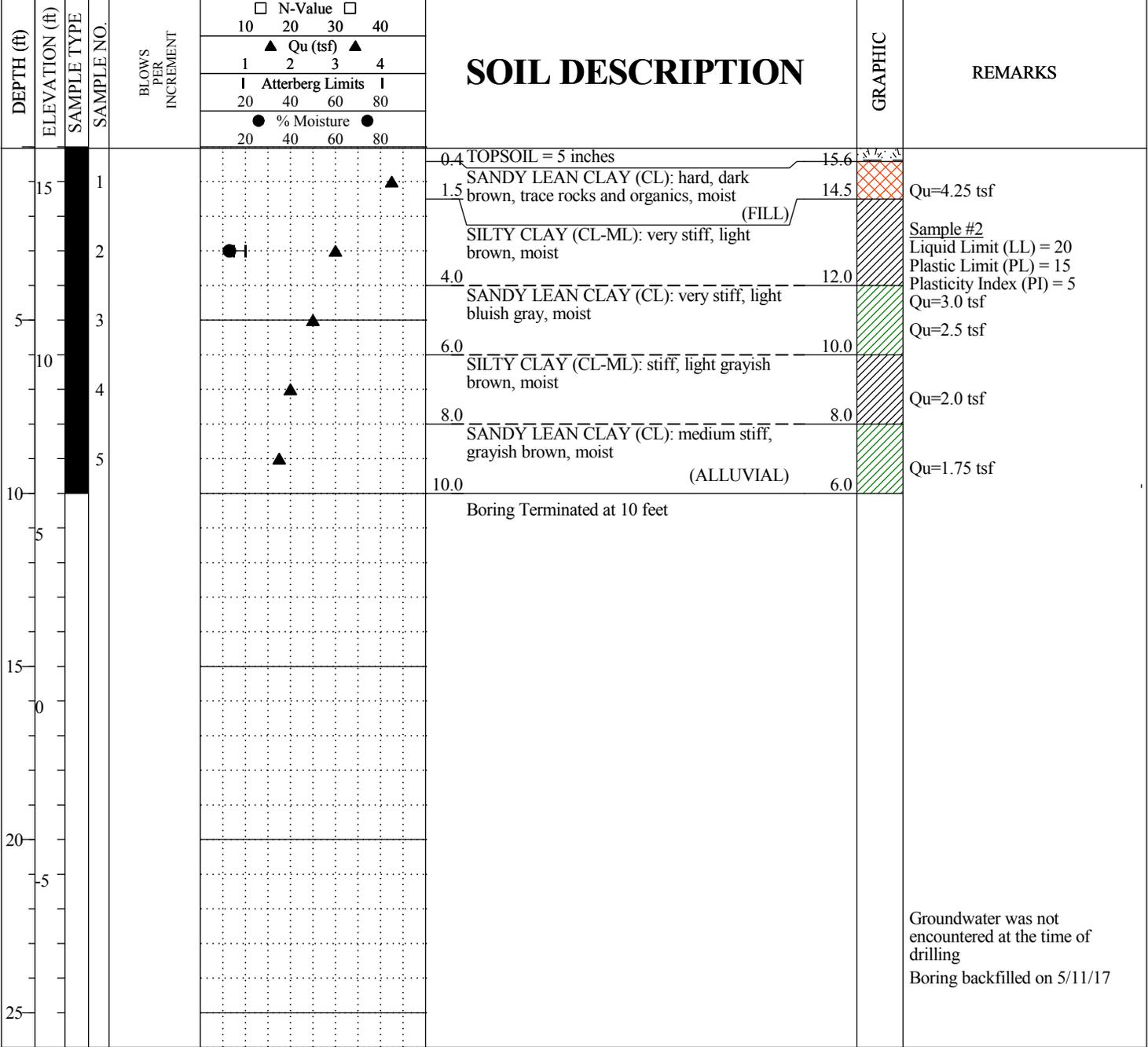
**Weather Conditions:** Clear

**Surface Elevation:** 16

**Drill Crew:** Triangle

**Logged By:** S. Smith

## SOIL DESCRIPTION



Groundwater was not encountered at the time of drilling  
 Boring backfilled on 5/11/17

LOG OF BORING 2 SAFE HAVEN QUAD-A FIELD BORINGS.GPJ BESJ.GDT 5/30/17

SAMPLE TYPE Shelby Tube

**N-VALUE** STANDARD PENETRATION RESISTANCE (AASHTO T-206)      **REC** RECOVERY  
**% MOISTURE** PERCENT NATURAL MOISTURE CONTENT      **RQD** ROCK QUALITY DESIGNATION  
 GROUNDWATER LEVEL IN THE BOREHOLE      **UD** UNDISTURBED  
**Qu** UNCONFINED COMPRESSIVE STRENGTH ESTIMATE FROM POCKET PENETROMETER TEST



Geotechnical, Environmental, and Materials Engineers

# LOG OF BORING

Designation: TB-2

Sheet 1 of 1

5545 Derby Drive  
 Birmingham, AL 35210  
 Office: (205) 836-6300  
 Fax: (205) 836-9007  
 www.BuildingAndEarth.com

**Project Name:** Safe Haven Quad-A Renovations  
**Project Number:** NO170018  
**Drilling Method:** Hollow Stem Auger  
**Equipment Used:** RBT Rig Buggy  
**Hammer Type:** N/A  
**Boring Location:** Side building entrance Ramp

**Project Location:** Mandeville, Louisiana  
**Date Drilled:** 5/11/17  
**Weather Conditions:** Clear  
**Surface Elevation:** 16  
**Drill Crew:** Triangle  
**Logged By:** S. Smith

| DEPTH (ft) | ELEVATION (ft) | SAMPLE TYPE | SAMPLE NO. | BLOWS PER INCREMENT | N-Value          |    |    |    | Qu (tsf)   |    |    |   | SOIL DESCRIPTION | GRAPHIC  | REMARKS |
|------------|----------------|-------------|------------|---------------------|------------------|----|----|----|------------|----|----|---|------------------|--|---------|
|            |                |             |            |                     | 10               | 20 | 30 | 40 | 1          | 2  | 3  | 4   |                  |  |         |
|            |                |             |            |                     | Atterberg Limits |    |    |    | % Moisture |    |    |   |                  |  |         |
|            |                |             |            |                     | 20               | 40 | 60 | 80 | 20         | 40 | 60 | 80  |                  |  |         |
| 0.4        | 15.6           |             |            |                     |                  |    |    |    |            |    |    | TOPSOIL = 5 inches                                      |                  |  |         |
|            |                |             |            |                     |                  |    |    |    |            |    |    | SILTY CLAY (CL-ML): hard, light brown, moist            |                  | Qu=5.0 tsf   |         |
| 2.0        | 14.0           |             |            |                     |                  |    |    |    |            |    |    | (FILL)  |                  |  |         |
|            |                |             |            |                     |                  |    |    |    |            |    |    | SANDY LEAN CLAY (CL): stiff, light grayish brown, moist |                  | Qu=1.75 tsf  |         |
| 5          |                |             |            |                     |                  |    |    |    |            |    |    | very stiff  |                  | Qu=2.5 tsf   |         |
| 10         |                |             |            |                     |                  |    |    |    |            |    |    | medium stiff  |                  | Qu=1.0 tsf   |         |
| 10.0       |                |             |            |                     |                  |    |    |    |            |    |    | (ALLUVIAL)  |                  | Sample #5<br>Liquid Limit (LL) = 42<br>Plastic Limit (PL) = 22<br>Plasticity Index (PI) = 20<br>Qu=1.0 tsf |         |
|            |                |             |            |                     |                  |    |    |    |            |    |    | Boring Terminated at 10 feet                            |                  |  |         |
| 15         |                |             |            |                     |                  |    |    |    |            |    |    |   |                  |  |         |
| 20         |                |             |            |                     |                  |    |    |    |            |    |    |   |                  |  |         |
| 25         |                |             |            |                     |                  |    |    |    |            |    |    |   |                  |  |         |

LOG OF BORING 2 SAFE HAVEN QUAD-A FIELD BORINGS.GPJ BESJ.GDT 5/30/17

SAMPLE TYPE Shelby Tube

|                   |  |            |                          |
|-------------------|--|------------|--------------------------|
| <b>N-VALUE</b>    | STANDARD PENETRATION RESISTANCE (AASHTO T-206)                         | <b>REC</b> | RECOVERY                 |
| <b>% MOISTURE</b> | PERCENT NATURAL MOISTURE CONTENT                                       | <b>RQD</b> | ROCK QUALITY DESIGNATION |
|                   | GROUNDWATER LEVEL IN THE BOREHOLE                                      | <b>UD</b>  | UNDISTURBED              |
| <b>Qu</b>         | UNCONFINED COMPRESSIVE STRENGTH ESTIMATE FROM POCKET PENETROMETER TEST |            |                          |



Geotechnical, Environmental, and Materials Engineers

# LOG OF BORING

Designation: TB-3

Sheet 1 of 1

5545 Derby Drive  
 Birmingham, AL 35210  
 Office: (205) 836-6300  
 Fax: (205) 836-9007  
 www.BuildingAndEarth.com

**Project Name:** Safe Haven Quad-A Renovations  
**Project Number:** NO170018  
**Drilling Method:** Hollow Stem Auger  
**Equipment Used:** RBT Rig Buggy  
**Hammer Type:** N/A  
**Boring Location:** Front Building Ramp Closest to Parking Lot

**Project Location:** Mandeville, Louisiana  
**Date Drilled:** 5/11/17  
**Weather Conditions:** Clear  
**Surface Elevation:** 16  
**Drill Crew:** Triangle  
**Logged By:** S. Smith

| DEPTH (ft) | ELEVATION (ft) | SAMPLE TYPE | SAMPLE NO. | BLOWS PER INCREMENT | N-Value          |    |    |    | Qu (tsf)   |    |    |   | SOIL DESCRIPTION | GRAPHIC     | REMARKS |
|------------|----------------|-------------|------------|---------------------|------------------|----|----|----|------------|----|----|---|------------------|-------------|---------|
|            |                |             |            |                     | 10               | 20 | 30 | 40 | 1          | 2  | 3  | 4   |                  |             |         |
|            |                |             |            |                     | Atterberg Limits |    |    |    | % Moisture |    |    |   |                  |             |         |
|            |                |             |            |                     | 20               | 40 | 60 | 80 | 20         | 40 | 60 | 80  |                  |             |         |
| 0.4        | 15.6           |             |            |                     |                  |    |    |    |            |    |    | TOPSOIL = 5 inches  |                  |             |         |
| 2.0        | 14.0           |             |            |                     |                  |    |    |    |            |    |    | SILTY CLAY (CL-ML): very stiff, grayish brown and black, trace gravel and organics, moist     |                  | Qu=3.0 tsf  |         |
| 5.0        | 11.0           |             |            |                     |                  |    |    |    |            |    |    | SANDY LEAN CLAY (CL): medium stiff, grayish brown and black, trace gravel and organics, moist |                  | Qu=1.0 tsf  |         |
|            |                |             |            |                     |                  |    |    |    |            |    |    | (FILL)  |                  | Qu=2.25 tsf |         |
|            |                |             |            |                     |                  |    |    |    |            |    |    | SANDY LEAN CLAY (CL): very stiff, grayish brown, moist  |                  | Qu=1.5 tsf  |         |
|            |                |             |            |                     |                  |    |    |    |            |    |    | stiff   |                  |             |         |
|            |                |             |            |                     |                  |    |    |    |            |    |    | very stiff  |                  | Qu=3.0 tsf  |         |
| 10.0       | 6.0            |             |            |                     |                  |    |    |    |            |    |    | (ALLUVIAL)  |                  |             |         |
|            |                |             |            |                     |                  |    |    |    |            |    |    | Boring Terminated at 10 feet  |                  |             |         |

LOG OF BORING 2 SAFE HAVEN QUAD-A FIELD BORINGS.GPJ BESJ.GDT 5/30/17

SAMPLE TYPE Shelby Tube

|                   |  |            |                          |
|-------------------|--|------------|--------------------------|
| <b>N-VALUE</b>    | STANDARD PENETRATION RESISTANCE (AASHTO T-206)                         | <b>REC</b> | RECOVERY                 |
| <b>% MOISTURE</b> | PERCENT NATURAL MOISTURE CONTENT                                       | <b>RQD</b> | ROCK QUALITY DESIGNATION |
|                   | GROUNDWATER LEVEL IN THE BOREHOLE                                      | <b>UD</b>  | UNDISTURBED              |
| <b>Qu</b>         | UNCONFINED COMPRESSIVE STRENGTH ESTIMATE FROM POCKET PENETROMETER TEST |            |                          |

## LABORATORY TEST PROCEDURES

A brief description of the laboratory tests performed is provided in the following sections.

### *DESCRIPTION OF SOILS (VISUAL-MANUAL PROCEDURE) (ASTM D2488)*

The soil samples were visually examined by our engineer and soil descriptions were provided. Representative samples were then selected and tested in accordance with the aforementioned laboratory-testing program to determine soil classifications and engineering properties. This data was used to correlate our visual descriptions with the Unified Soil Classification System (USCS).

### *POCKET PENETROMETER*

Pocket Penetrometer tests were performed on cohesive soil samples. The pocket penetrometer provides a consistency classification, and an indication of the soils unconfined compressive strength ( $Q_u$ ).

### *NATURAL MOISTURE CONTENT (ASTM D2216)*

Natural moisture contents (M%) were determined on selected samples. The natural moisture content is the ratio, expressed as a percentage, of the weight of water in a given amount of soil to the weight of solid particles.

### *ATTERBERG LIMITS (ASTM D4318)*

The Atterberg Limits test was performed to evaluate the soil's plasticity characteristics. The soil Plasticity Index (PI) is representative of this characteristic and is bracketed by the Liquid Limit (LL) and the Plastic Limit (PL). The Liquid Limit is the moisture content at which the soil will flow as a heavy viscous fluid. The Plastic Limit is the moisture content at which the soil is between "plastic" and the semi-solid stage. The Plasticity Index ( $PI = LL - PL$ ) is a frequently used indicator for a soil's potential for volume change. Typically, a soil's potential for volume change increases with higher plasticity indices.

*LABORATORY TEST RESULTS*

The results of the laboratory testing are presented in the following table.

| Boring or Test Pit Location | Sample Depth (ft) | LL | PL | PI | Moisture Content (%) |
|-----------------------------|-------------------|----|----|----|----------------------|
| TB-1                        | 2.0 – 4.0         | 20 | 15 | 5  | 12.6                 |
| TB-2                        | 0 – 2.0           | -  | -  | -  | 8.9                  |
| TB-2                        | 8.0 – 10.0        | 42 | 22 | 20 | 23.3                 |
| TB-3                        | 2.0 – 4.0         | -  | -  | -  | 19.2                 |

**Table A-1: General Soil Classification Test Results**

*Soils with a Liquid Limit (LL) greater than 50 and Plasticity Index (PI) greater than 25 usually exhibit significant volume change with varying moisture content and are considered to be highly plastic. Soils with a LOI value greater than 3 percent are usually not suitable for supporting building and pavement sections.*

# Important Information about This

# Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

## Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply this report for any purpose or project except the one originally contemplated.*

## Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

## Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an

assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

## Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by:* the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

## Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

## A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

## A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

### **Do Not Redraw the Engineer's Logs**

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

### **Give Constructors a Complete Report and Guidance**

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time to perform additional study.* Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

### **Read Responsibility Provisions Closely**

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help

others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

### **Environmental Concerns Are Not Covered**

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

### **Obtain Professional Assistance To Deal with Mold**

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold-prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical-engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

### **Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance**

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

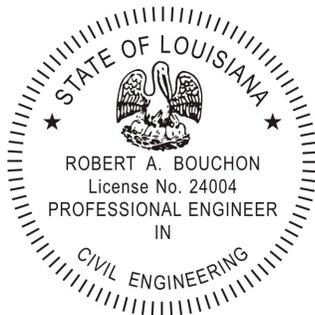


8811 Colesville Road/Suite G106, Silver Spring, MD 20910  
Telephone: 301/565-2733 Facsimile: 301/589-2017  
e-mail: [info@geoprofessional.org](mailto:info@geoprofessional.org) [www.geoprofessional.org](http://www.geoprofessional.org)

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# DIVISION

# 3



SECTION 03300

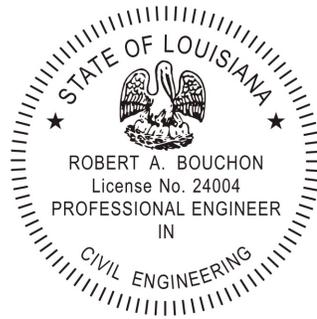
*Robert Bouchon*

07/03/20

# CONCRETE

## SECTION 03300

### CAST-IN-PLACE CONCRETE



#### PART 1 - GENERAL

*Robert Bouchon*

07/03/20

#### 1.1 SUMMARY

- A. This Section includes cast-in place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes.
- B. Concrete paving and walks are specified in Division 2.

#### 1.2 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Shop drawings for reinforcement, for fabrication, bending, and placement of concrete reinforcement. Comply with ACI SP-66 (88), "ACI Detailing Manual," showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
  - 1. Architect's review is for general architectural applications and features only. Design of formwork for structural stability and efficiency is Contractor's responsibility.
- C. Laboratory test reports for concrete materials and mix design test.

#### 1.3 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:
  - 1. ACI 301, "Specifications for Structural Concrete for Buildings."
  - 2. ACI 318, "Building Code Requirements for Reinforced Concrete."
  - 3. ACI 387, "Recommended Practice for Concrete Formwork."
  - 4. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."
- B. Concrete Contractor Qualifications:
  - 1. Formwork Contractor Qualifications: All work specified in this section and shown on the drawings shall be performed by a qualified contractor. The contractor shall have the experience, skilled personnel and proper equipment to

satisfactorily perform the required work. In addition, the contractor shall have a minimum of five (5) years experience in concrete work, and shall have successfully completed five (5) projects of a scale and quality similar to this project.

- C. Materials and installed work may require testing and retesting at any time during progress of work. Testing of rejected materials for installed work, shall be done at Contractor's expense.

## PART 2 - PRODUCTS

### 2.1 FORM MATERIALS

- A. Forms for Exposed Finish Concrete: Plywood, hardboard, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints.
  - 1. Use overlaid plywood complying with U.S. Product Standard PS-1 "A-C or B-B High Density Overlaid Concrete Form," Class I.
- B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
- C. Form Coatings: Provide commercial formulation form-coating compounds with a maximum VOC of 350 mg/l that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
- D. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units that will leave no metal closer than 1-1/2 inches to exposed surface.

### 2.2 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- B. Steel Wire: ASTM A 82, plain, cold-drawn steel.
- C. Welded Wire Fabric: ASTM A 185, welded steel wire fabric in sheets.
- D. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire-bar-type supports complying with CRSI specifications.

1. For slabs-on-grade, use supports with sand plates or horizontal runners or concrete bricks where base material will not support chair legs.
2. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs that are plastic protected (CRSI, Class 1).

## 2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I.
  1. Use one brand of cement throughout project unless otherwise acceptable to Architect.
- B. Normal Weight Aggregates: ASTM C 33 and as herein specified. Provide aggregates from a single source for exposed concrete.
  1. For exterior exposed surfaces, do not use fine or coarse aggregates containing spalling-causing deleterious substances.
- C. Water: Potable
- D. Air Entrainment in accordance with ASTM C 260.
- E. Submit all proposed admixtures for review prior to construction. No admixtures are allowed without the written consent of the architect.

## 2.4 RELATED MATERIALS

- A. Vapor Retarder: See Specification Section 07260 – Under-Slab Vapor Barrier/Retarder.
- B. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.
- C. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
  1. Waterproof paper.
  2. Polyethylene film.
  3. Polyethylene-coated burlap.
- D. Liquid Membrane-Forming Curing Compound: Liquid-type membrane-forming curing compound complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.055 gr./sq. cm. when applied at 200 sq. ft./gal.
  1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include the following:
    - a. "A-H 3 Way Sealer," Anti-Hydro Co., Inc.

- b. "Spartan-Cote," The Burke Co.
  - c. "Conspec #1," Conspec Marketing & Mfg. Co.
  - d. "Hardtop," Cormix.
- 2. "Day-Chem Cure and Seal," Dayton Superior Corp.
    - a. "Eucocure," Euclid Chemical Co.
    - b. "Horn Clear Seal," A.C. Horn, Inc.
    - c. "L&M Cure," L & M Construction Chemicals, Inc.
    - d. "Masterkure," Master Builders, Inc.
    - e. "CS-309," W.R. Meadows, Inc.
- E. Water-Based Acrylic Membrane Curing Compound: ASTM C 309, Type I, Class B.
- 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include the following:
    - a. "Highseal," Conspec Marketing and Mfg. Co.
    - b. "Safe Cure and Seal," Dayton Superior Corp.
    - c. "Aqua-Cure," Euclid Chemical Co.
    - d. "Dress & Seal #18WB," L&M Construction Chemicals, Inc.
    - e. "Masterseal W," Master Builders, Inc.
    - f. "Intex," W.R. Meadows, Inc.
    - g. "Sika Membrane," Sika Corp.
- F. Bonding Compound: Polyvinyl acetate or acrylic base.
- 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include the following:
    - a. Polyvinyl Acetate (Interior Only):
      - 1) "Superior Concrete Bonder," Dayton Superior Corp.
      - 2) "Euco Weld," Euclid Chemical Co.
      - 3) "Weld-Crete," Larsen Products Corp.
      - 4) "Everweld," L&M Construction Chemicals, Inc.
    - b. Acrylic or Styrene Butadiene:
      - 1) "Acrylic Bondcrete," The Burke Co.
      - 2) "Strongbond," Conspec Marketing and Mfg. Co.
      - 3) "Day-Chem Ad Bond," Dayton Superior Corp.
      - 4) "SBR Latex," Euclid Chemical Co.
- G. Concrete Sealer and Hardener. A ready to use concrete sealer and hardener shall be applied to the concrete slab as indicated on the drawings in strict accordance with the

manufacturers written specifications. The sealer must be guaranteed for 10 years against dusting.

1. Approved Products. Conspec Intraseal or approved equal.
- H. Epoxy Adhesive: ASTM C 881, two-component material suitable for use on dry or damp surfaces. Provide material "Type," "Grade," and "Class" to suit project requirements.
1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include the following:
    - a. "Burke Epoxy M.V.," The Burke Co
    - b. "Spec-Bond 100," Conspec Marketing and Mfg. Co.
    - c. "Euco Epoxy System #452 or #620," Euclid Chemical Co.
    - d. "Epoxtite Binder 2390," A.C. Horn, Inc.
    - e. "Epabond," L&M Construction Chemicals, Inc.
    - f. "Concresive 1001," Master Builders, Inc.
    - g. "Sikadur 32 Hi-Mod," Sika Corp.

## 2.5 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing.
- B. Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until proposed mix designs have been reviewed by Architect.
- C. Design mixes to provide normal weight concrete with the following properties, as indicated on drawings and schedules:
  1. 4000-psi, 28-day compressive strength; W/C ratio, 0.44 maximum (non-air-entrained), 0.35 maximum (air-entrained).
- D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in work.

## 2.6 ADMIXTURES

- A. Use water-reducing admixture in concrete as required for placement and workability.
- B. Use nonchloride accelerating admixture in concrete slabs placed at ambient temperatures below 50 deg F (10 deg C).
- C. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus or minus 1-1/2 percent within following limits:
  - 1. 3 percent to 5 percent air.
- D. Use admixtures for water reduction and set control in strict compliance with manufacturer's directions.
- E. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
  - 1. Ramps, slabs, and sloping surfaces: Not more than 3 inches.
  - 2. Reinforced foundation systems: Not more than 5 inches.
  - 3. Other concrete: Not more than 4 inches.

## 2.7 CONCRETE MIXING

- A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as specified.
  - 1. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Coordinate the installation of joint materials and vapor retarders with placement of forms and reinforcing steel.

### 3.2 FORMS

- A. General: Design, erect, support, brace, and maintain formwork to support vertical and lateral, static and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork

construction tolerances complying with ACI 347.

- B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
- D. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- E. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- F. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
- F. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed. Retighten forms and bracing before concrete placement as required to prevent mortar leaks and maintain proper alignment.

### 3.3 VAPOR RETARDER/BARRIER INSTALLATION

- A. General: See Specification Section 07260 – Under-Slab Vapor Barrier/ Retarder.

### 3.4 PLACING REINFORCEMENT

- A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as herein specified.
  - 1. Avoiding cutting or puncturing vapor retarder during reinforcement placement and concreting operations.

- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as approved by Architect.
- D. Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

### 3.5 JOINTS

- A. Construction Joints: Locate and install construction joints so as not to impair strength and appearance of the structure, as acceptable to Architect.
- B. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as otherwise indicated.

### 3.6 INSTALLATION OF EMBEDDED ITEMS

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached thereto.
- B. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to obtain required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

### 3.7 PREPARATION OF FORM SURFACES

- A. General: Coat contact surfaces of forms with an approved, nonresidual, low-VOC, form-coating compound before reinforcement is placed.
- B. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.
- C. Coat steel forms with a nonstaining, rust-preventative material. Rust-stained steel

formwork is not acceptable.

### 3.8 CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work.
- B. General: Comply with ACI 304, "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete," and as herein specified.
- C. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete that has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete to avoid segregation at its final location.
- D. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
  - 1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI 309.
  - 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
- E. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
  - 1. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  - 2. Bring slab surfaces to correct level with straightedge and strike off. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
  - 3. Maintain reinforcing in proper position during concrete placement.
- F. Cold-Weather Placing: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

- G. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
1. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  2. Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.
- H. Hot-Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.
1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg F (32 deg C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.
  2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
  3. Fog spray forms, reinforcing steel, and subgrade just before concrete is placed.
  4. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, when acceptable to Architect.

### 3.9 FINISH OF FORMED SURFACES

- A. Rough Form Finish: For formed concrete surfaces not exposed to view in the finish work or concealed by other construction. This is the concrete surface having texture imparted by form-facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4 inch in height rubbed down or chipped off.
- B. Smooth Form Finish: For formed concrete surfaces exposed to view or to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or other similar system. This is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas with fins and other projections completely removed and smoothed.
- C. Smooth Rubbed Finish: Provide smooth rubbed finish to all exterior and interior exposed concrete surfaces, which have received smooth form finish treatment, not

later than one day after form removal.

1. Moisten concrete surfaces and rub with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

### 3.10 MONOLITHIC SLAB FINISHES

- A. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified; slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo; and as otherwise indicated.
1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating, using float blades or float shoes only, when surface water has disappeared, when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats. Check and level surface plane to tolerances of Ff 18 - Fl 15. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
- B. Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed to view and slab surfaces to be covered with resilient flooring or other thin film finish coating system.
1. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with surface leveled to tolerances of Ff 20 - Fl 17. Grind smooth surface defects that would telegraph through applied floor covering system.

### 3.11 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply in accordance with manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
- C. Curing Methods: Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.
- D. Provide moisture curing by following methods.
  - 1. Keep concrete surface continuously wet by covering with water.
  - 2. Use continuous water-fog spray.
  - 3. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4-inch lap over adjacent absorptive covers.
- E. Provide moisture-cover curing as follows:
  - 1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- F. Provide curing and sealing compound to exposed interior slabs and to exterior slabs, walks, and curbs as follows:
  - 1. Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
  - 2. Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.
- G. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
- H. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces, by application of appropriate curing method.
- I. Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use

of moisture-retaining cover, unless otherwise directed.

### 3.12 REMOVAL OF FORMS

- A. General: Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 48 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed in less than 14 days and until concrete has attained at least 75 percent of design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.
- C. Form-facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form-facing material without loosening or disturbing shores and supports.

### 3.13 REUSE OF FORMS

- A. Clean and repair surfaces of forms to be reused in work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-coating compound as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces except as acceptable to Architect.

### 3.14 CONCRETE SURFACE REPAIRS

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Architect.
  - 1. Cut out honeycomb, rock pockets, voids over 1/4 inch in any dimension, and holes left by tie rods and bolts, down to solid concrete but in no case to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with specified bonding agent. Place patching mortar before bonding compound has dried.
  - 2. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and

strike-off slightly higher than surrounding surface.

- B. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry-pack mortar, or precast cement cone plugs secured in place with bonding agent.
1. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
- C. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having required slope.
1. Repair finished unformed surfaces that contain defects that affect durability of concrete. Surface defects, as such, include crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.
  2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
  3. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with patching compound. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable to Architect.
  4. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
- D. Repair isolated random cracks and single holes not over 1 inch in diameter by dry-pack loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry-pack before bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area

continuously moist for at least 72 hours.

- E. Perform structural repairs with prior approval of Architect for method and procedure, using specified epoxy adhesive and mortar.
- F. Repair methods not specified above may be used, subject to acceptance of Architect.

### 3.15 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. General: The OWNER shall select and employ a testing laboratory to perform tests and to submit test reports.
- B. Sampling and testing for quality control during placement of concrete may include the following, as directed by Architect.
- C. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
  - 1. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
  - 2. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
  - 3. Concrete Temperature: Test hourly when air temperature is 40 deg F (4 deg C) and below, when 80 deg F (27 deg C) and above, and each time a set of compression test specimens is made.
  - 4. Compression Test Specimen: ASTM C 31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cure test specimens are required.
  - 5. Compressive Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yds. plus additional sets for each 50 cu. yds. more than the first 25 cu. yds. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
  - 6. Flatness and Levelness Testing.
- D. Test results will be reported in writing to Architect, Structural Engineer, Ready-Mix Producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.

- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- F. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests when unacceptable concrete is verified.

END OF SECTION 03300

# DIVISION

# 4



MASONRY

## **SECTION 04200**

### **UNIT MASONRY WORK**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of unit masonry work in this project shall be as shown in drawings and as specified herein. It shall include all materials, equipment, and labor necessary for complete installation of all unit masonry work and incidental items required. Unit masonry work shall include, but not limited to, the following:
  - 1. Brick veneer at building.
  - 2. Lintels, reinforcements, anchors, accessories and miscellaneous materials and components.
  - 3. Miscellaneous components and accessories

##### 1.2 RELATED WORK:

- A. Section 03300 – Cast-In Place Concrete
- B. Section 05500 - Metal Fabrication
- C. Section 06100 - Rough Carpentry
- D. Section 07250 – Sheet Weather Barrier
- E. Section 07600 – Flashing and Sheet Metal
- F. Section 07900 - Sealants
- G. Section 08410 – Exterior Aluminum Storefront Door and Window Systems
- H. Section 08530 – Exterior Vinyl Fixed Windows
- I. Section 09900 – Painting
- J. Division 15 – Mechanical
- K. Division 16 – Electrical

##### 1.3 QUALITY ASSURANCE:

- A. Fire-Rated Masonry: Whenever a fire-resistance classification is shown or scheduled for unit masonry construction (4-hour, 3-hour and similar designations), comply with the requirements for materials and installation established by the American Insurance Association, Underwriter Laboratories, and other governing authorities for the construction shown.
- B. Standards and References: Maintain the recommendations of the following with respect to all aspects of unit masonry construction.
  - 1. Manufacturers of masonry units and mortar materials
    - a. ASI 530/ ASCE 6/ TMS 402 of latest edition - Building code requirements for Masonry Structures
    - b. ANSI/ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
    - c. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware
    - d. ASTM A525 - Steel Sheet, Zinc Coated, (Galvanized) by the Hot-Dip Process
    - e. ASTM A615/ A615M - Deformed and Plain Carbon Steel Bars for Concrete Reinforcement
    - f. ASTM A767/ A767M - Zinc Coated (Galvanized) Steel bars for Concrete Reinforcement
    - g. ASTM C25 - Chemical Analysis of Limestone, Quicklime, and Hydrated Lime
    - h. ASTM C33 - Standard Specifications for Concrete Aggregates
    - i. ASTM C90 - Hollow Load Bearing Concrete Masonry Units
    - j. ASTM C91 - Masonry Cement
    - k. ASTM C129 - Standard Specifications for Non-Load Bearing Concrete Masonry Units
    - l. ASTM C144 - Aggregate for Masonry Mortar
    - m. ASTM C150 - Portland Cement
    - n. ASTM C207 - Hydrated Lime for Masonry Purposes

- o. ASTM C216 - Facing Brick (Solid Masonry Units Made From Clay or Shale)
  - p. ASTM C270 - Mortar for Unit Masonry
  - q. ASTM C404 - Aggregates for Masonry Grout
  - r. ASTM C426 - Linear Drying Shrinkage of Concrete Masonry Units
  - s. ASTM C476 - Grout for Masonry
  - t. ASTM C494 - Chemical Admixtures for Concrete
  - u. ASTM C652 - Hollow Brick (Hollow Masonry Units Made From Clay or Shale)
  - v. ASTM C780 - Pre-construction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry
  - w. ASTM C979 - Pigments for Integrally Colored Concrete
  - x. ASTM C1019 - Method of Sampling and Testing Grout
  - y. ASTM C1142 - Ready-Mixed Mortar for Unit Masonry
  - z. ACI 530 "Building Code Requirements for Masonry Structures"
- C. Workmanship: The masonry workmanship on this project consists of exposed finished materials and their installation. The requirements of this project shall be in accordance with industry standards and ASTM Standards, and shall be reviewed and approved by Architect during all phases of installation.

#### 1.4 SUBMITTALS:

- A. Submittals: Submit manufacturer's literature for all products specified (masonry units, mortar, grout, fabricated wire reinforcements, accessories, testing reports, etc.) to show conformance with these specifications.
- B. Samples for Verification: Provide samples of full size units for each different exposed masonry unit required showing the full range of exposed colors, textures, and dimensions. Samples of cavity drainage/ weep hole materials and accessories embedded in masonry. Label samples to indicate color, profile, manufacturer, etc.
- C. Preconstruction Meeting: General Contractor, masonry contractor, Architect, and applicable trades shall meet prior to commencement of work to discuss all aspects of masonry construction, with particular attention to detail conditions found in job. General Contractor shall schedule and coordinate this meeting.
- D. Sample Mock-up Panels: Prior to shipment of masonry to site, Contractor shall build a 4'-0" x 4'-0" sample mock-up panel for each type masonry unit (face brick, cmu, etc.) used in job, showing typical construction, workmanship, color range, joint treatment, bonds, patterns, mortar colors, job specific construction details, etc.
  - 1. **No masonry shall be shipped from manufacturer to site until Architect's acceptance of sample panel, which has been erected from actual material proposed and produced for the project. The accepted panel shall become the project standard for bond, mortar, joint treatment, workmanship, and appearance.**
  - 2. Mock-up panel shall include all components and accessories (masonry units, mortar, reinforcing, weep holes, expansion/ contraction joint treatment, tooling, and cleaning) required in project including anchorage to backup wall with waterproofing.
  - 3. Once sample mock-up panel has been approved by Architect, this panel shall be standard of workmanship. Panel shall not be removed until masonry work as required within this contract has been completed.
  - 4. As construction proceeds, in progress masonry installation and workmanship shall be reviewed by Architect this shall include, but is not limited to, expansion/ contraction joints, head joint alignment, and any other job specific condition that was not able to be reviewed with mock-up sample panel.

#### 1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Store masonry units on elevated platforms, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes. If units become wet, do not install until they have air-dried to industry condition.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and

contaminants avoided.

- D. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

#### 1.6 JOB CONDITIONS:

- A. Protect partially completed masonry against weather, when work is not in progress, by covering top of walls with strong, waterproof, non-staining membrane. Extend membrane at least 2'-0" down both sides of walls and anchor securely in place.
- B. Protect masonry against freezing when the temperature of the surrounding air is 40 degrees F and falling. Heat materials and provide temporary protection of completed portions of masonry work. Comply with the requirements of the governing code and with the standards as referenced above.

### **PART 2 - PRODUCTS**

#### 2.1 MORTAR AND GROUT MATERIALS:

- A. Portland-Cement: ASTM C150, Type I or Type II, Low Alkali. Provide natural color as required to produce mortar colors as selected by Architect.
- B. Colored Masonry Cement Mix (Brick Veneer Only): Provide premixed, colored masonry cements of formulation required to produce color as selected by Architect from manufacturer's standard and custom formulations. Each bag of mix shall comply with performance and proportion specifications of ASTM C91.
  - 1. Approved Products/ Manufacturers:
    - a. "Holcim Rainbow Mortamix Custom Color Masonry Cement"; Holcim US, Inc.
    - b. "Lafarge Masonry Cements"; Lafarge North America, Inc.
    - c. Prior Approved Equal
  - 2. Color: As selected by Architect from manufacturer's full range (standard and custom). More than one color may be utilized in this project.
- C. Hydrated Lime: ASTM C207, Type S, 92% hydrated.
- D. Mortar Aggregate: ASTM C144, except for joints less than 1/4", use aggregate graded with 100% passing the No. 16 sieve.
  - 1. White Mortar Aggregates: Natural white sand or ground white stone.
  - 2. Colored Mortar Aggregates: Natural colored sand or ground marble, granite, or other sound stone, as required to match Architect's approved sample.
- E. Grout Aggregate: ASTM C404, maximum size 3/8"
- F. Water: Potable
- G. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mixes.
- H. Ready Mixed Mortar (Subject To Approval By Architect): Cementitious materials, water, and aggregate complying with requirements specified above; combined with set controlling admixtures to produce a ready mixed mortar complying with ASTM C1142.
- I. Anti-Freeze agents: Accelerators or admixtures to lower freezing point of mortars are prohibited.

#### 2.2 MORTAR AND GROUT MIXES:

- A. General: Do not use admixtures, including pigments, air entraining agents, accelerators, retarders, water repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
  - 1. Do not use calcium chloride in mortar or grout.
  - 2. Add cold-weather admixture (if used) at the same rate for all mortar, regardless of weather

conditions, in order to ensure that mortar color is consistent.

B. Mortar Type for Unit Masonry:

1. Brick Veneer: "Type N" masonry cement mortar (750 psi in 28 days) complying with ASTM C270 for exterior exposure.
2. Retempering: If water is lost by evaporation, retemper only within two hours of mixing.

C. Grout for Unit Masonry: 3,500 psi strength at 28 days; 9 to 11 inches slump; ready-mixed type in accordance with ASTM C94; mixed in accordance with ASTM C476 Fine and Course grout.

1. Fine Grout: Use in grout spaces less than 2 inches in horizontal dimension, unless otherwise indicated.
2. Coarse Grout: Use in grout spaces 2 inches or more in least horizontal dimension, unless otherwise indicated.

2.3 BRICK VENEER:

A. Face Brick:

1. Brick Color: As selected by Architect from manufacturer full color range within allowance.
2. Grade of Brick: SW
3. Series: As selected by Architect within allowance price range
4. Standard: ASTM C216
5. Texture: Smooth, Velour, and/ or Ruff texture as selected by Architect
6. Type of Brick: FBS or better
7. Size: Modular, 2-1/4 by 3-5/8 by 7-5/8 inches
8. Allowance: Allowance to be \$485.00 per thousand, delivered to site. Brick selections, within price range, to be selected by Architect.

B. Special Brick Shapes:

1. Provide special shapes where shown and where required for corners, ends, jambs/ sills, returns, uncured face brick where cores would be exposed in completed work, and other special conditions.

2.4 MASONRY ACCESSORIES:

A. Anchoring System for Veneer (Face Brick to Wood Studs): Adjustable hot-dip galvanized bent plate anchor strap complying with ASTM A153/ A153M-B2, 1" x 6", 14 gauge, with two 9/32" screw holes; with cold-drawn steel wire complying with ASTM A82/ A82M, hot-dip galvanized triangle type tie complying with ASTM A152/ A153M-B2, 3/16" dia. rod, sized as required for manufacturer recommended masonry embedment; corrosion resistant screws as recommended by anchor manufacturer for anchorage, length, and type of fastener as required to fully secure into wood stud framing.

1. DW-10HS Anchor System with Vee Byna Wire Tie as manufactured by Hohmann & Barnard, Inc.
2. Wire-Bond
3. Prior Approved Equal

B. Reinforcing Bars: Deformed steel, ASTM A615, Grade 60.

C. Mortar Collection Device: High density polyethylene (HPDE) or polyester, fabricated in 90% open mesh in a dovetail configuration connected by a continuous bottom strip. It shall have no negative reaction to PVC, polyethylene, polystyrenes, copper, lead, asphalt, or stainless steel, and will not degrade or decompose over the life of the building. It will not absorb or trap moisture and water and will not support mold or fungus. Mortar collection device to be 10" high x 5'-0" long x 1" thick material.

1. Mortar Trap as manufactured by Hohmann & Barnard, Inc.
  2. Wire-Bond
  3. Prior Approved Equal
- D. Expansion / Control Joint Strips: Continuous filler made of premolded, compressible, elastic fills of foam rubber complying with ASTM D2000 2AA-805; or closed-cell neoprene sponge complying with ASTM D1056 Grade 2A1.
1. RS (Rubber Control Joint) Series or NS (Closed Cell Neoprene Sponge) Series as manufactured by Hohmann & Barnard, Inc.
  2. Wire-Bond
  3. Prior Approved Equal
- E. Rectangular Plastic Weep Inserts: Pre-manufactured 3/8" x 1-1/2" x 3-1/2" clear butyrate plastic weep complying with ASTM D542, D149, D696, and D257, with both stainless steel screen insert and cotton wick attached.
1. 342W/S as manufactured by Hohmann & Barnard, Inc.
  2. Wire-Bond
  3. Prior Approved Equal
- F. Flashings for Masonry: For embedded flashings to be built into masonry, see Section 07250 – Sheet Weather Barrier. **Coordinate as required. All components specified within Section 07250 shall be installed by membrane barrier installer.**
- G. Sealants for Joints: All movement joints shall receive continuous backer rod and be topped out with exterior sealant as specified in Section 07900 - Sealants.

### **PART 3 - EXECUTION**

#### 3.1 EXAMINATION:

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of unit masonry. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Examine rough-in and built-in construction to verify actual installation dimensions.

#### 3.2 ALLOWABLE CONSTRUCTION TOLERANCES:

- A. Variation from Plumb: For vertical lines and surfaces of columns, walls, and arises, do not exceed 1/4 inch in 10 feet, nor 3/8 inch in 20 feet, nor 1/2 inch in 40 feet or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed 1/4 inch in 20 feet, nor 1/2 inch in 40 feet or more. For vertical alignment of head joints, do not exceed plus or minus 1/4 inch in 10 feet, nor 1/2 inch maximum.
- B. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines, do not exceed 1/4 inch in 20 feet, nor 1/2 inch in 40 feet or more. For top surface of bearing walls, do not exceed 1/8 inch in 10 feet, nor 1/16 inch within width of a single unit.
- C. Variation of Linear Building Line: For position shown in plan and related portion of columns, walls, and partitions, do not exceed 1/2 inch in 20 feet, nor 3/4 inch in 40 feet or more.
- D. Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed minus 1/4 inch nor plus 1/2 inch.
- E. Variation in Mortar Joint Thickness: Do not vary from bed-joint thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary bed-joint thickness from bed-joint thickness of adjacent course by more than 1/8 inch. Do not vary from head-joint thickness indicated by more than plus or minus 1/8 inch. Do not vary head-joint thickness from adjacent head-joint thickness by more than 1/8 inch. Do not vary from collar-joint thickness indicated by more than minus 1/4 inch or plus 3/8 inch.

### 3.3 FIELD MORTAR MIXING:

- A. All cementitious materials and aggregate shall be mixed between 3 and 5 minutes in a mechanical batch mixer with the maximum amount of water to produce a workable consistency.
- B. Control batching procedure to ensure proper proportions by measuring materials by volume. Sand measurement by shovel count shall not be permitted.
- C. If water is lost by evaporation within 2 1/2 hours after initial mixing, retemper with water.
- D. Discard all mortar, which is more than 2 1/2 hours old.

### 3.4 FIELD GROUT MIXING:

- A. Control batching procedure to ensure proper proportions by measuring materials by volume. Sand measurement by shovel count shall not be permitted.
- B. Grout for reinforced cells of retaining walls shall be supplied to specification by a ready-mix concrete company and not batched on site.

### 3.5 INSTALLATION - GENERAL:

- A. Install mortar and grout in accordance with ACI 530.1/ ASCE 6/ TMS 602.
- B. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining construction. Use full size units without cutting, where possible. Allow units cut with water cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- C. Mix units for exposed unit masonry from several pallets or cubes as they are placed to produce uniform blend of colors and textures.
- D. Lay only dry units.
- E. Provide all special shape and components as indicated on drawings and as required to install wall as designed. This shall include, but is not limited to, corners, ends, jambs/ sills, returns, coreless face brick, and other special conditions.
- F. Bond and Patterns:
  - 1. Brick Veneer: Running Bond patterns (or other if indicated on drawings)
- G. Adjust masonry unit to final position while mortar is soft and plastic. If units are displaced after mortar has stiffened, remove, clean joints, and units of mortar and relay with fresh mortar.
- H. Do not place unit masonry when temperature of the outside air is below 40 degrees F, unless suitable measures approved by Architect are provided to heat materials.
- I. When joining fresh masonry to set or partially set masonry construction, clean exposed surface of set masonry and remove loose mortar prior to laying fresh masonry.
- J. If necessary to stop off a horizontal run of masonry, rack back one-half unit length in each course.
- K. Do not use toothing to join new masonry to set or partially set masonry when continuing a horizontal run.
- L. Avoid using pieces shorter than half size units at corners, jambs, and where possible at other locations.
- M. All corners shall be masonry bonded in each course.
- N. All masonry mortar shall have consistent workmanship for tooling at the same setting time and using same equipment to comply with Architect approved sample.
- O. Avoid over plumbing and pounding of corners and jambs to fit units after they have set. Where adjustment is needed after initial set, remove mortar and replace with fresh mortar.
- P. Mortar shall be consistent to the satisfaction of the mason and may be retempered by adding water and remixing on the board if mortar has become stiff due to evaporation. No retempering or use of mortar that has stiffened due to hydration will be permitted.
- Q. Set masonry shall be thoroughly cleaned and lightly wetted where fresh masonry joins masonry that is even partially set.
- R. Around perimeter of all frames and where abutting dissimilar materials, joints shall be not less than 1/4" nor more than 3/8" unless specifically, shown otherwise, cleaned to a depth of 3/4" and filled with backer rod and covered with compound specified in section 07900 - Sealants.
- S. Built-in work and inserts:

1. Avoid cutting and patching.
2. Install anchors, inserts, frames, vents, flashing, conduit, and other built-in items as masonry work progresses. Install proper flashing and joint treatment as required. Coordinate with appropriate trades.
3. Solidly install all built-in items within wall construction. Provide joint treatment spaces around built-in items adjacent to masonry to allow for movement.

T. No cores to be exposed at brick details.

### 3.6 MASONRY WORK:

#### A. Moisture Control:

1. No exterior masonry work shall be done in the rain, or when rainfall is forecast. Unfinished work must be fully covered against water intrusion into walls, cavities, etc. at the end of each work day. Lay only dry masonry units. Follow all additional recommendations of the manufacturer and the governing codes and standards referenced above regarding moisture control (and other relevant factors) during construction to prevent efflorescence from occurring in the finished work.
  - a. Walls showing efflorescence resulting from the laying of wet units, or from the wetting of walls due to inadequate protection, shall be removed and replaced at no additional cost to the Owner, at whatever time efflorescence becomes evident. **This is an absolute requirement of the project.**
2. All work to be plumb, level, and true to line.

B. Base of Wall/ Lintel/ Through-Wall Flashing: See drawings. **Coordinate with Section 07250 and install brick only after the membrane (with flashings) are complete, watertight/ airtight tested, and inspected by Architect.**

#### C. Joints:

1. When the joints have become thumbprint hard, all exposed joints shall be tooled. The jointer shall be larger than the width of the joints so that complete contact is made along the edge of units, compressing and sealing the surface of the joint. Joints shall be pointed as the tool proceeds. Joints shall be cut and tooled before mortar has set. Joints shall be filled fully and tooled under compression to create a tight, uniform, and void free condition. All joints shall be tooled consistently and in a workman like manner for entire project matching Architect approved sample. Joint types, as prior approved by Architect in sample panels, shall be as follows:
  - a. Horizontal and vertical joint treatment for face brick wall shall be Concave joints.

#### D. Mortar Collection Device:

1. Clear Cavity Requirements: At veneer construction, Contractor must maintain a clear and open cavity through use of mortar collection device specified above. Install cavity inserts per manufacturer's strict written guidelines at base of walls and over all lintels. **This is an absolute project requirement.**

E. Unless otherwise shown, veneer shall bear on steel lintel angles (or other structural members) where required to support loading over openings and other span conditions. Angles shall be hot dipped galvanized, fully prepared, and painted as specified for ferrous metals (See Section 09900 – Painting), with all flashing installed and inspected by Architect, prior to laying masonry. Coordinate with painter and waterproofing contractor as required.

#### F. Weep Inserts:

1. Veneer Weep Inserts: Provide weeps over all flashing, elsewhere as indicated on drawings,

- and wherever required to provide water relief in cavity construction.
2. Space weeps in intervals of 32 inches o.c. maximum, unless otherwise indicated to be closer on drawings, at base of walls and continuous lintel flashing. In no case shall less than 2 weeps be provided at any flashing condition.
  3. Maintain weeps open at all times, making sure that mortar or other obstructions do not block holes.
  4. Weeps shall be installed with bottom of weep in contact with flashing membrane.

### 3.7 FLASHING:

- A. Refer to and fully coordinate with requirements of Section 07250.
- B. Verify that all flashing as installed per Section 07250 are located at all shelf angles, lintels, ledges, changes of material and other obstructions to the downward flow of water to weep holes.
- C. Prepare application surfaces so that they are smooth and free from projections that could puncture flashing.
- D. Prior to proceeding, verify the following:
  1. Flashing has been installed in full accordance with manufacturer's recommendations for each particular condition of the job. Penetrations, transitions, etc. in the flashing shall be as recommended by flashing manufacturer.
  2. Extend flashing 1" past face of wall and trim after tooling joints flush with face of wall upon completion of masonry work, but only after specific acceptance by Architect.
  3. Where metal flashing or drip edge is used in project, align drip edge with face of brick. Edge of flashing or drip edge shall be a simple hem rolled edge and not turned down.
  4. Rinse thoroughly with water.
  5. Protect doors, landscaping, and surrounding masonry surfaces from cleaning solutions and rinse water.

### 3.8 OPENINGS AND HOLES:

- A. Provide all openings and holes in masonry work. Provide all chases and recesses in masonry work of all types as indicated in Contract Documents and as required for pipes, ducts, and other work of mechanical and electrical contractors. Such work shall be accurately located by the contractor requiring work, but masonry work shall not be constructed without giving other contractors due notice and opportunities to lay out or install such items as may be required for their work.
- B. Where required for installation of work of other contractors, leave openings as indicated on the Contract Documents or as required to receive a later installation.
- C. After work of other contractors is in place, openings shall be neatly filled with masonry of the same type as the adjoining surfaces.

### 3.9 ANCHORING MASONRY:

- A. Veneer Anchor Spacing (Brick Veneer): Shall be as follows:
  1. Wall Areas: Space anchors at 16" o.c. maximum horizontally and 16" o.c. maximum vertically.
  2. At Openings, Expansion Joints, and Control Joints: Add additional anchors at perimeter of openings and to each side of expansion/ control joints within 12" of break in wall. Vertical spacing shall be 16" o.c.
  3. At Beams and Misc. Substrates: Maintain specified vertical and horizontal spacing of anchors at beams and other substrates.
  4. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
    - a. Provide an open space not less than 1 inch in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar or other rigid materials.
    - b. Anchor with adjustable anchors embedded in masonry joints and attached to structure.

- c. In no case shall anchors be spaced greater than 16 inches o.c. vertically. Space closer when called for in drawings.

### 3.10 MOVEMENT (CONTROL AND EXPANSION) JOINTS:

- A. General: Install control and expansion joints in unit masonry and not to exceed manufacturer's and industry recommendations for placement within wall. Build in related items as masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.
- B. Provide expansion joints in masonry veneer work in potential movement locations and at conditions as shown in drawings and elsewhere as recommended by the standards listed in Quality Assurance of this Section.
- C. Expansion Joints In Masonry Veneer:
  - 1. Install preformed joint back-up material in accordance with Brick Industry Association (BIA) Technical Notes, details, guidelines, and recommendations.
  - 2. Place expansion joints in veneer wall at maximum spacing of 25 feet with no openings. Verify specific locations with Architect prior to proceeding. Also refer to drawings.
  - 3. Limit the aspect ratio (L/h) of the wall to 1.5 so that length of wall between expansion joints is no more than 1.5 times the height of wall.
  - 4. Vertical expansion joint placement shall be located in coordination with Architect at the following locations:
    - a. At or near corners (minimum of 2'-0" from either edge with total spacing (distance sum) between joint closest spaced to corner to be less than or equal to 10'-0" distance apart)
- D. Build in horizontal pressure-relieving joints where recommended by standards listed herein (Brick Industry Association - BIA). Construct joints by either leaving an air space or inserting compressible joint filler of width required to permit installation of sealant and backer rod specified in Section 07900 - Sealants.
  - 1. Locate horizontal pressure-relieving joints beneath shelf angles supporting masonry veneer and attached to structure behind masonry veneer.
- E. Provide bond breaks using flashing to separate brickwork from dissimilar materials.

### 3.11 PROTECTION OF WORK:

- A. Remove misplaced mortar or grout immediately. Remove inconsistent tooled joints.
- B. Cover top of walls with non-staining waterproof coverings when work is not in progress.
- C. Provide minimum 2 feet overhang of protective covering each side of wall and securely anchor. Incomplete work shall be protected against water intrusion at all times.

### 3.12 POINTING AND CLEANING:

- A. Masonry units that are damaged, loose, chipped or otherwise do not conform to requirements shall be removed and replaced.
- B. Before completion of the work, all defects in joints of exposed masonry surfaces shall be raked out as necessary, filled with mortar and retooled.
- C. After mortar has set and hardened, all exposed masonry unit surfaces shall be wetted and then cleaned with a solution of water and soap detergent applied with stiff fiber brushes, followed immediately by thorough rinsing with clean water.
- D. Surfaces still showing stain or discoloration shall be cleaned with an approved cleaning solution in strict accordance with the manufacturer's directions. Acid solutions shall not be used.
- E. All surfaces shall be left clean, free of mortar daubs, dirt, stain, and discoloration, including scum from cleaning operations.
- F. After pointing is completed and wall is dry, clean face brick surface with dry brush.
- G. After three (3) days clean with water and mild detergent or cleaners as recommended by brick manufacturer. Do not use muriatic acid.

1. Wet brick surfaces thoroughly before applying cleaning solution.
2. Apply cleaning solution with bucket and brush or low pressure spray.
3. Remove all stains and mortar streaks using stiff fiber bristle brush.
4. Rinse thoroughly with water.
5. Protect windows, landscaping, and surrounding masonry surfaces from cleaning solutions and rinse water.

3.13 CLEAN-UP AND ADJUST:

- A. Remove all excess mortar dropped on floors. Remove all debris caused by work of this Section.
- B. Leave work and surrounding surfaces clean and free of mortar spots and droppings.

**END OF SECTION**

# DIVISION

# 5



METALS

## **SECTION 05500**

### **METAL FABRICATIONS**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The extent of miscellaneous metal work is shown on drawings and includes items fabricated from iron and steel shapes, plates, bars, pipes and castings which are not a part of structural steel or other metal systems in other sections of these specifications. It shall include all materials, equipment, and labor as necessary for complete installation of all components and accessories.
- B. The types of miscellaneous metal items, and pre-manufactured assemblies, systems and products include, but are not limited to, the following:
  - 1. Miscellaneous metal shapes and products
  - 2. Steel Lintels
  - 3. Fasteners
- C. See drawings for other metal fabrications and materials detailed and specified therein.

##### 1.2 RELATED WORK:

- A. Section 02600 – Concrete Paving
- B. Section 03300 - Concrete
- C. Section 04200 - Unit Masonry Work
- D. Section 07900 – Sealant
- E. Section 09900 - Painting

##### 1.3 QUALITY ASSURANCE:

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting wherever taking field measurements before fabrication might delay work.

##### 1.4 SUBMITTALS:

- A. Shop Drawings: Submit shop drawings for fabrication and erection of miscellaneous metal assemblies, including pre-engineered/ manufactured items. Include plans and elevations at not less than 1" to 1'-0" scale and include details of sections and connections at not less than 3" to 1'-0" scale. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.

#### **PART 2 - PRODUCTS**

##### 2.1 MATERIALS AND COMPONENTS:

- A. Metal Surfaces, General: For fabrication of pre-engineered systems and miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.
  - 1. Steel shall conform to the latest edition of the ASTM Standard Specifications A36, entitled "Structural Steel"
  - 2. Steel Plates, Shapes and Bars: ASTM A36
  - 3. Steel Bars and Bar-Size Shapes: ASTM A306, Grade 65, or ASTM A36
  - 4. Formed Steel Sheet: ASTM A569
  - 5. Gray Iron Castings: ASTM A48, Class 30
  - 6. Steel Tubing: Cold-formed, ASTM A500B and A513
  - 7. Steel Pipe: ASTM A53; Type and grade selected by fabricator as required for design loading

8. Reinforcing Bars: ASTM A615, Grade 40, deformed
9. Non-Shrink Non-Ferrous Grout: CE CRD C588

## 2.2 MISC. FRAMING & SUPPORTS:

- A. Provide and install all misc. framing and supports as necessary to set and anchor other components of the work. Size as required for anticipated dead and live loading. Coordinate as required by manufacturer of installed item.

## 2.3 STEEL LINTELS (WHERE APPLICABLE):

- A. Provide hot dipped galvanized structural steel lintels for supporting masonry at offsets and openings in walls and partitions. Weld adjoining members together to form a single unit. Lintels shall be of the size and configuration as necessary to carry dead and live loading above. Provide 8" of minimum bearing each end for lintels, supported at both jambs (either on steel tube columns or filled cell CMU).

1. Hot dipped galvanized steel members to be installed in exterior walls.

## 2.4 FASTENERS:

- A. General: Use materials same as or compatible with metal being connected. Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
- B. Bolts and Nuts: Regular hexagon head type, ASTM A307, Grade A, with ASTM A563 hex nuts and flat washers.
- C. Lag Bolts: Flat-head carbon steel, FS FF-S-111.
- D. Expansion Bolts: USM "Parabolt", Bed Head "Sleeve Anchors", Hilti "Kwik-Bolt", or similar expanding shield type anchor bolt, galvanized or stainless steel.
- E. Brackets, Flanges and Anchors: Cast or formed metal of same type material and finish as supported items, unless otherwise indicated.

## 2.5 PAINT:

- A. Metal Primer Paint: Zinc chromate, red metal primer, tack free after 8 hours drying time at 77 °F.; RIP 476 by Southern Coatings and Chemical Co., Inc., or Tnemec 99 by Tnemec Co.
- B. Galvanizing Repair Paint: High zinc dust content paint for regalvanizing welds in galvanized steel, complying with ASTM A780. Dry film shall contain not less than 94% zinc dust by weight.

## **PART 3 - EXECUTION**

### 3.1 INSTALLATION:

- A. General: Set metal fabrications accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Brace temporarily or anchor temporarily in formwork where work is to be built into concrete, masonry or similar construction.
- B. Anchor securely as shown or as required for the intended use, using concealed anchors wherever possible.
- C. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal items to in-place constructions, including threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.
- D. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal items. Set work accurately, in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are built into concrete, masonry or similar construction.
- E. Fit exposed connections accurately together to form tight, smooth hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of

shipping size limitations. Grind joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surface to exterior units which have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.

- F. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made and methods used in correcting welding work.
- G. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- H. Galvanizing Repair: For galvanized surfaces clean welds, bolted connections and abraded areas and apply galvanizing repair paint to comply with ASTM A780.

### 3.2 MANUFACTURED ITEMS - GENERAL:

- A. Install manufactured items in strict accordance with manufacturer's written instructions. Comply with details and approved shop drawings.
- B. Provide and install all materials, components, and accessories as required for a complete and fully operational installation.

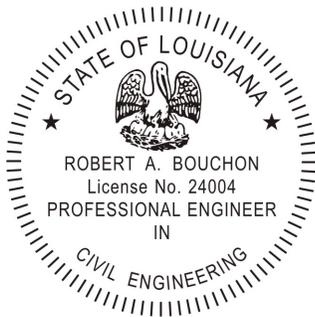
### 3.3 COMPLETION:

- A. Completed metal work shall be securely anchored, free from rattles and excessive vibration during use. Items shall be plumb, level, straight and properly aligned. Exposed grouting shall be neat, uniform, and without holes and gaps.
- B. Joints shall be snug-fitting and uniform; exposed welds shall be ground smooth and touch-up, and free of crevices, spatter and flux. Bolts, screws, nuts and other threaded fasteners shall occur only where permitted, and shall be drawn up tightly but not over-tightened; exposed heads and nuts shall be undamaged.
- C. Remove, adjust and re-install, or remove and replace with new material, items which are not in compliance due to improper installation and materials, and items which are defective and damaged.
- D. Clean finished surfaces which are soiled and marked by metal work installation. Remove and replace other materials which cannot be cleaned and those which are damaged by metal work installation.

**END OF SECTION**

# DIVISION

# 6



SECTION 06100

SECTION 06192

*Robert Bouchon*

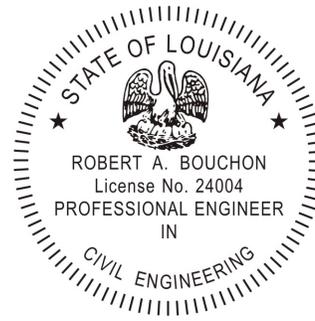
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# WOOD AND PLASTICS

## SECTION 06100

### ROUGH CARPENTRY



#### PART 1 – GENERAL

*Robert Bouchon*

07/03/20

##### 1.1 DESCRIPTION

- A. Comply with applicable requirements of DIVISION 1.
- B. Provide all labor, materials, supplies, services, supervision, project management, quality assurance, quality control, safety precautions/programs, equipment, tools, incidentals, supplies, consumables, accessories, handling and transportation necessary to complete all decking, sheathing, miscellaneous wood framing, blocking, cants, curbs, grounds, supports, bracing, and nailers, including fasteners, attachments, hardware, and connectors as required to complete the work of this Project.
  - 1. Structural floor, wall, ceiling and roof framing.
  - 2. Beams, posts and columns.
  - 3. Door and window opening framing.
  - 4. Partition framing and blocking.
  - 5. Furr down and chase wall framing.
  - 6. Stair, landing and ramp framing.
  - 7. Roof sheathing.
  - 8. Miscellaneous framing and sheathing.
  - 9. Miscellaneous blocking, bracing and supports.
  - 10. Concealed wood blocking for support of toilet and bath accessories, wall cabinets and wood trim.

##### 1.2 REFERENCE STANDARDS

- A. ALSC - American Lumber Standards Committee: Softwood Lumber Standards.
- B. ANSI A201.1 - Mat Formed Wood Particle Board.
- C. APA - American Plywood Association - Certified plywood.
- D. AWPA - American Wood Preservers Association Standard U1 and T1.
- E. FS - Federal Specifications.

- F. NFPA - National Forest Products Association. National Design Specification for Stress Grade Lumber and its Fastening.
- G. NHLA: National Hardware Lumber Association.
- H. PS1 - Construction and Industrial Plywood.
- I. PS-20 - American Softwood Lumber Standard.
- J. SFPA - Southern Forest Products Association.
- K. SPIB - Southern Pine Inspection Bureau - Grading Rules.
- L. ASTM D2559 – Standard Specification for Adhesives for Structural Laminated Wood Products for Use Under Exterior (Wet Use) Exposure Conditions
- M. Requirements of Local and State regulatory agencies.

### 1.3 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, handle, and protect products as per Division 1 requirements.
- B. Keep materials dry during delivery, handling, and storage. Protect against exposure to weather. Do not allow contact with wet or damp surfaces. Provide air circulation within stacks. Store six inches above the ground or higher and adequately cover with waterproof material while allowing proper air circulation. Do not allow any lumber or wood products to come in contact with the ground. Store off of the ground. Do not store the products of this section on grass, dirt or mud.
- C. Immediately upon delivery to site inspect lumber and other products of this Section for defects, damage and for conformance with the specified requirements. Remove defective, damaged or non-conforming materials from the site. Do not install defective, damaged or non-conforming materials. Follow applicable lumber grading agency standards in accepting or rejecting lumber products. Reject all lumber that is not properly grade stamped, marked and certified. Reject all lumber with moisture content above the levels specified.
- D. Only skilled workers shall handle the materials of this section. Handle lumber to avoid damage. Handle chemically treated lumber and plywood in strict accordance with manufacturer's instructions.
- E. Do not allow lumber to be dumped from the delivery truck.

### 1.4 QUALITY ASSURANCE

- A. Rough Carpentry Lumber: Visible grade stamp, of agency certified by National Forest Products Association (NFPA).
- B. Lumber Standard: Comply with PS 20, except as otherwise indicated herein.
- C. Plywood Standard: Comply with PS 1, and APA grade trademarks.
- D. Factory mark each piece of lumber and plywood with type, grade, mill and grading agency, except omit marking from surfaces to be exposed with transparent finish or without finish.
- E. Shop fabricate carpentry work to the extent feasible and where shop fabrications will result in better workmanship than feasible for on-site fabrication.
- F. Perform work in accordance with AITC requirements and applicable building code requirements. Also, all work shall conform to NFPA Manual for Wood Frame Construction, NFPA National Design Specifications for Wood Construction and APA Plywood Specifications and Grade Guide.
- G. Submit manufacturer's written verification that treated lumber is fully compatible with all components of the roofing system and the flashing systems and fasteners to be installed on this Project.
- H. Installer Qualifications:
  - 1. Installer shall specialize in performing the work of this section, with five (5) years continuous documented experience in commercial wood framing system work.
  - 2. Use adequate number of highly skilled workmen who are competent, thoroughly trained and experienced in the necessary crafts and who are completely familiar with the tools and equipment of the trade, the specified requirements and methods needed for proper performance of the work of this Section.
  - 3. Adequate, competent constant supervision shall be provided to assure that the work is done in accordance with the highest standard practice and workmanship and in conformance with the drawings and specifications.
  - 4. Use equipment and tools adequate/appropriate in size, design and numbers in good repair to accomplish work in a timely and correct manner.
- I. Notify Architect and allow him to visit the site after all rough carpentry is complete and prior to closing any walls, ceilings, roofs, etc. Also, arrange all required inspections from the local authorities having jurisdiction.

## 1.5 FIELD MEASUREMENTS

- A. Verify all measurements in the field.
- B. Verify all field conditions.

## 1.6 COORDINATION

- A. Coordinate the work with plumbing, mechanical and electrical rough-in, installation of associated and adjacent components.

## **PART 2 - PRODUCTS**

### 2.1 MATERIALS

- A. Lumber: Sound, thoroughly seasoned and manufactured in compliance with NFPA "National Design Specification" for Stress Grade Lumber and its Fastenings. Conform to PS-20. Manufacture lumber to comply with applicable grading rules of Southern Pine Inspection Bureau (SPIB).
  - 1. All Wood: Southern Yellow Pine (SPIB), #2 grade or better, kiln dried, KD-15,
  - 2. All lumber (each piece) shall be grade marked and trade marked by accredited test agency.
  - 3. Moisture Content: Kiln dried to maximum 15%.
  - 4. Surfacing: S4S
  - 5. Twisted, bent or warped lumber shall be rejected.
  - 6. Dimensions on drawings: nominal unless noted as actual.
  - 7. Grade Stamp: Factory mark each piece of lumber with the SPIB grade stamp evidencing compliance with the grading rules requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
- B. Plywood: PS 1, APA rated, Exterior Grade, Structural 1, trade marked EXT - APA constructed with moisture resistant glue, grade CDX, unsanded, veneer core. Thickness as indicated on drawings or as indicated herein.
  - 1. Factory mark each panel with APA trademark evidencing compliance with grade requirements.
- C. Pressure Treated Plywood: PS 1, APA rated, Exterior Grade, Structural 1, trade marked EXT – APA constructed with moisture resistant glue, grade A – C plugged, veneer core.

## 2.2 ACCESSORY MATERIALS

- A. Provide size, quantity and type fasteners and anchors indicated. If not indicated, provide as recommended by applicable standards and codes and as recommended by manufacturer. Verify that all fasteners and accessory materials used with pressure treated wood are compatible with the treatment.
- B. Nails, Spikes, and Staples and Miscellaneous Fasteners: Hot dip galvanized steel with documented compatibility with treated lumber or Series 300 stainless steel for all exterior locations, all interior locations, high humidity locations, salt spray locations, for all treated wood, for all wood above roof deck level, and where indicated on drawings. All fasteners used in treated wood shall be approved by the ACQ preservative manufacturer. Do not use aluminum or mild steel fasteners or accessories. All nail sizes and types shall conform to the International Building Code 2015 and this specification, whichever is more stringent.
- C. Bolts, Nuts, Washers, Lag Bolts, Toggle Bolts, Pins, Screws, Expansion Shields, Joist Hanger, Hurricane Clips, Framing Clips, and similar rough hardware: Hot Dipped Galvanized Steel in all locations, sized as noted on drawings or sized to suit application if not noted, for all locations. All bolts, nuts, washers and screws, etc. at all locations in and above the wood roof deck shall be 300 Series stainless steel. All fasteners used in treated wood shall be approved by the wood treatment manufacturer.
- D. Rough Hardware Standards:
  - 1. Bolts: FS FF-B575, ASTM A 687, ANSI B18.2.1, ANSI B18.2.2, ANSI B18.5.
  - 2. Nuts: FS FF-N-836, Washers: FS FF-W-92
  - 3. Lag Screws and Bolts: FS FF-B-561, ANSI B18.2.1.
  - 4. Toggle Bolts: FS FF-B-588.
  - 5. Wood Screws: FS FF-S-111.
  - 6. Nails and staples: FS FF-N-105, SPA Standards apply for fasteners.
  - 7. Tacks: FS FF-N-103
  - 8. Expansion Shields: FS FF-S-325.
  - 9. Bar or strap anchors: ASTM A575 carbon steel.
- E. Expansion shield and lag bolt type anchors for anchorage to masonry or concrete. Bolt or ballistic fasteners for anchorage to steel.
- F. Adhesive: 3M #5230 or approved equal, waterproof.
- G. Water Resistive Barrier System at walls:  
Coordinate with Section 07250 Sheet Weather Barrier.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Examine the areas and conditions under which the Work of this Section will be performed. Verify that field conditions and the status of work is ready to allow the work of this Section to proceed. Verify that all plumbing, electrical, etc. rough-ins are complete and properly located. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected to the satisfaction of the Installer. Verify field measurements. Beginning of installation indicates acceptance of existing conditions.
- B. Discard materials with defects or damage that might impair quality of work or structural performance, or might impair the quality of subsequent work to be applied to the work of this Section.

### 3.2 FIELD WOOD TREATMENT

- A. Treat end cuts of treated wood members as recommended by the Mfg.

### 3.3 INSTALLATION

- A. Install wood framing and miscellaneous blocking, furring, cants, nailers, grounds, framing and sheathing. Coordinate with work of other Sections to allow proper attachments. Install members true to lines and levels, plumb, accurately fitted, straight and square. Do not deviate from true alignment more than 1/4 inch. Secure rigidly in place. Place horizontal members laid flat, crown side up.
  - 1. All lumber shall be fitted and connected as required to develop and utilize the full strength capacity of each member.
  - 2. Secure all doubled, tripled and quadrupled members together. All built up beams shall be glued and nailed or, if indicated on drawings, bolted. Glue shall be 3M 5230 or approved equal.
  - 3. All lumber and plywood shall be maximum 15% moisture content by weight unless specified to be a lower moisture content.
- B. Construct members of continuous pieces of longest possible lengths. Do not splice any structural members between supports.
- C. Install stripping and nailing member with closure strips at all edges and openings.
- D. Discard units of material with defects which might impair the quality of the Work. Remove and replace all split lumber.
- E. Install all metal fastenings and connectors as shown on drawings, specified, or required for proper installation and as required by recognized standards.

- F. Nails, spikes, screws, bolts, and similar items shall be of sizes and types to draw and rigidly secure members in place. Anchor and nail to comply with “Recommended Nailing Schedule - Table 1” of “Manual for House Framing” and other recommendations of NFPA. Masonry/concrete anchors shall be minimum 5/8" diameter, 3'-0" o.c. maximum spacing or as indicated on drawings, minimum two bolts per member. Spacing of fasteners shall comply with the International Building Code 2015 and this specification, whichever is more stringent. Use nailing machines and power hammers according to manufacturer’s instructions.
- G. Cut wood members square, closely fitted, set accurately to required lines and levels and rigidly secure in place. Do not use shims for leveling sill plates, point or grout with non shrink high strength waterproof cement for continuous solid bearing.
- H. Shim, scribe and cope carpentry to fit to other work and to existing surfaces for accurate fit. Maximum gap 1/32 inch at abutting components.
- I. Verify all inserts, pipes, anchors, etc.
- J. Cut, fit and/or patch Work as required in connection with other trades which adjoin any part of this Work, leaving all Work included herein complete after other trades have completed their Work.
- K. Securely attach all carpentry work to substrates.
- L. Counter sink nail heads on exposed carpentry work and nailers associated with the roofing and flashing systems. Use common wire nails for concealed work, except as otherwise indicated. Countersink bolt heads and nuts flush with surfaces.
- M. Install fasteners without splitting of wood; pre-drill as required. Remove and replace all split wood.
- N. Remove and replace all warped and twisted wood.
- O. All wood in contact with the concrete, masonry, or metal deck is to be preservative pressure treated. All wood associated with or within the roofing systems and flashing systems shall be pressure treated.
- P. Provide all grounds, blocking, nailers, and bracing required for subsequent work that will be attached to and/or supported by framed walls, ceilings, and floors. Provide proper anchorage for all other trades. Coordinate locations of furring, nailers, blocking, grounds, bracing, and similar supports to allow attachment of other work.
- Q. Provide joints and connectors at non-wood construction to allow for shrinkage, expansion and other movement of the wood. Provide clearances between framing and other construction that may be subject to differential movement.

- R. Retighten all bolts prior to installation of subsequent materials.

### 3.4 SHEATHING

- A. Comply with applicable recommendations in Form No. E 30F "APA Design/Construction Guide - Residential and Commercial" for types of sheathing and decking indicated. All sheathing and decking panels shall be installed to two span continuous minimum.
- B. Secure plywood wall sheathing horizontally to wall studs with ends staggered. Secure sheet edges over firm bearing. Unless otherwise indicated, fasten plywood sheathing to framing with 8d nails at 6 inches on center maximum spacing along all panel edges and 12 inches on center maximum spacing along all intermediate supports. Fasten to all framing members in this manner including, but not limited to studs, plates, and blocking. Fasten plywood sheathing to framing with 8d nails at 4 inches on center maximum spacing along all panel edges and 8 inches on center maximum spacing along all intermediate supports within 12 feet of an inside or outside wall corner. Securely fasten sheathing to sill plates and top plates in all locations.
- C. Secure plywood roof sheathing horizontally to all supports with ends staggered. Secure sheet edges over firm bearing. Unless otherwise indicated, fasten plywood sheathing to framing with 8d nails at 6 inches on center maximum spacing along all supports.
  - 1. All exterior framed walls shall have plywood sheathing installed from the bottom of the sill plate to the top of the top plate at the intersection with the roof framing and continuous from corner to corner.
  - 2. Surface of all plywood sheathing shall be as required to properly receive the water resistive barrier system (Coordinate with Section 07250).

### 3.5 TEMPORARY WORK

- A. Protect completed woodwork and other surfaces exposed to possible damage with adequate temporary coverings.
- B. Provide temporary stairs, ramps, runways, railings, guards, and ladders as required for the purpose of safe handling of materials, safe personnel access to work, and safe temporary exits from building.

### 3.6 CLEANING

- A. Clean work area at the end of each days work. Do not allow trash, debris or surplus materials to accumulate on site.

- B. Leave site clean, remove all debris created by the work of this Section upon completion of the work of this Section.

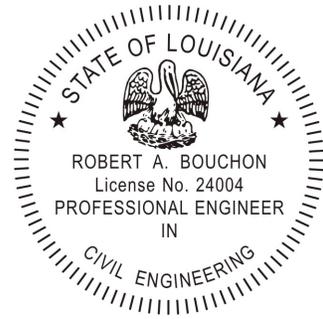
### 3.7 PROTECTION OF FINISHED WORK

- A. Protect finished Work as needed.
- B. Protect the work of all other Sections from damage due to work of this Section.

**END OF SECTION 06100**

## SECTION 06192

### PRE-FABRICATED WOOD TRUSSES



*Robert Bouchon*

07/03/20

#### Part 1 - GENERAL

##### 1.1 DESCRIPTION

A. All trusses shall be designed by the manufacturer in accordance with National Design Specifications for Wood Construction by the National Forest Products Association and in accordance with Design Specification for Light Metal Plate Connected Wood Trusses of the Truss Plate Institute of Washington, D.C. Design load shall be as follows:

1. 20 psf live load on roof
2. 10 psf dead load on roof
3. 10 psf dead load on ceiling
4. 40 psf total design load
5. Wind uplift load as determined by IBC 2015 / ASCE 7.
6. All erection and handling loads.

B. Camber shall be provided equal to twice dead load deflection.

C. Shop drawings and calculations sealed by a Louisiana Professional Engineer shall be submitted for review prior to construction. The sealed shop drawings shall include plans, details, uplift reactions, anchorage details, truss to truss connections, temporary and permanent bracing requirements.

#### PART 2 - PRODUCTS

A. Lumber for trusses shall contain a maximum moisture content not over 19% and shall conform to the following Grade Rules Agency, Species and Commercial Grade:

1. All truss members shall be SPIB No. 2 Dry Southern Pine with allowable unit stresses of: F = 1350 psi (extreme fiber in bending), C = 1000 psi (compression parallel to grain) and E = 1,600,000 psi (modulus of elasticity). Thickness of all truss members shall be at least 1-1/2 inches.

B. Connection plates shall be manufacturer's standard barbed teeth type with nails of not less than 20 gauge hot dipped galvanized steel placed on both faces of each joint. Each plate shall contain not less than four (4) teeth per square inch of gripping area. Nails for plates shall be in the number and position recommended by manufacturer but in no case shall there be less than one (1) nail per truss member. Nails shall be 6d, 1-1/2" long galvanized nails or equivalent. Truss

fabrication machines shall be so constructed as to assure proper positioning and retention of plates in position until teeth are engaged in wood.

- C. Trusses with loose knots or splits within the plate connection area shall not be used. Trusses with loose or improperly anchored connectors shall not be used.
- D. Connection plates shall be positioned to avoid conflict with truss support anchorages detailed on the Drawings.
- E. Where Fire Retardant Treated lumber for trusses is indicated provide materials which comply with AWPAC Standard C20 for pressure impregnation with fire-retardant chemicals, and which have a flame spread rating of not more than 25 when tested in accordance with UL Test 723 or ASTM E84, and show no increase in flame spread and significant progressive combustion upon continuation of test for additional 20 minutes. Re-dry treated lumber to comply with AWPAC C20. Provide UL label on each piece of fire-retardant lumber. Inspect each piece of treated lumber after drying and discard damaged or defective pieces.

### PART 3 - EXECUTION

- A. Trusses shall be erected plumb and true to line and spacing and shall be permanently braced so that the entire roof acts as a rigid unit.
- B. The wood truss manufacturer shall clearly specify on erection drawings any supplementary bracing required to provide the lateral support assumed in the design of the trusses or truss members.
- C. The Contractor is responsible for bracing the trusses to-together into a rigid roof unit by using good carpentry practice. Bracing by the Contractor shall at least meet the following requirements:
  - 1. As trusses are set in place the Contractor shall install sufficient temporary bracing to hold the trusses plumb, in alignment and in safe condition until permanent bracing, decking, and sheathing is installed.
  - 2. Bracing members shall be 2 x 4 No. 2 Pine continuous in lengths of not less than eight feet and shall be nailed with two double headed 16d nails at every intersection with the braced member.
  - 3. Where continuous lateral bracing is required, diagonal bracing at 45 degrees from top chord to bottom chord shall be placed at spacing not exceeding 16 feet along the continuous bracing. Diagonal braces shall be nailed to the side of the member opposite the continuous bracing.

4. Continuous lateral bracing of the top and bottom truss chords shall be provided at the center of the truss span and at spacing along the trusses not exceeding 8 feet. These braces shall be nailed to the bottom face of the top chord and the top face of the bottom chord.
- D. Finished appearance and stability shall comply with all requirements of the Section 06200 Rough Carpentry.

END OF SECTION

## **SECTION 06200**

### **FINISH CARPENTRY**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of finish carpentry work in this project shall be as shown on drawings and as specified herein. It shall include all materials, equipment, and labor required for complete installation. Finish carpentry shall consist of exposed wood and plastic fabrications, including, but not limited to, the following:
1. Exposed wood millwork, moldings, trims, etc.
  2. Milled wood door frames with trims
  3. Countertops in solid surfacing
  4. Shelving (fixed and adjustable, clear coated wood)
  5. Hardware for casework and adjustable shelving
  6. Definitions: "Exposed", "Semi-Exposed", and "Concealed" as used in this Section to describe surfaces and materials shall be as defined in AWI "Architectural Woodwork Standards" (current edition).
  7. Refer to Section 06100 – Rough Carpentry and Section 09260 – Gypsum Wallboard System for blocking, furring, shims, hanging strips, etc.

##### 1.2 RELATED SECTIONS:

- A. Section 05500 – Metal Fabrications
- B. Section 06100 – Rough Carpentry
- C. Section 07900 – Sealants
- D. Section 08210 – Flush Wood Doors
- E. Section 09260 – Gypsum Wallboard System
- F. Section 09900 – Painting

##### 1.3 QUALITY ASSURANCE:

- A. Standards: Maintain the following standards for the fabrication, finishing, and installation of finish carpentry work.
1. Architectural Woodwork Institute AWI: Architectural Woodwork Standards, current edition
  2. APA – The Engineered Wood Association: APA Publications, latest edition
  3. ANSI/ BHMA A156.9: Cabinet Hardware
  4. NEMA LD3: High Pressure Decorative Laminate Standard
  5. ISSFA-2, Classification and Standards Publication of Solid Surfacing Material
  6. ANSI Z124-3 for vanities and Z124-6 for kitchen sinks
  7. NSF Standard 51 for use in both splash and food service areas
  8. ASTM G21 Fungal Resistance, Method [A] [B], no growth
  9. ASTM G22 Bacterial Resistance, no growth
  10. Stain Resistance, ANSI Z124-6-5.2 1997
- B. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate product similar to those required for this Project and whose products have a record of successful in-service performance.
- C. Single Source Responsibility: Arrange for production by a single firm of architectural woodwork.
- D. Installer Qualifications: Installer shall be a fabricator of products who builds to the specified AWI Standards.
- E. AWI Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Standards" (AWS) for grades on interior architectural woodwork, finish carpentry, construction, finishes, and other requirements.

1. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with such selections and requirements in addition to the quality standard.
- F. Pre-installation Conference: General Contractor shall coordinate pre-installation meeting with Architect and subcontractor in compliance with requirements as indicated within Divisions 0 and 1.
1. Review the locations of backing required for finished carpentry installation as shown on approved shop drawings.
  2. Maintain indoor temperature and humidity within the range recommended by the AWI Architectural Woodwork Standards for the location of this project.
- G. Field Coordination: General Contractor to coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of work specified in other sections insuring that interior finish carpentry can be supported and installed as indicated within Contract Documents.

#### 1.4 SUBMITTALS:

- A. Submittals: Provide the following:
1. Product Data: Manufacturer's specifications and recommendations of components and accessories for finish carpentry.
  2. Standards: Provide woodwork fabricator's declaration that the woodwork, plastics, and adhesives proposed for use complies with quality grades and other requirements indicated. Provide technical literature for all prefabricated casework.
  3. Shop Drawings: Submit shop drawings showing location of each item, dimensioned plans and elevations, large scale details, attachment devices, operating hardware, and individual components. Indicate fastening methods and jointing details. Provide drawings on all millwork, casework, counter tops, finish carpentry, etc. Show locations of required blocking, furring, hanging brackets, etc.
- B. Samples: Provide the following:
1. Trims, Moldings, Etc.: Provide sample of each type used in job.
  2. Laminate: Provide 12" square sample panel of plastic laminate bonded to specified substrate. Provide samples of high pressure decorative laminate, melamine, and cabinet liners.
  3. Solid Surfacing: Provide 12" square sample panel of solid surfacing showing a typical butt joint seam, and counter top detail (splash, front edge, thermalforming, etc.).
- C. Mockup: When requested by Architect, provide full mockup of casework units (base and wall cabinets). Mockup shall include, but not limited to, countertop (plastic laminate and/ or solid surface), hardware, shelving, casework assembly, surface finishes, etc.

#### 1.5 JOB CONDITIONS:

- A. Do not install finish carpentry items until required temperature and humidity have been stabilized and will be maintained in the installation areas. Do not deliver woodwork until painting, wet work, grinding, and similar operations that could damage, soil, or deteriorate woodwork has been completed.
- B. Installer must examine the substrates and supporting structure and the conditions under which the carpentry work is to be installed and notify the Contractor and Architect in writing of conditions detrimental to the work. Do not proceed with the installation until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.
- C. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, etc. to allow proper attachment of carpentry work.
- D. Field Measurements: Where finish carpentry is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrications, and indicate

measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, furring, reinforcements, etc. that support finish carpentry by field measurements before enclosed and indicate measurements on Shop Drawings.

#### 1.6 DELIVERY, STORAGE, AND HANDLING:

- A. Protection: Protect finish carpentry during transit, delivery, storage, and handling to prevent damage, soiling, and deterioration.
- B. Delivery: Do not deliver finish carpentry until painting, wet work, grinding, and similar operations that could damage, soil, or deteriorate finish carpentry have been completed in installation areas.
- C. Storage: Store items at project site in installation spaces where possible. If finish carpentry must be stored in other installation areas, store only in areas whose environmental conditions meet requirements specified herein.

#### 1.7 SCHEDULING:

- A. Coordinate fabrication, delivery, and installation with the General Contractor and other applicable trades to ensure maintenance of construction schedule.

### **PART 2 - PRODUCTS:**

#### 2.1 WOOD AND PLASTIC LAMINATE CASEWORK COMPONENTS:

- A. Provide materials that comply with requirements of the AWI Architectural Woodwork Standards for each type of finish carpentry and quality grade indicated.
- B. Wood Products: Where the following products are part of finish carpentry, comply with the requirements of the following product standards:
  1. Lumber: In accordance with the AWI Architectural Woodwork Standards Grade(s) specified for the product being fabricated.
    - a. Moisture Content: 6 percent to 12 percent for boards up to 2 inches nominal thickness, and not to exceed 19 percent for thicker pieces.
  2. Hardboard: ANSI/ AHA A135.4
  3. Medium Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - 1) Sierra Pine
      - 2) Temple Inland
      - 3) Flakeboard
      - 4) Roseburg Forest Products
      - 5) Prior Approved Equal
  4. Particleboard: ANSI A208.1
  5. Softwood Plywood: DOC PS-1
    - a. Plywood: Any softwood species complying with PS-1/ ANSI A199.1 standards; APA Interior Type; veneer core; A-B grade unless otherwise indicated; 3/4 inch thick unless otherwise indicated. Provide exterior grade glue and plywood panels at all wet areas and elsewhere as indicated.
- C. Veneers: As required by AWI Architectural Woodwork Standards requirements for its use and the Grade specified. Veneers shall be shop applied, unless otherwise indicated.

- D. Melamine: Medium density fiberboard finished with thermally fused, melamine impregnated decorative paper complying with LMA SAT-1
- E. High Pressure Decorative Laminate:
  - 1. Plastic laminates shall be as manufactured by the following approved manufacturers:
    - a. Formica Corporation – Formica Laminate: Standard Laminate Series
      - 1) Design Groups: Solid Colors; Woodgrains; Patterns
    - b. Wilsonart International – Contract Laminate – The Standards Series
      - 1) Design Groups: Fibers; Particulates; Patterns; Granites, Marbles, Stones; Solids; Woodgrains
    - c. Pionite Decorative Surfaces – Pionite Laminate - Standard HPL Laminate
      - 1) Design Groups: Solids; Woodgrains; Abstracts
    - d. Prior Approved Equal
  - 2. Architect will make selections from manufacturer’s full range of available colors and patterns from Price Group as specified above.
    - a. Contractor to figure multiple laminate colors for millwork from manufacturer’s full range of colors from above listed series.
  - 3. Comply with AWI High Pressure Decorative Laminate-HPDL Standards as follow:
    - a. General Purpose (Thickness as appropriate for condition):
      - 1) Horizontal – General Purpose - Standard (HGS), 0.048” thick
      - 2) Vertical – General Purpose - Standard (VGS), 0.028” thick
    - b. Postforming (Thickness as appropriate for condition):
      - 1) Horizontal – General Purpose - Postforming (HGP), 0.039” thick
      - 2) Vertical – General Purpose - Postforming (VGP), 0.028” thick
    - c. Fire Retardant:
      - 1) Horizontal – General Purpose – Flame Retardant (HGF), 0.048” thick
    - d. Cabinet Liner:
      - 1) Cabinet Liner Standard (CLS), 0.020” thick
    - e. Backing Sheet:
      - 1) Backing Sheet Laminate (BKL), 0.020” thick
    - f. Finish:
      - 1) Textures as selected by Architect from the below:
        - a) Laminate Colors Solids, Patterns, Fibers, Particulates, Granites, Marbles, Stones, Abstracts: Matte
        - b) Laminate Colors Woodgrains: Artisan/ Natural Grain/ Soft Grain

- F. Edgeband (Must be Provided at All Doors, Gates, Drawers, and Open Shelving) (No Exceptions):
  - 1. For Laminated Plastic Casework: PVC (matching plastic laminate)
    - a. PVC edgeband used at case bodies shall be 0.5 mm thickness
    - b. PVC edgeband used at doors, gates, drawer fronts, and false fronts shall be 3 mm thickness
  
- G. Fastener Cover Cap: Self-adhered, pvc (matching plastic laminate) with ultra-bond high performance adhesive, sized to cover fastener.
  - 1. FastCap Peel and Stick Cover Cap as manufactured by FastCap
  - 2. Prior Approved Equal
  
- H. Adhesives: Type II (moisture/ water resistant)
- I. Solid Surfacing:
  - 1. Solid surfacing components shall be constructed of acrylic polymer or acrylic-polyester polymer blend composition (Contractor's Option).
  - 2. Solid surfacing composition shall be as follows:
    - a. Acrylic Polymer Components: Continuously cast; non-porous; homogenous solid sheets composed of filled acrylic polymer resin, fillers, and pigments that yield through body color; non-coated, laminated or of composite construction.
      - 1) Solid Surfacing shall be as manufactured by the following approved manufacturers:
        - a) Corian Surfaces from DuPont Co., Price Group: D
        - b) Wilsonart International – Wilsonart Solid Surface – Gibraltar Solid Surface Series, Price Group: 4
        - c) Durasein by Relang International, LLC, Price Group: Classic and Vino Collection
        - d) Prior Approved Equal
    - b. Acrylic-Polyester Blend Polymer Components: Continuously cast; non-porous; homogenous solid sheets composed of filled acrylic polymer resin, fillers, and pigments that yield through body color; non-coated, laminated or of composite construction.
      - 1) Solid Surfacing shall be as manufactured by the following approved manufacturers:
        - a) Formica Corporation – Formica Solid Surfacing, Price Group: D, Solid Elements; Basic Elements; Traditions, Classics, Signatures
        - b) Prior Approved Equal
    - c. Solid surfacing shall be a homogenous blend of resins manufactured in flat panels.
    - d. Coordinate with stainless steel sinks as per mechanical drawings/ specifications.
    - e. Panel Thickness: 1/2 inch (12.7 mm) nominal
    - f. Edge Profile: 1/8 inch rounded edge
    - g. General Standards:
      - 1) Approved by NSF International in Class 51 for both “Slash Zone” and “Food Zone” areas.
      - 2) UL Class 1 (A) Fire Rating, with Flame Spread less than 25 and Smoke Developed less than 25.
    - h. Colors: To be selected by Architect from manufacturer's full range of available colors and patterns from Price Group as specified above.
      - 1) Contractor to figure multiple solid surface colors for millwork from manufacturer's full range of colors from above listed series.

- i. Finish:
  - 1) Matte finish as selected by Architect.
- I. Hardware: Provide all hardware as required for a complete installation for each of the millwork and casework items shown in drawings.
  - 1. Hinges: Continuous hinge, steel, 180 degree, non-removable pin
  - 2. Pulls: Dull chrome wire (where pulls are in contact with adjacent walls provide clear plastic aquarium tubing as wall stop)
  - 3. Drawer Slides: KV-1300 for 3/4 extension or KV-4400 Low Profile for full extension
  - 4. Shelf Standards/ Brackets: KV-255/ KV-256
  - 5. Catches: Amerlock magnetic catch
  - 6. Locks: 5 disc tumbler, dull chrome (**Provide locks at all casework doors and drawers**).
  - 7. Keyboard Slide: KV-8100 or KV-8150 for 3/4 extension
  - 8. Shelf Angles: Sugatsune America, Inc, BTK-380 and BTK-300 (as indicated on drawings)
  - 9. Grommets: Doug Mockett & Co., TG Flip-Top Series - 2" hole
  - 10. Door Slides: KV-P2421 with nylon glides KV-2407 (color as selected by Architect), recessed installation

## 2.2 PLASTIC LAMINATE CASEWORK FABRICATION:

### A. General:

- 1. All materials and methods of construction are to meet the requirements specified herein and AWI Architectural Woodwork Standards for the grade(s) specified.
  - a. If there is a conflict between drawings and/ or specifications and AWI AWS, drawings and specifications shall govern.
- 2. Provide dust panels above and below all locking drawers.

### B. Plastic Laminate Casework (Base and Wall Cabinet Units):

- 1. Grade: AWS Custom Grade
- 2. Construction Type: AWS construction Type A, Frameless
- 3. Cabinet and Door Interface: Flush Overlay
- 4. Exposed Exterior Surfaces: High Pressure Decorative Laminate (HPDL) finish, Grade General Purpose and/ or Postforming
  - a. Exposed Exterior Surfaces are defined as all exterior surfaces exposed to view and shall include, but not limited to, the following:
    - 1) All surfaces visible when doors and drawers are closed, including knee spaces.
    - 2) Underside of cabinet bottoms over 42 inches above finished floor, including cabinet bottoms behind light valances and at the bottom edge of light valances.
    - 3) Cabinet tops under 80 inches above finished floor, or if 80 inches and over and visible from an upper building level or floor.
    - 4) Visible front edges of stretchers, ends, divisions, tops, bottoms, shelves, and nailers.
    - 5) Sloping tops of cabinets that are visible.
    - 6) All edges of doors, drawers, and open shelving to receive edgebanding.
- 5. Exposed Interior Surfaces: High Pressure Decorative Laminate (HPDL) finish, Grade General Purpose and/ or Postforming
  - a. Exposed Interior Surfaces are defined as all interior surfaces exposed to view in open casework or behind transparent (glass) doors and shall include, but not limited to, the following:

- 1) Interior surfaces of cabinet bodies
  - 2) Shelving including edgebanding
  - 3) Divisions and partitions
  - 4) Interior face of ends (sides), backs, and bottoms (including pull-outs). Also included are the interior surfaces of cabinet top members 36 inches or more above the finished floor.
  - 5) Interior face of door and applied drawer fronts.
6. Semi-Exposed Surfaces: High Pressure Decorative Laminate (HPDL) (for cabinet interior), Grade Cabinet Liner Standard and Melamine (for drawer interior), Grade LPDL/ TFM
- a. Semi-Exposed Surfaces are defined as those interior surfaces only exposed to view when doors or drawers are opened and shall include, but not limited to, the following:
    - 1) Shelving including edgebanding
    - 2) Divisions
    - 3) Interior face of ends (sides), backs, and bottoms (including a bank of drawers). Also included are the interior surfaces of cabinet top members 36 inches or more above the finished floor.
    - 4) Drawer sides, subfronts, backs, and bottoms.
    - 5) The underside of cabinet bottoms between 24 inches and 42 inches above the finished floor.
    - 6) Security and dust panels or drawer stretchers.
7. Concealed Surfaces: Manufacturer's standard, Melamine, Grade LPDL/ TFM
- a. Concealed Surfaces are defined as those exterior or interior surfaces that are covered or not normally exposed to view and shall include, but not limited to, the following:
    - 1) Toe space unless otherwise indicated.
    - 2) Sleepers, stretchers, and solid subtops.
    - 3) The underside of cabinet bottoms less than 24 inches above the finished floor.
    - 4) The flat tops of cabinets 80 inches or more above the finished floor, except if visible from an upper floor of building level.
    - 5) The three non-visible edges of adjustable shelves.
    - 6) The underside of countertops, knee spaces, and drawer aprons.
    - 7) The faces of cabinet ends of adjoining units that butt together.
8. Edgeband: PVC (to match adjacent plastic laminate surface). All doors, drawers, and open shelving to receive edgebanding.
9. Fastener Cover Cap: PVC (to match plastic laminate)
10. Casework Joint Assembly: Securely glued with tight, neat, fitting joints
11. Casework (Base and Wall Cabinet Units) shall be shop fabricated (AWI Custom Grade) along with other plastic laminate custom casework items as shown and detailed in drawings (figure multiple laminate colors). Cabinet materials, construction, hardware etc. must meet minimum standards as specified herein. See drawings for cabinet types, designs and locations. Casework shall have the following features:
- a. Cabinet Bodies with Doors and/ or Drawers: Bottoms, sides, and shelves shall be 3/4 inch thick, 45 – 47 lbs. board density, medium density fiberboard (mdf). Shelves over 36 inches long shall be 1 inch thick, 45 – 47 lbs. board density, medium density fiberboard (mdf).
  - b. Cabinet Bodies Open Shelving: Bottoms, sides, and shelves shall be 3/4 inch thick, 45 – 47 lbs. board density, medium density fiberboard (mdf). Shelves over 36 inches long shall be 1 inch thick, 45 – 47 lbs. board density, medium density fiberboard (mdf).
  - c. Cabinet Backs: 3/8 inch thick, 45 – 47 lbs. board density, medium density fiberboard (mdf).
  - d. Cabinet Exterior Surfaces: Doors, drawer fronts, finished cabinet ends, and wall cabinet

bottoms shall be 3/8 inch thick, 45 – 47 lbs. board density, medium density fiberboard (mdf).

- e. Drawers: All sides, backs, and subfronts shall be 1/2 inch thick, 45 – 47 lbs. board density, medium density fiberboard (mdf). Drawers to be dovetailed front and back and securely glued. Drawer bottom to be 1/4" hardwood plywood, rabbeted into sides and backs, stapled and glued.
- f. Bases: Two continuous 1-1/2" x 4-1/8" solid lumber.

C. Drawers:

1. Sides: MDF with Melamine finish surfaces
2. Bottoms: Hardwood Plywood with Melamine finish surfaces
3. Joinery: Multiple Dovetailed secured with glue
  - a. Drawer bottoms are to be fully housed into sides, back and subfront.

D. Laminated Plastic Countertops (When Specifically Shown):

1. Laminate: HPDL, grade as specified above.
2. Core Material: Exterior grade hardwood plywood with non-telegraphing grain
3. Back Splashes: Assembly wall mounted, jobsite assembled
4. Back Splashes: Butt joint, height shall be as indicated on drawings
5. Front Edges: Edges as shown on drawings

E. Solid Surface Countertops:

- 1 Solid Surface: As specified above.
- 2 Back Splashes: Assembly wall mounted, jobsite assembled
- 3 Back Splashes: Butt joint, height shall be as indicated on drawings
- 4 Front Edges: Edges as shown on drawings

F. Factory Finishing:

1. Grade: AWI AWS Custom Grade

2.2 WOOD SHAPES AND TRIMS:

A. Construction: AWI AWS Custom Grade.

B. Interior Wood For Opaque Finish: Unless otherwise noted, shall be AWI Grade II for exposed and Grade III for semi-exposed portions.

1. Lumber: Poplar, Birch, Basswood, Gum, or other close-grained hardwood species as approved by Architect, at the manufacturer's option or unless otherwise indicated.
  - a. Opaque finished trims, and other millwork items (where finished opaque), may be finger jointed. All millwork items shall be sanded on all exposed faces and edges, showing no tool marks, raised grain, or other surface deformities. See drawings for shapes, profiles, and sizes.

C. Interior Wood For Transparent or Stained Transparent Finish: Unless otherwise noted, shall be AWI Grade II.

1. Lumber: Red Oak, or other close-grained species as selected and approved by Architect, at the manufacturer's option or unless otherwise indicated.
  - a. Transparent or Stained Transparent finished trims, and other millwork items (where finished clear), shall be plain sawn, and shall not be finger jointed. All millwork items shall be sanded on all exposed faces and edges, showing no tool marks, raised grain, or other surface deformities. See drawings for shapes, profiles, and sizes.

- D. Milled Items: Wood frames, trims, etc. called out in drawings as "milled" shall be milled to the actual dimensions as shown within drawings. Opaque or stained and/ or transparent coat finish as selected by Architect. Submit samples of profiles with finish as requested by Architect for review and approval.**

2.3 ACCESSORIES:

- A. Furnish and install all concealed and exposed nails, screws, adhesives, panel clip systems and other accessories as required to assemble and secure the Work.

**PART 3 - EXECUTION**

3.1 EXAMINATION:

- A. Verification of Built Conditions: Verify that mechanical, electrical, plumbing and other building components affecting work within this section are in place and complete.

3.2 INSTALLATION - GENERAL:

A. Quality Standards:

1. Install woodwork to comply with AWI Architectural Woodwork Standards, current edition, for same grade specified above for type of woodwork involved.
2. Follow product Manufacturer's written recommendations and guidelines for all aspects of roughing-in, preparation, installation, and finishing of items specified under this Section.

- B. Fit carpentry work to other work. Scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds as necessary for proper attachment of related work.
- C. Should any woodwork type or finish be in question, bring to Architect's attention prior to bidding for clarification.
- D. All concealed wood surfaces to be back primed before installation.
- E. Condition woodwork to average prevailing humidity conditions in installation areas prior to installing.

3.3 PLASTIC LAMINATE CASEWORK INSTALLATION:

- A. Install all work in conformance with the AWI Architectural Woodwork Standards, latest edition.
1. Installation shall conform to the AWI AWS Grade of the items being installed.
- B. Secure all work in place, plumb, square, and level. Provide blocking in (or on) walls where necessary to anchor and support cabinets adequately.
- C. Fit and scribe all work abutting other building components.
- D. Mechanical fasteners used at exposed and semi-exposed surfaces, excluding installation attachment screws and those securing cabinets end to end, shall be countersunk. Heads of exposed nailing in surfaces to be stained or painted shall be sunk for face putty, other fastening shall be concealed where possible.
- E. Cut equipment cutouts shown on drawings using templates provided by the manufacturer and coordinated with General Contractor.
- F. Provide fillers as necessary to trim cabinets against side walls. All base cabinets shall have a continuous finished toe kick. Cabinets shall have prefinished ends and backs when exposed to view.
- G. All cabinet hardware shall be adjusted for smooth and quiet operation.
- H. At locations where wall and base cabinet door pulls come into contact with adjacent walls, provide 1 – 2 inch long clear plastic aquarium tubing threaded onto door pulls to protect walls from mars and indentions.

### 3.4 PLASTIC LAMINATE, SOLID SURFACING AND COUNTER WORK:

- A. All plastic laminate work shall be done in accordance with AWI Architectural Woodwork Standards, latest edition.
- B. All aspects of solid surfacing work, including substrate rough-in, panel installation, seaming, finishing, sealing, etc. shall be done in strict accordance with product Manufacturer's written guidelines and recommendations. Finished appearance shall be monolithic in nature, with uniform rounded edges and curved surfaces, and no detectable seams lines nor variations in color, texture, etc.
- C. Anchor counter tops (plastic laminate and solid surfacing) securely to base units and other support systems as indicated. Provide back splashes at all tops, and end splashes where counters abut fixed walls, equipment, etc.
  - 1. Provide solid framing to support counters for anticipated live and dead loads over open spans. Except where specifically detailed or noted otherwise, provide painted 2" x 2" steel angle braces to walls, spaced at intervals as necessary to support countertop rigidly.
  - 2. Continuously seal joints where counters meet walls (sealant colors to match counter material).

### 3.5 TRIMS, MOLDINGS, ETC. INSTALLATION:

- A. Install all work in conformance with the AWI Architectural Woodwork Standards, latest edition.
  - 1. Installation shall conform to the AWI AWS Grade of the items being installed.
- B. Install with a minimum number of joints possible, using full-length pieces (from maximum length of lumber available), to the greatest extent possible.
- C. Cope/ miter trim, moldings, and base at angle or corner intersections.
- D. All work shall be secured in place, square, level, and plumb.
- E. All work abutting building components shall be properly scribed.
- F. Mechanical fasteners used at exposed and semi-exposed surfaces, excluding installation attachment screws and those securing cabinets end to end, shall be countersunk. Heads of exposed nailing in surfaces to be stained or painted shall be sunk for face putty, other fastening shall be concealed where possible.

### 3.6 ADJUSTMENT AND CLEANING:

- A. Fill and retouch all nicks, chips, scratches, and repair damaged and defective finish carpentry work where possible to eliminate defects functionally and visually; where not possible to repair, replace finish carpentry components. Adjust joinery for tight, uniform appearance.
- B. Remove soil, stains, scratches and foreign matter from all finish carpentry items.
- C. Adjust all moving and operating parts to function smoothly and correctly.

### 3.7 CLEANUP:

- A. Upon completion of installation, clean all installed items of pencil and ink marks, and broom clean the area of work, removing all debris into approved containers coordinated with General Contractor.

**END OF SECTION**

# DIVISION

# 7



## THERMAL & MOISTURE PROTECTION

## **SECTION 07210**

### **BUILDING INSULATION**

#### **PART 1 – GENERAL**

##### 1.1 SCOPE:

- A. The scope of building insulation shall be as shown on drawings and as specified herein. It shall include all materials, equipment, and labor as necessary for a complete installation. Building insulation shall include, but not limited to, the following:

1. Glass fiber blanket insulation for thermal and sound insulation (specified herein)
2. Miscellaneous components and accessories

##### 1.2 RELATED SECTIONS:

- A. Section 06100 – Rough Carpentry
- B. Section 06192 – Prefabricated Wood Trusses
- C. Section 09260 – Gypsum Wallboard Systems

##### 1.3 SUBMITTALS:

- A. Product Data: Provide manufacturer's product data for each type of product indicated, including product characteristics, performance criteria, and installation instructions.
- B. Samples for Verification: Full-size units for each type of exposed insulation indicated.
- C. Product Test Reports: Submit product test reports from tests performed by qualified independent testing laboratory evidencing compliance of insulation products with requirements including R-values, fire performance characteristics, perm ratings, water absorption ratings, and other properties, based on comprehensive testing of current products.

##### 1.4 QUALITY ASSURANCE:

- A. Single Source Responsibility for Insulation Products: Obtain each type of building insulation from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- B. Fire Test Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
  1. Surface Burning Characteristics; Class A Fire Rating: ASTM E84
  2. Fire Resistance Ratings: ASTM E119
  3. Combustion Characteristics: ASTM E136

##### 1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Delivery: Deliver materials to job site in manufacturer's original, unopened packaging, containers, or bundles bearing the brand name and manufacturer's identification.
- B. Storage: Store materials in dry locations with adequate ventilation, free from water, and in such a manner to permit easy access for inspection and handling. Do not install insulation that has been damaged or wet.
- C. Handling: Handle using procedures recommended by the manufacturer.

##### 1.6 WARRANTY:

- A. Warranty: Provide manufacturer's standard warranty.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS:**

- A. Basis of Design: The materials and systems specified herein are as manufactured by Owens Corning.
- B. Alternate Manufacturers: Other acceptable manufacturers, pending specific specification compliance and approval by Architect, may include the following:
  - 1. CertainTeed Corporation
  - 2. Knauf Fiber Glass
  - 3. Prior Approved Equal

### **2.2 BUILDING INSULATION:**

- A. Unfaced Glassfiber Thermal Batt Insulation: ASTM C665, Type I and ASTM E136, preformed formaldehyde free glass fiber batt type, unfaced
  - 1. EcoTouch PINK Fiberglas Thermal Batt Insulation, Unfaced as manufactured by Owens Corning
  - 2. Insulation Thickness:
    - a. 5-1/2 inches, minimum 21 R Value, where indicated on drawings
  - 3. Characteristics:
    - a. Flame Spread: 25 or less in accordance with ASTM E84
    - b. Smoke Developed: 50 or less in accordance with ASTM E84
    - c. Noncombustible per ASTM E136
    - d. Water Vapor Absorption: Maximum 5 percent by weight in accordance with ASTM C1104
    - e. Dimensional Stability: Linear shrinkage less than 0.1 percent
- B. Unfaced Glassfiber Sound Attenuation Batt Insulation: ASTM C665 Type I, Class A; ASTM E136 non-combustible; ASTM C1338 Mold/ Mildew Resistant; preformed formaldehyde free glass fiber batt type; unfaced
  - 1. EcoTouch Glass-Fiber Sound Attenuation Batt Insulation, Unfaced as manufactured by Owens Corning
  - 2. Insulation Thickness:
    - a. 3-1/2 inches, where indicated on drawings
  - 3. Characteristics:
    - a. Flame Spread: 10 or less in accordance with ASTM E84
    - b. Smoke Developed: 10 or less in accordance with ASTM E84
    - c. Water Vapor Absorption: maximum 5 percent by weight
    - d. Dimensional Stability: less than 0.1 percent linear shrinkage
- C. Accessories: Provide accessories per insulating system manufacturer's recommendations, including (but not limited to) the following:
  - 1. Insulation Mesh Netting Fabric: Light duty insulation polypropylene fabric mesh netting, 1/6 inch spacing as distributed by J&R Products, Inc. or prior approved equal.
- D. Coverage:
  - 1. In Roof/ Soffit Construction: Provide full coverage of thermal batt fiberglass insulation, at

- locations where indicated on drawings.
2. In Exterior Wall Construction: Provide full coverage of thermal batt fiberglass insulation, at locations where indicated on drawings.
  3. In Interior Wall Construction: Provide full coverage of sound attenuation batt insulation, at locations where indicated on drawings.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION, GENERAL:**

- A. Comply with insulation manufacturer's written instructions and published details applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Water Piping Coordination: If water piping is located within insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.
- E. For preformed insulating units, provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.
- F. Examine substrates, penetrations, adjoining construction and the conditions under which work is to be installed. Verify that surfaces are dry and free of contaminants.
- G. Report unacceptable conditions in writing. Do not proceed with the work until unsatisfactory conditions have been corrected and surfaces are acceptable.

#### **3.2 INSTALLATION OF BUILDING INSULATION – FIBERGLASS:**

- A. Apply and secure insulation units to substrates by method indicated (or per manufacturer's recommendations), complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- B. Install glass-fiber insulation in accordance with ASTM C1320 and the following requirements:
  1. Use insulation widths and lengths that fill the cavities formed by framing members. Completely fill cavity top-to-bottom, side-to-side, and back-to-front, with no voids, gaps or areas of compression that could reduce the thermal value. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
  2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  3. Maintain 3 inches (76-mm) clearance of insulation around recessed lighting fixtures.
  4. Within exterior wall framing, install insulation between pipes and backside of sheathing. Cut or split insulation material as required to fit around wiring and plumbing.
  5. Where showers and bathtubs are located on exterior walls, install insulation and vapor barrier between units and exterior.
  6. Fluff insulation to full thickness for specified R value before installation. Do not compress insulation during installation, creating gaps or voids that could diminish thermal value.
  7. Trim insulation neatly to fit spaces. Fill miscellaneous gaps and voids with insulation.
  8. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation.
  9. For unfaced batt insulation, install with friction fit or retain in place with manufacturer's recommended fasteners or mesh.
  10. Secure insulation in place in walls using one of the following methods:
    - a. Friction Fit
    - b. Insulation Mesh Netting Fabric secured to framing face

11. Installation Within Roof/ Soffit: Secure in place with insulation mesh netting fabric secured to deck and adjacent framing members using the following method:

- a. Set insulation in place, tightly fit. Provide full coverage over entire wall and roof plane.
- b. Secure insulation mesh netting fabric to face of framing members with fasteners
- c. Insulation shall be held tightly to deck without sag, voids, or open joints

3.3 PROTECTION OF INSULATION:

- A. Protect insulation from damage due to weather and physical abuse until protected by permanent construction.

**END OF SECTION**

## **SECTION 07250**

### **SHEET WEATHER BARRIER**

#### **PART 1 — GENERAL**

##### 1.1 SCOPE:

- A. The scope of self-adhered sheet membrane air barriers shall be as indicated on drawings and as specified herein. It shall include all materials, equipment, and labor as required for a complete air barrier system for exterior envelope continuity. Work shall include, but is not limited to the following:
  - 1. Materials and installation methods for self-adhered vapor permeable air barrier membrane system located in the non-accessible part of the wall.
  - 2. Materials and installation methods to bridge and seal air leakage pathways in roof and foundation junctions, window and door openings, control and expansion joints, masonry ties, piping and other penetrations through the wall assembly.
  - 3. Inclusion of all components and accessories to install complete manufacturer warranted air barrier system.

##### 1.2 RELATED SECTIONS:

- A. Section 04200 – Unit Masonry Work
- B. Section 05500 – Metal Fabrication
- C. Section 06100 – Rough Carpentry
- D. Section 07600 – Flashing and Sheet Metal
- E. Section 07900 - Sealants
- F. Section 08410 – Aluminum Storefront Door and Window
- G. Section 08530 – Exterior Vinyl Fixed Windows
- H. Division 15 – Mechanical
- I. Division 16 - Electrical

##### 1.3 DEFINITIONS:

- A. Air Barrier Assembly: The collection of air barrier materials and auxiliary materials applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

##### 1.4 PERFORMANCE REQUIREMENTS:

- A. General: Air barrier shall be capable of performing as a continuous vapor-permeable air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.
- B. The building envelope shall be designed and constructed with a continuous air barrier to control air leakage. The air barrier shall have the following characteristics:
  - 1. It must be continuous, with all joints made airtight.
  - 2. It shall have an air permeability not to exceed 0.004 cfm/sq. ft. under a pressure differential of 0.3 in. water. (1.57 psf) (equal to 0.02L/sq. m @ 75 Pa), when tested in accordance with ASTM E2178.
  - 3. It shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the envelope without damage or displacement, and shall transfer the load to the structure. It shall not displace adjacent materials under full load.
  - 4. It shall be durable or maintainable.

5. The air barrier shall be joined in an airtight and flexible manner to the air barrier material of adjacent systems, allowing for the relative movement of systems due to thermal and moisture variations and creep. Connection shall be made between:
  - a. Foundation and walls.
  - b. Walls and windows or doors.
  - c. Different wall systems.
  - d. Wall and roof.
  - e. Walls, floor and roof across construction, control and expansion joints.
  - f. Walls, floors and roof to utility, pipe and duct penetrations.
6. All penetrations of the air barrier and paths of air infiltration/ exfiltration shall be made airtight.

#### 1.5 REFERENCES:

- A. The following standards and publications are applicable to the extent referenced in the text. The most recent version of these standards is implied unless otherwise stated.
  1. ASTM C920 - Specifications for Elastomeric Joint Sealants
  2. ASTM D412 - Standard Test Methods for Rubber Properties in Tension
  3. ASTM D570 - Test Method for Water Absorption of Plastics
  4. ASTM D903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds
  5. ASTM D1004 - Test Method for Initial Tear Resistance of Plastic Film and Sheeting
  6. ASTM D1876 - Test Method for Peel Resistance of Adhesives
  7. ASTM D1938 - Test Method for Tear Propagation Resistance of Plastic Film and Sheeting
  8. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
  9. ASTM D4263 - Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
  10. ASTM D4541 - Test Method for Pull-off Strength of Coatings Using Portable Adhesion Testers
  11. ASTM D5034 - Test Method for Breaking Strength and Elongation of Textile Fabrics
  12. ASTM E96 - Test Methods for Water Vapor Transmission of Materials
  13. ASTM E154 - Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover
  14. ASTM E1186 - Practice for Air Leakage Site Detection in Building Envelopes and Air Retarder Systems
  15. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials
  16. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
  17. ICC AC 308 - Water Resistance: AC 308; Acceptance Criteria for Water-Resistive Barriers

#### 1.6 SUBMITTALS:

- A. Product Data: Include manufacturer's written instructions for evaluating, preparing, and treating substrate; technical data; and tested physical and performance properties of air barrier.
- B. Shop Drawings: Show locations and extent of air barrier. Include details for substrate joints and cracks, counterflashing strip, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
  1. Include details of interfaces with other materials that form part of air barrier.
  2. Include details of mockups.
- C. Samples: Submit representative samples of the following for approval:
  1. Self-Adhered Air Barrier Membrane
  2. Self-Adhered Transition Membrane
  3. Self-Adhered Through Wall Flashing
- D. Product Certificates: For air barriers, certifying compatibility of air barrier and accessory materials

with project materials that connect to or that come in contact with the barrier; signed by product manufacturer.

- E. Qualification Data: For Applicator.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for air barriers, submit certified test report showing compliance with requirements specified for ASTM E2178.
- G. Warranty: Submit a sample warranty identifying the terms and conditions stated herein.

#### 1.7 QUALITY ASSURANCE:

- A. Manufacturer: Air barrier systems shall be manufactured and marketed by a firm with a minimum of 10 years' experience in the production and sales of waterproofing and air barriers. Manufacturers proposed for use, but not named in these specifications shall submit evidence of ability to meet all requirements specified, and include a list of projects of similar design and complexity completed within the past five years.
- B. Source Limitations: Obtain primary air-barrier material and through wall flashing through one source from a single manufacturer.
- C. Applicator Qualifications: A firm experienced in applying air barrier materials similar in material, design, and extent to those indicated for this project, whose work has resulted in applications with a record of successful in-service performance.
- D. Mockups: Before beginning installation of air barrier, provide air barrier work for exterior wall assembly mockups, incorporating backup wall construction, external cladding, window, door frame and sill, insulation, and flashing to demonstrate surface preparation, crack and joint treatment, and sealing of gaps, terminations, and penetrations of air barrier membrane.
  - 1. Coordinate construction of mockup to permit inspection by Owner's testing agency of air barrier before external insulation and cladding is installed.
  - 2. If Architect determines mockups do not comply with requirements, reconstruct mockups and apply air barrier until mockups are approved.
- E. Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work. Pre-installation conference shall include the Contractor, installer, Architect, and system manufacturer's field representative. Agenda for meeting shall include, but not be limited to, the following:
  - 1. Review of submittals.
  - 2. Review of surface preparation, minimum curing period and installation procedures.
  - 3. Review of special details and flashings.
  - 4. Sequence of construction, responsibilities and schedule for subsequent operations.
  - 5. Review of mock-up requirements.
  - 6. Review of inspection, testing, protection and repair procedures.

#### 1.8 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver materials and products in manufactured labeled packages. Store and handle in strict compliance with manufacturer's instructions, recommendations, and Safety Data Sheets (SDS). Protect from damage from sunlight, weather, excessive temperatures and construction operations. Remove damaged material from the site and dispose of in accordance with applicable regulations.
- B. Do not double-stack pallets of fluid applied components on the job site. Provide cover on top and all sides, allowing for adequate ventilation.
- C. Protect fluid-applied components from freezing and extreme heat.
- D. Sequence deliveries to avoid delays, but minimize on-site storage.

#### 1.9 PROJECT CONDITIONS:

- A. Environmental Limitations: Apply air barrier within the range of ambient and substrate

temperatures recommended by air barrier manufacturer. Protect substrates from environmental conditions that affect performance of air barrier. Do not apply air barrier to a wet substrate or during snow, rain, fog, or mist.

1.10 WARRANTY:

- A. Submit manufacturer's material warranty that air barrier and accessories are free of defects at time of delivery and are manufactured to meet manufacturer's published physical properties and material specifications.
- B. Warranty Period: Five (5) years from date of completion of the air barrier membrane installation.

**PART 2 - PRODUCTS**

2.1 MANUFACTURER:

- A. Basis Of Design: The products and systems as specified herein are as manufactured by GCP Applied Technologies, 62 Whittemore Avenue, Cambridge, MA
- B. Alternate Manufacturers: Other acceptable manufacturers pending specific products and system approval by Architect indicating their compliance with all requirements of this specification, may include the following:
  - 1. Henry Company
  - 2. Prior Approved Equal

2.2 MEMBRANE:

- A. SELF-ADHERED AIR BARRIER MEMBRANE: Perm-A-Barrier VPS manufactured by GCP Applied Technologies; a self-adhered membrane consisting of a breathable carrier film with a specially designed adhesive, which permits the transfusion of water vapor and provides superior protection against the damaging effects of air and water ingress on building structures. Product shall have the following minimum physical properties:
  - 1. Air Permeance, ASTM E2178: Not to exceed 0.004 cfm/sq. ft. under a pressure differential of 0.3 in. water. (1.57 psf) (equal to 0.02L/sq. m @ 75 Pa)
  - 2. Assembly Air Permeance, ASTM E2357: Not to exceed 0.04 cfm/sq.ft. under a pressure differential of 0.3 in. water (1.57 psf) (equal to 0.2 L/sq.m @ 75 Pa)
  - 3. Water Vapor Permeance, ASTM E96: Not less than 10 perms
  - 4. Water Resistance, ICC AC 38: Pass
  - 5. Breaking Force, ASTM D5034: >40 lbf MD, and >35 lbf CD
  - 7. Pull Adhesion, ASTM D4541: min. 15 psi to primed glass faced gypsum sheathing, min. 12 psi to primed CMU
  - 8. Peel Adhesion at min. temperature: ASTM D903: min. 5 pli to primed glass faced gypsum sheathing, min. 4 pli to Perm-A-Barrier VPS, min. 2.5 pli to primed CMU
  - 9. UV Exposure Limit: Not more than 150 calendar days
  - 10. Water Penetration Resistance Around Nails, ASTM D1970 Modified: Pass
  - 11. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly
- B. TRANSITION MEMBRANE: Perm-A-Barrier Detail Membrane manufactured by GCP Applied Technologies; a 36 mil (0.9mm) of self-adhesive rubberized asphalt integrally bonded to 4 mil (0.1 mm) of cross-laminated, high-density polyethylene film to provide a min. 40 mil (1.0 mm) thick membrane. Membrane shall be interleaved with disposable silicone-coated release paper until installed, conforming to the following:
  - 1. Water Vapor Transmission, ASTM E96, Method B: 2.9 ng/m<sup>2</sup>sPa (0.05 perms) max.
  - 2. Air Permeance at 75Pa (0.3 in. water) pressure difference: 0.0006 L/(s.m<sup>2</sup>) (0.00012 cfm/ft<sup>2</sup>) max.
  - 3. Puncture Resistance, ASTM E154: 178 N (40 lbs.) min.
  - 4. Lap Adhesion at -4 degrees C (25 degrees F), ASTM D1876: 880 N/m (5.0 lbs./in.) of width

5. Low Temperature Flexibility, ASTM D1970: Unaffected to -43 degrees C (-45 degrees F)
  6. Tensile Strength, ASTM D412, Die C Modified: min. 2.7 MPa (400 psi)
  7. Elongation, Ultimate Failure of Rubberized Asphalt, ASTM D412, Die C: min. 200%.
- C. FLEXIBLE MEMBRANE THROUGH-WALL FLASHING: Perm-A-Barrier Wall Flashing manufactured by GCP Applied Technologies; a 32 mil (0.8 mm) of self-adhesive rubberized asphalt integrally bonded to 8 mil (0.2 mm) of cross-laminated, high-density polyethylene film to provide a min. 40 mil (1.0 mm) thick membrane. Membrane shall be interleaved with disposable silicone-coated release paper until installed, conforming to the following:
1. Water Vapor Transmission, ASTM E96, Method B: 2.9 ng/m<sup>2</sup>sPa (0.05 perms) max.
  2. Water Absorption, ASTM D570: max. 0.1% by weight
  3. Puncture Resistance, ASTM E154: 356 N (80 lbs.) min.
  4. Tear Resistance:
    - a. Initiation, ASTM D1004: min. 58 N (13.0 lbs.) M.D.
    - b. Propagation, ASTM D1938: min. 40 N (9.0 lbs.) M.D.
  5. Lap Adhesion at -4 degrees C (25 degrees F), ASTM D1876: 880 N/m (5.0 lbs./in.) of width
  6. Low Temperature Flexibility, ASTM D1970: Unaffected to -43 degrees C (-45 degrees F)
  7. Tensile Strength, ASTM D412, Die C Modified: min. 5.5 MPa (800 psi)
  8. Elongation, Ultimate Failure of Rubberized Asphalt, ASTM D412, Die C: min. 200%

### 2.3 PRIMERS:

- A. PRIMER FOR PRIMARY SELF-ADHERED AIR BARRIER MEMBRANE: Perm-A-Barrier Primer Plus manufactured by GCP Applied Technologies; a water-based primer which imparts an aggressive, high tack finish on the treated substrate. Product shall have the following minimum physical properties:
1. Color: Milky White (wet), Clear (dry)
  2. Weight: 8.25 lbs./gal.
  3. Solids Content (by wt.): 53-57%
  4. Solvent Type: Water
  5. VOC Content: Not to exceed 1 g/L
  6. Application Temperature: 4 degrees C (40 degrees F) and above
- B. WALL PRIMER FOR SELF-ADHERED TRANSITION MEMBRANE AND SELF-ADHERED FLEXIBLE MEMBRANE WALL FLASHING: Perm-A-Barrier WB Primer manufactured by GCP Applied Technologies; a water-based primer which imparts an aggressive, high tack finish on the treated substrate. Product Shall have the following minimum physical properties:
1. Flash Point: No flash to boiling point
  2. Solvent Type: Water
  3. VOC Content: Not to exceed 10 g/L
  4. Application Temperature: -4 degrees C (25 degrees F) and above
  5. Freezing point (as packaged): -7 degrees C (21 degrees F)

### 2.4 PENETRATIONS AND TERMINATION SEALANT:

- A. LIQUID MEMBRANE FOR DETAILS AND TERMINATIONS: Bituthene Liquid Membrane manufactured by GCP Applied Technologies; a two-part, elastomeric, trowel grade material designed for use with self-adhered membranes and tapes. 10 g/L max. VOC content.
- B. SUBSTRATE PATCHING MEMBRANE: Bituthene Liquid Membrane manufactured by GCP Applied Technologies; a two-part, elastomeric, trowel grade material designed for use with self-adhered membranes and tapes. 10 g/L max. VOC content.
- C. JOINT SEALANT: Refer to sealant manufacturer's recommendations. See Section 07900 – Sealants.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION:**

- A. Verify that substrates and conditions are ready to accept the Work of this section. Notify Architect in writing of any discrepancies. Commencement of the Work or any parts thereof shall mean acceptance of the prepared substrates.
- B. All surfaces must be sound, dry, clean and free of oil, grease, dirt, excess mortar or other contaminants detrimental to the adhesion of the membranes. Fill voids, gaps and spalled areas in substrate to provide an even plane.
- C. Curing compounds or release agents used in concrete construction must be resin based without oil, wax or pigments.

### **3.2 SURFACE PREPARATION:**

- A. Refer to manufacturer's literature for requirements for preparation of substrates. Surfaces shall be sound and free of voids, spalled areas, loose aggregate and sharp protrusions. Remove contaminants such as grease, oil and wax from exposed surfaces. Remove dust, dirt, loose stone and debris. Use repair materials and methods that are acceptable to manufacturer of the air barrier assembly.
- B. Exterior Sheathing Panels: Ensure that the boards are sufficiently stabilized with corners and edges fastened with appropriate screws in accordance with exterior sheathing manufacturers written instructions.
- C. Related Materials: Treat construction joints and install flashing as recommended by manufacturer.
- D. Clean, prepare, treat, and seal substrate according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for air barrier application.
- E. Remove excess mortar from masonry ties, shelf angles, and other obstructions.
- F. At changes in substrate plane, apply sealant or Bituthene Liquid Membrane at sharp corners and edges to form a smooth transition from one plane to another.
- G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

### **3.3 AIR BARRIER MEMBRANE INSTALLATION:**

- A. Refer to manufacturer's literature for recommendations on installation
- B. Apply air barrier membrane to achieve a continuous air barrier according to air barrier manufacturer's written instructions.
- C. Application of Self-Adhered Air Barrier Membrane:
  - 1. Install air barrier to dry surfaces at air and surface temperatures of 4 degrees C (40 degrees F) and above in accordance with manufacturer's recommendations, at locations indicated on Construction Documents.
  - 2. Prime substrate to receive air barrier membrane as required per manufacturers written instructions.
  - 3. Precut pieces of air barrier into easily handled lengths.
  - 4. Remove release linear and position membrane carefully before placing against the surface.
  - 5. Begin installation at the base of the wall placing top edge of membrane immediately below any masonry reinforcement or ties protruding from substrate.
  - 6. When properly positioned, place against surface by pressing firmly into place. Roll membrane with extension-handled countertop roller immediately after placement.
  - 7. Overlap adjacent pieces 50 mm (2 in.) and roll seams.
  - 8. Subsequent sheets of membrane applied above shall be positioned immediately below masonry reinforcement or ties. Bottom edge shall be slit to fit around reinforcing wires or ties, and membrane shall overlap the membrane sheet below by 50 mm (2 in.). Roll firmly into place.

9. Seal around masonry reinforcing or ties and all penetrations with penetration and termination sealant.
10. Coordinate the installation of air barrier with roof installer to ensure continuity of membrane with roof air barrier.
11. At end of each working day, seal top edge of air barrier to substrate with termination sealant.
12. Do not expose air barrier membrane to sunlight for more than 150 days prior to enclosure.
13. Inspect installation prior to enclosing and repair punctures, damaged areas and inadequately lapped seams with a patch of the membrane sized to extend 150 mm (6 in.) in all directions from the perimeter of the affected area.

#### 3.4 TRANSITION MEMBRANE INSTALLATION:

- A. Install strips, transition membrane, and auxiliary materials according to air barrier manufacturer's written instructions to form a seal with adjacent construction and maintain a continuous air barrier. Install all transition membrane only after application of air barrier.
- B. Apply primer to substrates to receive transition membrane at required rate and allow to dry. Limit priming to areas that will be covered by transition tape in same day. Re-prime areas exposed for more than 24 hours.
  1. Prime glass-fiber-surfaced gypsum sheathing not covered with air membrane material with number of prime coats needed to achieve required bond, with adequate drying time between coats.
- C. Connect and seal exterior wall air barrier membrane continuously to roofing membrane air barrier, concrete below-grade structures, floor-to floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.
- D. At end of each working day, seal top edge transition membrane to substrate with termination sealant.
- E. Apply joint sealants forming part of air barrier assembly within sealant manufacturer's recommended application temperature ranges. Consult sealant manufacturer when sealant cannot be applied within these temperature ranges.
- F. Wall Openings: Prime concealed perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply transition membrane so that a minimum of 3 inches (75 mm) of coverage is achieved over both substrates.
  1. Transition Membrane: Roll firmly to enhance adhesion.
- G. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air barrier membrane with foam sealant.
- H. Repair punctures, voids, and deficient lapped seams in transition membrane. Slit and flatten fish-mouths and blisters. Patch with transition membrane extending 6 inches (150 mm) beyond repaired areas in strip direction.

#### 3.5 FIELD QUALITY CONTROL:

- A. Testing Agency: Owner may engage a qualified testing agency to perform tests and inspections and prepare test reports.
- B. Inspections: Air barrier materials and installation are subject to inspection for compliance with requirements. Inspections may include the following:
  1. Continuity of air barrier system has been achieved throughout the building envelope with no gaps or holes.
  2. Continuous structural support of air barrier system has been provided.
  3. Masonry and concrete surfaces are smooth, clean and free of cavities, protrusions, and mortar droppings.
  4. Site conditions for application temperature and dryness of substrates have been maintained.
  5. Maximum exposure time of materials to UV deterioration has not been exceeded.

6. Surfaces have been primed, as required by manufacturer.
  7. Laps in transition membrane have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fish-mouths.
  8. Termination sealant has been applied on cut edges.
  9. Transition membrane has been firmly adhered to substrate.
  10. Compatible materials have been used.
  11. Transitions at changes in direction and structural support at gaps have been provided.
  12. Connections between assemblies (membrane and sealants) have complied with requirements for cleanliness, preparation and priming of surfaces, structural support, integrity, and continuity of seal.
  13. All penetrations have been sealed.
- C. Tests: Testing to be performed will be determined by Owner's testing agency from among the following tests:
1. Qualitative Testing: Air barrier assemblies will be tested for evidence of air leakage according to ASTM E1186, smoke pencil with pressurization or depressurization.
- D. Remove and replace deficient air barrier components and retest as specified above.
- 3.6 CLEANING AND PROTECTION:
- A. Protect air barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.
  - B. Protect air barrier from exposure to UV light and harmful weather exposure as required by manufacturer. Remove and replace air barrier exposed for more than 150 days.
  - C. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.
  - D. Remove masking materials after installation.

**END OF SECTION**

## **SECTION 07260**

### **UNDER-SLAB VAPOR BARRIER/ RETARDER**

#### **PART 1 – GENERAL**

##### 1.1 SCOPE:

- A. The scope of under-slab vapor barrier/ retarder work in this project shall be as shown on drawings and as specified herein. It shall include all materials, equipment, and labor as required for a complete installation of entire vapor barrier/ retarder system under all concrete building slabs. Under-slab vapor barrier/ retarder system shall include, but not limited to the following:
  - 1. Vapor Barrier/ Retarder, seam tape, bonding tapes, mastic, pipe boots, and detail strip for installation under concrete building slabs
  - 2. Miscellaneous components and accessories

##### 1.2 RELATED SECTIONS:

- A. Section 02200 - Earthwork
- B. Section 02250 - Soil Treatment for Termite Control
- C. Section 03300 - Concrete

##### 1.3 REFERENCES:

- A. American Society for Testing and Materials (ASTM):
  - 1. ASTM E1745: Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.
  - 2. ASTM E154: Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
  - 3. ASTM E96: Standard Test Methods for Water Vapor Transmission of Materials.
  - 4. ASTM F1249: Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor.
  - 5. ASTM E1643: Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- B. American Concrete Institute (ACI):
  - 1. ACI 302.2R: Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.

##### 1.4 SUBMITTALS:

- A. Quality Control/ Assurance:
  - 1. Independent laboratory test results showing compliance with ASTM & ACI Standards.
  - 2. Manufacturer's samples, product literature
  - 3. Manufacturer's installation instructions for placement, seaming and pipe boot installation.

##### 1.5 MANUFACTURERS:

- A. Basis of Design: The products and systems as specified herein are as manufactured by Stego Industries, LLC.
- B. Alternate Manufacturers: Other acceptable manufacturers, pending specific product and system approval by Architect indicating compliance with all requirements of this specification may include the following:
  - 1. W.R. Meadows
  - 2. Prior Approved Equal

## **PART 2 – PRODUCTS**

### **2.1 MATERIALS:**

A. Vapor Barrier/ Retarder: Vapor barrier/ retarder is composed of a multi-layer plastic extrusion manufactured with only high grade prime, virgin, polyolefin resins.

1. Vapor Barrier/ Retarder membrane must have the following properties:

- a. Manufactured from prime virgin resins
- b. Water Vapor Retarder:           ASTM E1745                   Meets or exceeds Class A
- c. Water Vapor Permeance:        ASTM F1249                   0.0254 perms or lower
- d. Puncture Resistance:            ASTM D1709                   3,006 grams
- e. Tensile Strength:                 ASTM D882                    50.6 lbf/in
- f. Permeance After Conditioning:  ASTM E1745                   0.02 perms or lower
- g. Thickness:                         10 mils

2. Vapor Barrier/ Retarder Products:

- a. Stego Wrap 10-mil Class A Vapor Barrier by Stego Industries, LLC
- b. Prior Approved Equal

### **2.2 ACCESSORIES:**

A. Seam Tape: Seam tape is a low permeance tape designed for protective sealing, hanging, seaming, splicing, and patching of vapor barrier/ retarder. Seam tape is composed of polyolefin film and an acrylic, pressure-sensitive adhesive.

1. Tape must have the following qualities:

- a. Water Vapor Permeance:        ASTM F1249                   0.03 perms or lower
- b. Tensile Strength:                 17 lbs/in width
- c. Elongation (at break) MD:       1060 %
- d. Thickness:                         6 mils

2. Seam Tape Products:

- a. Stego Tape by Stego Industries, LLC
- b. Prior Approved Equal

B. Mastic: Mastic is designed to be used as a waterproofing and vapor retardant membrane for use with vapor barrier/ retarder. Mastic is composed of a medium-viscosity, water based, polymer modified anionic bituminous asphalt emulsion, which exhibits bonding, elongation and waterproofing characteristics.

1. Mastic must have the following qualities:

- a. Water Vapor Permeance:        ASTM E96                     0.3 perms or lower

2. Mastic Products:

- a. Stego Mastic by Stego Industries, LLC
- b. Prior Approved Equal

C. Pipe Boots:

1. Construct pipe boots from vapor barrier/ retarder material (field made or prefabricated), pressure sensitive tape and/ or mastic per manufacturer's instructions.



- pour.
- b. Lap Vapor Barrier/ Retarder over footings and seal to foundation walls.
  - c. Overlap joints 6 inches and seal with manufacturer's tape.
  - d. Seal all penetrations (including pipes, piles, etc.) per manufacturer's instructions.
  - e. Use manufacturer's recommended accessories and components for a complete project specific installation to create a homogeneous vapor barrier/ retarder system. Use manufacturer's standard details at appropriate locations and for proper sequencing of concrete installation work.
  - f. No penetration of the Vapor Barrier/ Retarder is allowed except for reinforcing steel and permanent utilities.
  - g. Repair damaged areas by cutting patches of Vapor Barrier/ Retarder, overlapping damaged area 6 inches and taping all four sides with tape.
  - h. At grade beams, Vapor Barrier/ Retarder shall be installed down vertical sides with laps of 6" and taped. Vapor Barrier/ Retarder shall be installed with a full lap joint the full horizontal width of the grade beam bottom. Seam on bottom of grade beam does not need to be sealed. Provide full coverage of grade beams walls and bottom. Cut Vapor Barrier/ Retarder tightly to pile caps and piles to provide overlap and allow for structural bonding contact of materials. Provide enough slack with the draping of the Vapor Barrier/ Retarder within the grade beam to have proper concrete placement to designed form. Tenting of Vapor Barrier/ Retarder is not acceptable.

**END OF SECTION**

## **SECTION 07311**

### **ASPHALT SHINGLES**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of asphalt shingle roofing work shall be as shown in the drawings and as specified herein. It shall include all materials, equipment, and labor as required for a complete weathertight installation. Asphalt shingle work shall include, but not be limited to, the following:
  - 1. Installation of asphalt roofing shingles
  - 2. Installation of leak barrier and roof deck protection
  - 3. Installation of sheet metal, flashings, and associated roofing products over plywood sheathing

##### 1.2 COORDINATION:

- A. Roofer shall coordinate work of this Section with that of Section 07600 - Flashing and Sheet Metal to insure a complete and waterproof roofing installation. Coordinate roof penetrations with mechanical, electrical and other trades and provide flashing as required for watertightness.

##### 1.3 RELATED SECTIONS:

- A. Section 06100 - Rough Carpentry
- B. Section 07600 - Flashing and Sheet Metal
- C. Division 15 – Mechanical
- D. Division 16 - Electrical

##### 1.4 REFERENCES:

- A. American Society for Testing and Materials (ASTM):
  - 1. ASTM A653/ A653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
  - 2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
  - 3. ASTM B370 – Standard Specification for Copper Sheet and Strip for Building Construction
  - 4. ASTM D3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules
  - 5. ASTM D3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method)
  - 6. ASTM D3462 - Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules
  - 7. ASTM D4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free
  - 8. ASTM D7158 – Standard Test Method for wind-Resistance of Sealed Asphalt Shingles (Uplift Force/ Uplift Resistance Method)
  - 9. AC438-1011-R1 – New Acceptance Criteria for Alternative Asphalt Roofing Shingles
- B. Underwriter's Laboratories (UL) – Roofing Systems and Materials Guide (TFWZ.R21):
  - 1. UL 790 - Tests for Fire Resistance of Roof Covering Materials
  - 2. UL 997 - Wind Resistance of Prepared Roof Covering Materials
  - 3. UL 2218 – Impact Resistance of Prepared Roof Covering Materials
- C. Asphalt Roofing Manufacturers Association (ARMA)
- D. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) – Architectural Sheet Metal Manual
- E. National Roofing Contractors Association (NRCA)
- F. American Society of Civil Engineers (ASCE)

1. ASCE 7 (current adopted edition) – Minimum Design Loads for Buildings and Other Structures

1.5 DEFINITIONS:

- A. Roofing Technology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.

1.6 SUBMITTALS:

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, showing compliance with requirements.
- C. Selection Samples: Two complete sets of color cards representing manufacturer's full range of available colors and patterns.
- D. Manufacturer's installation instructions, showing required preparation and installation procedures.
- E. Shop Drawings: Detailed drawings indicating installation, components, and accessories to be installed.

1.7 QUALITY ASSURANCE:

- A. Manufacturer Qualifications: Company specializing in manufacturing the roofing system products specified in this section, including shingles, underlayment, leak barrier, and ventilation, by a single source manufacturer with minimum of twenty-five (25) years' experience.
- B. Installer Qualifications: Installer must be manufacturer approved for installation of all roofing products to be installed under this section.

1.8 REGULATORY REQUIREMENTS:

- A. Provide a roofing system achieving an Underwriters Laboratories (UL) Class A fire classification.
- B. Install all roofing products in accordance with all federal, state, and local building codes.
- C. All work shall be performed in a manner consistent with current OSHA guidelines.

1.9 PRE-INSTALLATION MEETING:

- A. Pre-Installation Meeting: Conduct a pre-installation meeting not more than two (2) weeks before start of roofing installation.
  1. General Contractor shall schedule and arrange meeting, meeting place, and notify attendees.
  2. Mandatory Attendees: Roofing installer, manufacturer's steep slope technical representative (not sales agent), Architect's representative, and prime Contractor's representative.
  3. Review all pertinent requirements for achieving the warranty specified below, review and discuss project specific details and installation, and set schedule for final warranty inspection.

1.10 DELIVERY, STORAGE, AND HANDLING:

- A. Store products in manufacturer's unopened labeled packaging until ready for installation.
- B. Store products in a covered, ventilated area, at temperature not more than 110 degrees F; do not store near steam pipes, radiators, or in direct sunlight.
- C. Store bundles on flat surface to maximum height recommended by manufacturer; store rolls on end.
- D. Store and dispose of solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.11 WEATHER CONDITIONS:

- A. Proceed with work only when existing and forecasted weather conditions will permit work to be

performed in accordance with manufacturer recommendations.

1.12 WARRANTY:

- A. Roofing Contractor: The roofing contractor shall issue, at completion of project, a written unlimited two (2) year warranty, covering labor and materials, guaranteeing complete roofing system against leaks, including sheet metal work, ridge cap, flashing at penetrations, etc.
- B. Manufacturer: Shingles shall have manufacturer's standard fifty (50) year GAF Weather Stopper System Plus limited warranty.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS:

- A. Basis Of Design: The materials and products specified herein are as manufactured by GAF
- B. Acceptable Manufacturers: Other acceptable manufacturers, pending specific product compliance with this specification by Architect, may include the following:

- 1. Prior Approved Equal

2.2 MATERIALS:

- A. Asphalt Shingles: Self-sealing, granule surfaced, asphalt shingle with a strong fiberglass reinforced Micro Weave core and StainGuard protection, which prevents pronounced discoloration from blue-green algae through formulation/ unique blends of granules. Architectural laminate styling provides a wood shake appearance with a 5-5/8 inch exposure. Features manufacturer's patented High Definition color blends and enhanced shadow effect. UL 790 Class A rated with UL 997 Wind Resistance Label; ASTM D7158, Class H; ASTM D3161, Type 1; ASTM D3018, Type 1; ASTM D3462; AC438 compliant; CSA A123.5-98; Dade County Approved, Florida Building Code Approved, Texas Dept. of Insurance Approved, ICC Report Approval.
  - 1. Timberline HD Lifetime High Definition Shingles by GAF
    - a. Color: As selected by Architect from manufacturer's regional availability standard colors
  - 2. Prior Approved Equal
- B. Hip and Ridge Shingles: High profile self sealing hip and ridge cap shingle matching color of selected roof shingle.
  - 1. Timbertex Premium Ridge Cap Shingles by GAF
  - 2. Prior Approved Equal
- C. Starter Strip: Self-sealing starter shingle designed for premium roof shingles.
  - 1. WeatherBlocker Eave/ Rake Starter Strip by GAF
  - 2. Prior Approved Equal
- D. Underlayment - Roof Deck Protection: Water repellent, breather type cellulose/ glass fiber composite roofing underlayment. Meets or exceeds the requirements of ASTM D226 and D4869 and approved by UL and the Florida Building Code.
  - 1. Shingle-Mate Roof Deck Protection by GAF
  - 2. Prior Approved Equal
- E. Leak Barrier – Eaves Protection Membrane: Self-adhering, self-sealing, bituminous leak barrier surfaced with a smooth polyethylene film. Approved by UL, Dade County, ICC, State of Florida and Texas Department of Insurance.

1. StormGuard by GAF
  2. Prior Approved Equal
- F. Roofing Cement: Asphalt plastic roofing cement meeting the requirements of ASTM D4586 Type I or II.
- G. Roofing Paint: Exterior acrylic rust resistant aerosol roof accessory paint. Color to match roof shingle.
1. Shingle-Match Roof Accessory Paint by GAF
  2. Prior Approved Equal
- H. Fasteners: Standard round wire shingle type, zinc-coated steel or aluminium; 10 to 12 gauge, smooth, barbed or deformed shank, with heads 3/8 inch to 7/16 inch in diameter. Length must be sufficient to penetrate into solid substrate at least 3/4 inch.
- I. Metal Flashing: 24 gauge hot-dip galvanized steel sheet, complying with ASTM A653/ A653M, G90/Z275. Use metal flashings at eave edges, rake edges, step flashing at curbs, side walls, and valleys. Coordinate with Section 07600 – Flashing and Sheet Metal.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION:**

- A. Installer is responsible for thorough inspection of roof sheathing and other roof related installations. Do not proceed with work over unacceptable sheathing conditions. Commencement by installer shall be considered an acceptance on his part of work by other associated trades.
- B. Do not begin installation until roof deck has been properly prepared.
- C. If roof deck preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

#### **3.2 PREPARATION:**

- A. New Construction Application:
  1. Clean deck surfaces thoroughly prior to installation of eave protection membrane and underlayment.
  2. At areas to receive eave protection membrane, fill knot holes and cracks with latex filler.
  3. Install crickets on the upslope side of any curb located in the north and on all roof steeper than 6:12.

#### **3.3 SUBSTRATE INSTALLATION (NEW CONSTRUCTION):**

- A. Structural roof deck shown in the Construction Documents shall be smooth and level and free of water or debris.
- B. Installation shall follow manufacturer's written installation guidelines.
- C. Install with fasteners to the supporting roof deck shown in Construction Documents.
- D. Protect work from exposure to moisture damage and deterioration, primarily by prompt installation of the roofing, sheet metal, and waterproofing work.

#### **3.4 UNDERLAYMENT INSTALLATION:**

- A. Install using methods recommended by manufacturer and in accordance with the International Building Code, whichever is greater.
- B. Eaves:
  1. Install eaves edge metal flashing tight with fascia boards; lap joints 2 inches and seal with plastic cement or high quality urethane sealant; nail at top of flange.
  2. On all roofs between 2:12 and 4:12 slopes, install leak barrier (eaves protection membrane)

up the slope from eaves edge a full 36 inches or at least 24 inches beyond the interior "warm wall". Lap ends 6 inches and seal.

C. Valleys:

1. Install leak barrier (eaves protection membrane) at least 36 inches wide and centered on valley. Lap ends 6 inches and seal.

D. Hips and Ridges:

1. Install leak barrier (eaves protection membrane) along entire lengths.

E. Roof Deck Protection:

1. Install one layer of roof deck underlayment over entire area not protected by leak barrier (eave protection membrane) at eaves or valley. Install sheets horizontally lapped so water sheds; nail in place.
2. On roofs sloped at more than 4:12, lap horizontal edges at least 2 inches and at least 2 inches over leak barrier (eave protection membrane).
3. Lap ends at least 4 inches. Stagger end laps of each layer at least 36 inches.
4. Lap roof deck underlayment over leak barrier (eave protection membrane) at least 6 inches.

F. Penetrations:

1. Vent Pipes: Install a 24 inch square piece of leak barrier (eaves protection membrane) lapping over roof deck protection; seal tightly to pipe.
2. Vertical Walls: Install leak barrier (eaves protection membrane) extending at least 6 inches up the wall and 12 inches on to the roof surface. Lap membrane over roof deck protection.
3. Curbs: Install leak barrier (eave protection membrane) around entire curb extending at least 6 inches up the wall and 12 inches on to the roof surface. Lap membrane over roof deck protection.
4. Rake Edges: Install metal edge flashing over leak barrier (eaves protection membrane) and roof deck protection; set tight to rake boards; lap joints at least 2 inches and seal with plastic cement; secure with nails.

3.5 INSTALLATION OF STARTER SHINGLES AND SHINGLES:

A. Install in accordance with manufacturer's instructions and requirements of local building code.

1. Avoid breakage of shingles by avoiding dropping bundles on edge, by separating shingles carefully (not by "breaking" over ridge or bundles), and by taking extra precautions in temperatures below 40 degrees F.
2. Handle carefully in hot weather to avoid damaging shingle edges.
3. Secure with 4 to 6 nails per shingle; use number of nails required by manufacturer or by code, whichever is greater. Nails must be long enough to penetrate through plywood or OSB, or 5/8 inch into dimensional lumber. Nails must be driven flush with shingle surface. Do not overdrive or under drive the nails.

B. Starter Course:

1. For maximum wind resistance along rake and eaves, install starter strip containing sealant or cement shingles to underlayment and each other in a 4 inch width of asphalt plastic roof cement.
2. Place starter strip shingles 1/4 inch to 3/4 inches over eave and rake edges to provide drip edge.
3. Nail approximately 1-1/2 inch to 3 inches above butt edge of shingle.
4. Rake starter course should overlap eave edge starter strip at least 3 inches.
5. Apply in accordance with manufacturer's diagrams, with recommended nailing patterns and locations. Be sure to nail securely along rakes and between dabs of self-sealing cement

- along eaves. Trim tabs off at starter course shingles.
- C. First Course: Start and continue course with full shingles laid flush with the starter course. Shingles may be laid from left to right or right to left. Do not lay shingles straight up the roof. For maximum wind resistance along rakes, cement shingles to deck and each other with plastic asphalt roof cement.
  - D. Second Course: Start and continue second course as manufacturer's diagrams. Butt of shingle should be applied to the top of saw tooth of underlying shingle so that there will be 5 inches of each shingle exposed.
  - E. Third Course: Start at rake with shingle having 11 inch trimmed from rake.
  - F. Fourth Course and Up: Start and continue with full shingles across the roof. Repeat the application method as for the second, third and fourth courses.
  - G. Install hip and ridge shingles in accordance with manufacturer's recommendations, with exposure as recommended. Apply laps away from prevailing wind direction.
    - 1. At ridges, install hip and ridge shingles to match roof shingle type and color.
  - H. Make valleys using "closed cut valley" technique:
    - 1. Run the first course of shingles from the higher roof slope across the valley at least 12 inches.
    - 2. Run succeeding courses of shingles from the lower roof slope across the valley at least 12 inches and nail not closer than 6 inches.
    - 3. Run shingles from the upper roof slope into the valley and trim 2 inches from the center line.
  - I. Penetrations: All penetrations are to be flashed according to manufacturer's written installation guidelines, ARMA and NRCA application instructions and construction details.

### 3.6 SHEET METAL:

- A. Install roofing related sheet metal (valleys, drip edges, etc.) in accordance with shingle manufacturer's recommended practice. Materials and workmanship are as specified in Section 07600 - Flashing and Sheet Metal.
- B. Flash all penetrations (mechanical, electrical, etc.) through roofs for complete and weathertight installations. Provide built-in crickets where necessary to direct flow of water around any obstructions.

### 3.7 PROTECTION:

- A. Stage work progress so that traffic is minimized over completed roofing.
- B. Protect installed products from foot traffic until completion of project.
- C. Any roof areas that are not completed by the end of the workday are to be protected from moisture and contaminants.

### 3.8 CLEAN-UP:

- A. Remove all trash, debris, roofing nails, etc. and remove from site. Clean all adjacent surfaces of plastic cement or other deleterious materials caused by roofing operations.

**END OF SECTION**

## **SECTION 07460**

### **CEMENTITIOUS BOARDS AND TRIMS**

#### **PART 1 – GENERAL**

##### **1.1 SCOPE:**

- A. The scope of cementitious boards and trims in this project shall be as shown on drawings and as specified herein. It shall include all materials, equipment and labor as required for a complete weathertight installation. Cementitious siding work shall include, but are not limited to, the following:
  - A. Fiber cement trim boards, soffit panels, and accessories.
  - B. Provide a complete, fully detailed and finished installation.

##### **1.2 RELATED SECTIONS:**

- A. Section 04200 – Unit Masonry Work
- B. Section 06100 – Rough Carpentry
- C. Section 07311 – Asphalt Shingles
- D. Section 07600 – Flashing and Sheet Metal
- E. Section 07900 – Sealants
- F. Section 09900 – Painting

##### **1.3 REFERENCES:**

- A. ASTM D3359 Standard Test Method for Measuring Adhesion by Tape Test, Tool and Tape.
- B. ASTM E136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C

##### **1.4 SUBMITTALS:**

- A. Product Data: Provide manufacturer's data sheets, brochures, installation instructions, maintenance instructions, etc. for each component and accessory used in this system.
- B. Shop Drawings: Provide detailed drawings indicating job specific conditions and include context of materials. Shop drawings shall indicate all components and installation to adjacent materials.
- C. Selection Samples: Provide selection samples for each product specified. Provide manufacturer's sample chips representing the full range patterns/textures.

##### **1.5 QUALITY ASSURANCE:**

- A. Manufacturer Qualifications: Manufacturer shall be capable of producing materials specified herein with a minimum of five (5) years' experience.
- B. Installer Qualifications: Installer who has completed projects of similar size and complexity with a minimum of five (5) years' experience.
- C. Mockup: Provide a mockup for evaluation and approval by Architect of surface preparation techniques and application workmanship.
  - 1. Finish area shall be designated by Architect.
  - 2. Do not proceed with work until workmanship, technique, and detailing are approved by Architect.
  - 3. Refinish mockup area as required to produce acceptable work.

##### **1.6 DELIVERY, STORAGE, AND HANDLING:**

- A. Products shall be delivered in manufacturers sealed packaging with labels.
- B. Store products in manufacturer's unopened packaging until ready for installation.
- C. Store material on edge or lay flat on a smooth level surface. Protect edges and corners from

chipping. Store sheet material under cover and keep dry prior to installing.

- D. Store and dispose of solvent based materials, and materials used with solvent based materials, in accordance with requirements of local authorities having jurisdiction.

#### 1.7 PROJECT CONDITIONS:

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

#### 1.8 PRE-INSTALLATION CONFERENCES:

- A. Requirements: General Contractor shall arrange and conduct Pre-Installation Conferences at the site before construction activity for coordination of installation and coordinate with other construction.
- B. Attendees: The Owner, Architect, Installer, Manufacturer Representative and others involved or affected by the installation.
- C. Purpose: Review the progress of other construction activities and discuss detailing of Cementitious Boards and Trims.

#### 1.9 WARRANTY:

- A. Product Warranty: Limited, non-pro-rated products warranty.
  - 1. Trim Boards: 15 years
  - 2. Soffit Panels: 30 years
- B. Finish Warranty: Limited product warranty against manufacturing finish defects.
  - 1. When used for its intended purposes, properly installed and maintained according to manufacturer's published installation instructions, finish will be warranted for a period of 15 years from the date of Substantial Completion: will not peel; will not crack; and will not chip. Finish warranty includes the coverage for labor and material.
- C. Workmanship Warranty: Application limited warranty for 2 years.

### **PART 2 - PRODUCTS**

#### 2.1 MANUFACTURERS:

- A. Basis Of Design: The products and systems as specified herein are as manufactured by James Hardie Building Products, Inc.
- B. Acceptable Manufacturers: Other acceptable manufacturer's, pending specific approval of conformance with these specifications by the Architect, may include the following:
  - 1. Prior Approved Equal

#### 2.2 TRIM BOARDS:

- A. Hardie Trim Boards, 5/4 Smooth Boards as manufactured by James Hardie Building Products, Inc.
  - 1. Width Exposures: 11-1/5 inches, unless otherwise indicated on drawings
  - 2. Texture: Smooth
  - 3. Length: Maximum length as manufactured for minimum joints
  - 4. Thickness: 3/4 inch
  - 5. Finish: Primed for field painting

### 2.3 SOFIT PANEL BOARDS:

- B. HardieSoffit Panels, Non-Vented Smooth as manufactured by James Hardie Building Products, Inc.
  - 1. Width Exposure: 48 inches trimmed to field dimensions
  - 2. Texture: Smooth, non-vented
  - 3. Length: Maximum length as manufactured for minimum butt joints
  - 4. Thickness: 1/4 inch
  - 5. Finish: Primed for field painting

### 2.4 FASTENERS:

- A. Fasteners: Head self-drilling, corrosion resistant ribbed buglehead screws, type and size as recommended by manufacturer (for specific project conditions) for solid anchorage into substrate.

### 2.5 FINISHES:

- A. Factory Primer: Provide factory applied universal primer.
  - 1. Primer: Factory primed by James Hardie
  - 2. Topcoat: Refer to Section 09900 - Painting

## **PART 3 - EXECUTION**

### 3.1 EXAMINATION:

- A. Do not begin installation until substrates have been properly prepared and approved by Architect.
- B. If framing/ substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Examine substrates for sound fastening ability and proper waterproofing. Notify General Contractor and Architect of any unsatisfactory conditions.

### 3.2 PREPARATION:

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. A water-resistive barrier shall be appropriately installed with penetration and junction flashing in accordance with manufacturer's recommendations. Coordinate as required.

### 3.3 INSTALLATION:

- A. Install materials in strict accordance with manufacturer's installation instructions.
- B. Fasten through trim/ soffit boards into structural framing or code complying sheathing. Fasteners must penetrate minimum 3/4 inch (19 mm). Additional fasteners may be required to ensure adequate security.
- C. Place fasteners no closer than 3/4 inch (19 mm) and no further than 2 inches (51 mm) from side edge of board and no closer than 1 inch (25 mm) from end. Fasten maximum 16 inches (406 mm) on center.
- D. At outside corners indicated, attach trim on both sides of corner with 16 gauge corrosion resistant finish nail 1/2 inch (13 mm) from edge spaced 16 inches (406 mm) apart, weather cut each end spaced minimum 12 inches (305 mm) apart.
- E. Allow minimum vertical clearance between the edge of siding material and any other material in strict accordance with the manufacturer's installation instructions.
- F. For specific framing and fastener requirements refer to Tables 2 and 3 in National Evaluation Service Report No. NER-405.
- G. Allow 1/8 inch gap between trim and soffit boards.
- H. Seal all gaps, butt joints, corners, etc. with high quality, paintable caulk. Slightly countersink all

fasteners and fill with high quality, paintable caulk.

- I. Do not nail between lap joints.

3.4 FINISHING:

- A. Finish factory primed trim boards in accordance with paint manufacturer's written product recommendation and written application instructions. See Section 09900 – Painting.

3.5 PROTECTION:

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

**END OF SECTION**

## **SECTION 07600**

### **FLASHING AND SHEET METAL**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of flashing and sheet metal work in this project shall be as shown on drawings and as specified herein. It shall include all materials, equipment, and labor as required for a complete and weathertight component. Flashing and sheet metal work shall include all accessories as specifically detailed and as necessary to accommodate details of all roofing, exterior opening, and misc. conditions. Coordinate, as required, with all other trades. This shall include, but not be limited to, the following:

1. Sheet metal flashings, edge metal flashings, reveal flashings, 2-part receiver flashings, counterflashings, caps, gutters, downspouts, subsills, wall and roof penetration flashings, etc. Also provide all cleats, clips, and accessories, as detailed in drawings and as required, for complete and weathertight installation.
2. Lead flashing and other misc. metals as detailed in drawings

##### 1.2 RELATED WORK:

- A. Section 04200 - Unit Masonry Work
- B. Section 05500 – Metal Fabrication
- C. Section 07311 – Asphalt Shingles
- D. Section 07900 – Sealants
- E. Division 15 – Mechanical
- F. Division 16 - Electrical

##### 1.3 QUALITY ASSURANCE:

- A. General: Unless conflicting and more restrictive requirements are indicated, comply with standards and recommendations of the following industry standards:
1. N.R.C.A. "Roofing and Waterproofing Manual" and "Handbook of Accepted Roofing Knowledge", Latest Edition.
  2. "SMACNA "Architectural Sheet Metal Manual", Latest Edition.
  3. The written recommendations of the specified roofing (and related other) system manufacturers.
- B. Installer: In order to assure undivided responsibility and proper coordination with related work, subcontract associated work of Section 07600 to the installers of roofing systems (Section 07311).
- C. Wind Resistance: Comply with requirements of IBC, 2015 edition (current adopted edition) and ASCE, 7-10 (current adopted edition). Fabricate and install metal work to resist the following, while remaining in place (comply with the greater requirements):
1. Design Wind Loads: Manufacturer shall determine design wind loads applicable to the Project from basic wind speed indicated in miles per hour, according to IBC 2015 and ASCE 7-10 calculated with the following parameters:
    - a. Components and Cladding: Shall be calculated by the manufacturer for project specific conditions and locations.
- D. Powder coating shall comply with AAMA 2604 Performance Standard:
1. Specific Gravity ASTM D792: 1.3 to 1.9 depending on color
  2. Theoretical Coverage: Approximately 101 to 148 ft<sup>2</sup> /lb./ mil

3. Optimum Storage: < 80 degrees F, < 50% RH
4. Particle Distribution: +44 microns (325 mesh), Percentage varies with color
5. Film Thickness ASTM D1186: 1 to 3 mils
6. Percent Gloss at 60 degrees ASTM D523-89: 25 to 35%
7. Pencil Hardness ASTM D3363-00: H to 3H
8. Adhesion ASTM D3359-02: No lifting of 1/8" squares between scribed lines when cross hatch adhesion is tested using the prescribed tape
9. Flexibility ASTM D522-93a: A coating of 2 mils or less will withstand a bend of 180 degrees over a 1/8" mandrel without cracking or loss of adhesion
10. Impact Resistance ASTM D2794-93: 160 inch-pounds, direct and reverse, at a film thickness of 2 mils, Impact properties will be influenced by formulation
11. Salt Spray Resistance ASTM B117-97: Minimum rating of 7 for procedure A and minimum of 8 for procedure B (ASTM D1654-92) after 3000 hours of exposure, Aluminum substrates must be pretreated according to AAMA 2604 specs
12. Humidity Resistance ASTM D2247: No more than "few" blisters size 8, figure #4, ASTM D714 after 3000 hours of exposure, Aluminum substrates must be pretreated according to AAMA 2604 specs
13. Chemical Resistance: Very good resistance to most chemicals and solvents, See AAMA 2604 chemical resistance requirements. Some properties may be reduced in low gloss formulations
14. Overbake Stability: This series can typically withstand 100% overbake without yellowing

#### 1.4 SUBMITTALS:

- A. General: Comply with Division 0 and Division 1 requirements.
- B. Product Data: Submit manufacturer's technical product data, installation instructions and general recommendations for each specified sheet material and fabricated product. Include specifications for finish system.
- C. Samples: Submit 8 inch square samples of prefinished sheet materials, for verification of selected color as approved by Architect.
- D. Shop Drawings: Show layout, profiles, methods of joining, and anchorage details, including major flashings, counter flashings, copings, and gutter systems. Provide layout at 1/4 inch scale and details at 3 inch scale. Coordinate with roofing (and other associated) submittals.

#### 1.5 PROJECT CONDITIONS:

- A. Coordinate work of this section with related and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.
- B. Do not proceed with the installation of flashing and sheet metal work until curb and substrate construction, cant strips, blocking, reglets and other construction to receive the work is completed.
- C. The Installer must examine the substrate and the conditions under which flashing and sheet metal work is to be performed and notify the General Contractor and Architect in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.
- D. Contractor is responsible for providing all sheet metal and flashing work necessary for complete and weathertight installations at roofing, walls, gutters, louvers, and misc. conditions of the building, in accordance with the best standard practices of the industry.
- E. Details as shown on drawings generally cover typical conditions. They are not meant to be all inclusive. Conditions not specifically detailed shall be fabricated and installed in accordance with the reference standards indicated above.
- F. The Installer shall cooperate with exterior envelopes installers to secure watertight connections at drains, pipes, etc. passing through roofs, walls, or membranes.

#### 1.6 WARRANTY:

- A. Installer shall provide warranty (in writing) that the work of this Section is free from defects in material and workmanship for a period of two (2) years after Substantial Completion and that all

such defects discovered during this period shall be made good. Issue warranty in conjunction with roofer's warranty as required by Section 07311.

## **PART 2 - PRODUCTS**

### 2.1 MATERIALS:

- A. Base, Through Wall, and Exterior Opening Membrane Flashing: See Section 04200.
- B. Metal Trim, Flashings, Etc. - All Exposed Metal (Except As Noted Otherwise) shall be Prefinished Galvanized Sheet Metal:
  - 1. Provide galvanized sheet metal with the following factory applied finish. Gauges of metal to be as shown in drawings (24 gauge min., if not specifically called out). Also coordinate with Section 07311.
    - a. General: Apply coating either before or after forming and fabricating items, as required by coating process and as required for maximum coating performance capability. Protect coating promptly after application and cure, by application of strippable film or removable adhesive cover, and retain until installation has been completed.
    - b. Fluoropolymer Coating: Shall be full strength Kynar 500, applied by the Manufacturer on a continuous coil coating line, with a top side dry film thickness of 0.70 to 0.90 mil over 0.25 to 0.35 mil prime coat, to provide a total dry film thickness of 0.95 to 1.25 mil. Bottom side shall be coated with primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesion, flexibility, and longevity as specified by the Kynar 500 finish supplier.
    - c. Durability: Provide coating which has been field tested under normal range of weathering conditions for minimum of 20 years without significant peel, blister, flake, chip, crack or check in finish, and without chalking in excess of 8 (ASTM D659), and without fading in excess of 5 NBS units (ASTM D2244).
    - d. Colors: Shall be as selected by Architect from manufacturer's full range of colors.
- C. Aluminum:
  - 1. Aluminum Coil Stock: Formed and coated aluminum coil stock; 3105 H24 aluminum. Aluminum gauges to be as shown in drawings (24 gauge min., if not specifically called out).
- D. Stainless Steel:
  - 1. ASTM 666, Type 304 with 18% chromium, 8% nickel, and a maximum of 0.12% copper; 2B finish, dead soft temper, fully annealed. Stainless steel sheet metal gauges to be as shown in drawings (24 gauge min., if not specifically called out).
    - a. Solder for Stainless Steel: ASTM B32, 50% tin and 50% lead, used with rosin flux.
- E. Lead: TM B 749, Type L51121, copper-bearing sheet lead, minimum 4 lb./sq. ft. (0.0625-inch thick) except not less than 6 lb./sq. ft. (0.0937 inch thick) for burning (welding) unless otherwise indicated.
- F. Miscellaneous Materials:
  - 1. Solder and Fasteners: For metal work, provide the type solder and fasteners recommended by the producer of the metal sheets for fabrication and installation.
  - 2. Sealants: As recommended by manufacturer for warranted condition. Coordinate with Section 07311.
  - 3. Bituminous Coating: Solvent-type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
  - 4. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size and gauge required for performance.
  - 5. Drawbands: Stainless steel, with screw-clamp tightening device

6. Roofing Cement: ASTM D2822, asphaltic
7. Asphalt Primer: ASTM D41

## 2.2 FABRICATION:

- A. General: Shop fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual", roofing systems manufacturers' recommendations, and other recognized industry practices.
  1. Fabricate with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work.
  2. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material.
  3. Form exposed sheet metal work without excessive oil canning, buckling and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
- B. Lengths: Fabricate sections up to 10 feet long in one piece. For sections over 10 feet long, use sheets as long as practicable.
- C. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Trim edges to be seamed, form seams, and solder.
- D. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be sufficiently water/ weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1" deep, filled with mastic sealant (concealed within joints).
- E. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards. Sealant as recommended by manufacturer for warranted condition. Coordinate with Section 073111.
- F. Flashings:
  1. Fabrication: Shop fabricate to sizes and profiles indicated, complete with terminal and transition sections and mitered corners
    - a. Faces: Refer to drawings, but in no case less than 3 inches high, formed to provide spring action against vertical surfaces.
    - b. Joints: Locate joints at least 36 inches from corners. Join adjacent sections with concealed splice sheets at least 6 inches wide centered on joints.
    - c. Corners and Intersections: Mitered and soldered prefabricated units, at least 3 feet long on each leg.
- G. Scuppers (When Shown): Shall be fabricated of stainless steel, fully welded connections, with minimum 24 gauge. Shop fabricate to size and profile as indicated on drawings. Coordinate connection with roofing system and conductor head.
- H. Conductor Heads (When Shown): Shop fabricated of pre-finished galvanized sheet to size and profile indicated on drawings.
- I. Pitch Pans (When Shown): Fabricate with hemmed top edge and minimum 4 inch roof flanges, with all joints lapped and soldered. Pans shall be 3 inches high unless otherwise indicated.
- J. Bonnet Flashings (When Shown): For pipes, conduits, and similar items at openings with curbs, fabricate 2-piece bonnet flashing with attached collars for penetrating items. Provide drawbands to secure collars to penetrating items.
- K. Enclosures: For penetrating items which are turned horizontally above curbs, fabricate 2-piece enclosures with upper and lower sections notched and fitted with collars to fit penetrating items.
- L. Hoods or Umbrellas (When Shown): Flash individual items without curbs by 4-inch high metal base flashings with 4-inch roof flanges and watertight counterflashing hoods or umbrellas. Provide drawbands to secure hoods or umbrellas to penetrating items.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL INSTALLATION REQUIREMENTS:**

- A. Comply with manufacturer's instructions and recommendations for handling and installation of flashing and sheet metal work.
- B. Performance: Coordinate the work with other work for the correct sequencing of items which make up the entire roofing systems or systems of weatherproofing/ waterproofing and rain drainage. It is required that the flashing and sheet metal work be permanently watertight and not deteriorate in excess of manufacturer's published limitations.

#### **3.2 INSTALLATION OF METAL WORK:**

- A. Comply with details and profiles as shown and comply with "SMACNA "Architectural Sheet Metal Manual" recommendations for installation of the work.
- B. For embedment of metal flashing flanges in roofing or membrane flashing or stripping, extend flanges for a minimum of 4" embedment.
- C. Provide for thermal expansion of all exposed sheet metal work exceeding 15'-0" running length with expansion joint spacing as follows:
  - 1. Gutters: 40'-0" maximum spacing and located at high points in drainage system wherever possible.
  - 2. Cap Flashings and Gravel Stops: Expansion joints shall have 10'-0" maximum spacing and located 3'-0" from corners and intersections.
  - 3. Flashings and Counterflashings: Lap joint, 10'-0" maximum spacing, with 4" overlap.
- D. Conceal fasteners and expansion provisions wherever possible. Fold back edges on concealed side of exposed edges to form a hem.
- E. Expansion Joints: Provide 1/4" opening between sections covered with 6" matching cover plate embedded in sealant, formed to the profile of the gravel stop or cap flashing. Provide 6" backup plate beneath sections at joints in caps and copings.
- F. Coat flanges of sheet metal in contact with roofing with 15-mil dry film thickness bituminous coating prior to installing.
- G. Fabricate, support and anchor rain drainage in a manner which will withstand thermal expansion stresses and full loading by water or ice, without damage, deterioration or leakage.
- H. Provide 24 gauge continuous edging strips secured to wood blocking for anchoring vertical faces of sheet metal items.

#### **3.3 PAINTING:**

- A. All exposed metals that cannot be fabricated from prefinished metal shall be prepared and painted in accordance with Section 09900 - Painting.

#### **3.4 CLEANING:**

- A. Remove soil, stain and extraneous materials incidental to sheet metal work from adjacent surfaces. Replace work that cannot be cleaned.
- B. Remove foreign matter and clean sheet metal work to satisfactory conditions to receive specified finish.
- C. Repair any damaged sheet metal to match adjacent sheet metal work. Remove and replace damaged or defective work that cannot be satisfactorily repaired.

**END OF SECTION**

## **SECTION 07900**

### **SEALANTS**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of sealant materials in this project shall be as shown on drawings and as specified herein. It shall include all materials, equipment and labor as necessary for complete installation. Provide the forms and types of sealant as required for project specific adjoining joint materials (interior and exterior) for watertightness and/ or airtightness.

##### 1.2 RELATED SECTIONS:

- A. Section 04200 – Unit Masonry Work
- B. Section 05500 – Metal Fabrications
- C. Section 06200 – Finish Carpentry
- D. Division 8 – Doors and Windows
- E. Division 9 – Finishes
- F. Division 10 – Specialties
- G. Division 15 – Mechanical
- H. Division 16 - Electrical

##### 1.3 SUBMITTALS:

- A. Product Data: Submit manufacturer's product specifications for each joint sealer product proposed, including instructions for joint preparation and sealer application.
- B. Samples: Submit color selection charts and samples of colors for selection by Architect from manufacturer's full color line.
- C. Test Reports: Coordinate with Sections 07811 - Cementitious Spray-Applied Fire Resistive Materials (where applicable) and 07840 - Firestopping (where applicable). For record purposes, for fire-resistive sealants (when used), provide test reports by an independent testing agency to confirm required fire resistance rating.
- D. Field Mock-Ups: Before starting permanent work, apply sealants to Architect selected joints for further verification of colors selected and to represent completed work for appearance, materials, and application.

##### 1.4 SYSTEM DESCRIPTION:

- A. Design requirements:
  - 1. Design number of joints and joint widths for maximum of  $\pm 25\%$  movement.
  - 2. Design depth of sealant to be 1/2 width of joint.
    - a. Maximum Depth: 1/2 inch
    - b. Minimum Depth: 1/4 inch
    - c. Maximum Recommended Width: 5/8 inches

##### 1.5 QUALITY ASSURANCE:

- A. Installer Experience: Engage an Installer who has successfully completed within the last three (3) years at least three (3) joint sealer applications similar in type and size to that of this Project.
- B. Single Source Responsibility: Obtain joint sealer materials from a single manufacturer for each different product required.
- C. Performance: Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.

1.6 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver products in original factory packaging bearing identification of product, manufacturer, and batch number. Provide Material Safety Data Sheets for each product.
- B. Store products in a location protected from freezing, damage, construction activity, precipitation, and direct sunlight per manufacturer's recommendations.
- C. Condition products to approximately 60 degrees F to 70 degrees F for use per manufacturer's recommendations.
- D. Handle products with appropriate precautions and care as stated on Material Safety Data Sheets.

1.7 JOB CONDITIONS:

- A. The Installer must examine the joint surfaces and backing and their anchorage to the structure and the conditions under which the joint sealer work is to be performed and notify the General Contractor of conditions detrimental to the proper and timely completion of the work and performance of the sealers. Do not proceed with the sealant work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.
- B. Weather Conditions: Do not proceed with installation of sealants under adverse weather conditions or when temperatures are below or above manufacturer's recommended limitations for installation. Proceed with the work only when forecasted weather conditions are favorable for proper cure and development of high early bond strength. Wherever joint width is affected by ambient temperature variations, install elastomeric sealants only when temperatures are in the lower third of manufacturer's recommended installation temperature range.

1.8 WARRANTY:

- A. Provide manufacturer's five (5) year standard material warranty.
- B. Include coverage for replacement of sealant materials which fail to achieve water tight seal, exhibit loss of adhesion or cohesion, or do not cure, provided sealant has been installed per manufacturer's recommendations.

**PART 2 - PRODUCTS**

2.1 MATERIALS - GENERAL:

- A. Colors: For exposed materials, provide color as selected by Architect from manufacturer's full color lines. For concealed materials, provide the natural color which has the best overall performance characteristics.
- B. Compatibility: Before purchase of each required material, confirm its compatibility with each other adjoining material it will be exposed to in the joint system.
- C. Formulation: Where one-part, two-part and multi-part sealants are specified for the same sealant type, Installer has the option of selecting from the kinds specified.

2.2 MANUFACTURERS:

- A. Approved Manufacturers, pending specific product approval by Architect, are as follows:
  - 1. BASF The Chemical Co.
  - 2. Dow Corning Corporation
  - 3. Tremco Manufacturing Co.
  - 4. Sika Chemical Corporation
  - 5. Specified Technologies Inc. (STI)
  - 6. Hilti
  - 7. Prior Approved Equal

## 2.3 SEALANTS:

### A. Exterior Sealants:

1. Hybrid Sealant: High performance, low modulus, high movement, non-sag, fast curing, ready to use hybrid sealant. Complying with ASTM C920, Type S, Grade NS, Class 50; TT-S-001543A, Type II, Class A, non-sag; TT-S-00230C, Type II, Class A; USDA compliant. Sealants may include the following:
  - a. MasterSeal NP 100 by BASF
  - b. Dymonic FC by Tremco
  - c. Prior Approved Equal
2. Silicone Sealant: Ultra low modulus, high performance, one component, moisture curing silicone sealant. Complying with ASTM C920, Type S, Grade NS, Class 100/ 50; TT-S-001543A, Class A; TT-S-00230C, Class A, Type II. Sealants may include the following:
  - a. Spectrum 1 by Tremco
  - b. 795 Silicone Building Sealant by Dow Corning
  - c. Prior Approved Equal

### B. Interior Sealants:

1. Polyurethane Sealant: One component, high performance, non-priming, gun grade, elastomeric polyurethane sealant. Complying with ASTM C920, Type S, Grade NS, Class 35; TT-S-00230C, Type II, Class A; USDA compliant; and UL classified. Sealants may include the following:
  - a. MasterSeal NP 1 by BASF
  - b. Dymonic by Tremco
  - c. Prior Approved Equal
2. Smoke and Acoustical Sealant: Acrylic latex sealant used in smoke rated partitions or joints and to prevent sound transmission through unprotected openings. Sealants may include the following:
  - a. TremStop Smoke & Sound Sealant by Tremco
  - b. SpecSeal Smoke N' Sound Acoustical Sealant by Specified Technologies Inc (STI)
  - c. CP 506 Smoke and Acoustic Sealant by Hilti
  - d. Prior Approved Equal
3. Silicone Sealant: Ultra low modulus, high performance, one component, moisture curing silicone sealant. Complying with ASTM C920, Type S, Grade NS, Class 100/ 50; TT-S-001543A, Class A; TT-S-00230C, Class A, Type II. Sealants may include the following:
  - a. Spectrum 1 by Tremco
  - b. 795 Silicone Building Sealant by Dow Corning
  - c. Prior Approved Equal

## 2.4 MISCELLANEOUS MATERIALS:

- A. Joint Cleaner: Provide the type of joint cleaning compound recommended by the sealant or caulking compound manufacturer for the joint surfaces to be cleaned.
- B. Joint Primer/ Sealer: Provide the type of joint primer/ sealer recommended by the sealant manufacturer for the joint surfaces to be primed or sealed as required.
- C. Bond Breaker Tape: Polyethylene tape or other plastic tape as recommended by the sealant manufacturer to be applied to sealant-contact surfaces where bond to the substrate or joint filler must be avoided for proper performance of sealant. Provide self-adhesive tape wherever applicable.

- D. Sealant Backer Rod: Compressible closed cell rod stock of polyethylene; "Closed-Cell Backer Rod and Soft-Baker Rod" (Sonneborn Building Products), "Ethaform" (Dow Corning Corp.), "Minicel" (Haveq Industries) or prior approved equal; or open cell polyurethane (Denver Foam) or prior approved equal as recommended by the sealant manufacturer in published data.

### **PART 3 - EXECUTION**

#### **3.1 MANUFACTURER'S INSTRUCTIONS:**

- A. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified and except where manufacturer's technical representative directs otherwise.

#### **3.2 JOINT PREPARATION:**

- A. Examination: Examine joints indicated to receive joint sealers for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Do not proceed with installation of joint sealers until unsatisfactory conditions have been corrected.

1. Clean joint surfaces immediately before installation of sealant or caulking compound. Remove dirt, insecure coatings, moisture and other substances which would interfere with bond of sealant or caulking compound.
2. Prime or seal the joint surfaces wherever shown or recommended by the sealant manufacturer. Do not allow primer/ sealer to spill or migrate onto adjoining surfaces.
3. Concrete, Stone, and Other Masonry:
  - a. Clean by grinding, sandblasting, or wire brushing to expose sound surface free of contamination and laitance.
4. Wood:
  - a. Clean new and weathered wood. Scrape away loose paint to bare wood. If coatings cannot be removed, test coverage to verify adhesion of sealant and consult with manufacturer for appropriate primer.
5. Metal:
  - a. Remove scale, rust, and coatings from metal to expose bright white surface. Remove protective coatings as well as chemical residue or film.
  - b. Aluminum Frames: Remove clear lacquer before application of joint sealants. If coatings cannot be removed, test coverage to verify adhesion of sealant and consult with manufacturer for appropriate primer.
  - c. Prime the following surfaces with primer recommended by joint sealant manufacturer:
    - 1) Copper
    - 2) Stainless Steel
    - 3) Galvanized Steel
    - 4) Fluorocarbon (Kynar) Coatings
  - d. Remove other protective coatings or finishes that could interfere with adhesion.

#### **B. Priming:**

1. Where circumstances or substrates require primer, comply with the following requirements:
  - a. Apply primer full strength with brush or clean, lint free cloth. Apply primer to a light, uniform coating. Porous surfaces require more primer. Do not over apply. Do not apply primer onto surfaces of substrate.
  - b. Allow primer to dry before applying joint sealants. Depending on temperature and

- humidity, primer will be tack free in 15 to 120 minutes.
- c. Prime and seal on same workday.

### 3.3 INSTALLATION:

- A. General: Comply with joint sealant manufacturers' written installation instructions applicable to products and applications indicated, except where more restrictive requirements are specified.
- B. Preparation: Application surfaces shall be sound, clean and dry at time sealants are applied.
  1. Prime surfaces, if recommended by sealant manufacturer, using recommended material.
- C. Installation Standards: Comply with recommendations of ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- D. Backer Rods: Install sealant backer rod for sealants, except where shown to be omitted or recommended to be omitted by sealant manufacturer for the application shown. Backer rod shall be accurately positioned with the joint to establish and control the uniform designated thickness of the sealant.
  1. Exercise care in the installation of the joint backing to see that the backing is not set too far below the surface, thereby increasing the depth of the sealant.
  2. All joint backing shall be used 25-30%, as recommended by the sealant manufacturer, 30% under compression and care shall be taken that the backing is not stretched so that it will, at a later time, recover and damage the sealant applied over it.
- E. Bond Breaker Tape: Install bond breaker tape wherever required by manufacturer's recommendations to ensure that elastomeric sealants will perform properly and when backer rod cannot be implemented.
- F. Sealants: Install sealants to depths as shown, as recommended by the sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead:
  1. For normal moving joints sealed with sealants, fill joints to a depth equal to 50% of joint width, but neither more than 1/2" deep nor less than 1/4" deep.
- G. Apply sealant with sufficient pressure to completely fill the void space and to assure complete wetting of contact area to obtain uniform adhesion. During the application, keep the tip of nozzle at the bottom of joint, forcing sealant to fill from bottom to top. Move tip along joint at a rate as to completely fill the joint. Tool all caulking smooth and flush with adjacent surfaces unless detailed to be finished below the surface.
- H. Spillage: Do not allow sealants or compounds to overflow or spill onto adjoining surfaces or to migrate into the voids of adjoining surfaces. Clean the adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage.

### 3.4 EXTERIOR SEALANT – SHALL INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:

- A. Exterior Openings and Penetrations: Caulk perimeter joints of all exterior openings, such as doors, windows, louvers, storefront, wall penetrations, connections, etc.
- B. Thresholds: Set thresholds in bed of sealant; where thresholds have weep holes, keep the weeps clear and remove excess sealant.
- C. Exterior Joints: Joints and gaps formed by the intersection of dissimilar materials.
- D. Expansion, Control, and Construction Joints: Caulk all expansion, control, and construction joints in exterior wall and sheet metal construction.

### 3.5 INTERIOR CAULKING – SHALL INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:

- A. Door Frames: Caulk perimeter joints of frames set in wall construction.
- B. Windows: Caulk at perimeter of windows, storefront, etc. set in exterior and interior walls.
- C. Interior Joints: Joints and gaps formed by the intersection of dissimilar finishes and materials.
- D. Casework: Caulk at contact with wall construction where gaps occur with fungicidal, mildew-resistant silicone by approved manufacturers listed herein, or prior approved equal.

- E. Janitor's Sinks, Restroom Fixtures, and Water coolers: Caulk at contact with wall and floor construction with fungicidal, mildew-resistant silicone by approved manufactures listed herein, or prior approved equal.

### 3.6 CURE, PROTECTION AND CLEANING:

- A. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength and surface durability.
  - 1. Advise the General Contractor of procedures required for the cure and protection of sealants during the construction period so that they will be without deterioration or damage (other than normal wear and weathering) at the time of Owner's acceptance.
- B. Remove excess sealants and sealant smears as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.
  - 1. Remove and replace other materials which cannot be satisfactorily cleaned.
- C. Repair, remove or replace, other work damaged by joint sealer work and cleaning.

### 3.7 QUALITY CONTROL:

- A. Standard Field Adhesion Test:
  - 1. The field adhesion test is a simple screening procedure that may help detect application problems such as improper cleaning, use of improper primer, poor primer application or improper joint configuration. As a check for adhesion, a simple hand pull test is required at the job site after the sealant is fully cured (usually within 7 to 21 days). Field adhesion testing should be documented using the field Adhesion Testing Log. It is suggested that 5 tests for the first 300 meters (1000 feet) and one test per 300 meters (1000 ft) thereafter be submitted or one test per floor per elevation. The hand pull test procedure is as follows:
    - a. Make a knife cut horizontally from one side of the joint to the other.
    - b. Make two vertical cuts (from the horizontal cut) approximately 75 mm (3 in.) long, at both sides of the joint.
    - c. Place a 25 mm (1 in.) mark on the sealant tab.
    - d. Grasp 50 mm (2 in.) piece of sealant firmly just beyond the 25 mm (1 in.) mark and pull at a 90 degree angle.
    - e. If dissimilar substrates are being sealed, check the adhesion of sealant to each substrate separately. This is accomplished by extending the vertical cut along one side of the joint, checking adhesion to the opposite side, and then repeating for the other surface.
    - f. Pass/ fail criteria for each sealant are shown in Table below. If the sealant does not pass according to the guidelines provided, consult the manufacturer's representative.
    - g. Inspect the joint for complete fill. The joint should not have voids, and joint dimensions should match those shown in the weathersealing details. The manufacturer's representative can assist in determining when corrective action is required.
    - h. Record the test results in a field adhesion test log. This log will need to be retained as a part of the manufacturer's warranty procedure. Some building officials may also require it.
  - 2. NOTE: When a sealant is used to weatherseal between two dissimilar substrates, it is recommended that the sealant adhesion to each side of the joint be individually tested. (See step e).
- B. Field Adhesion Hand Pull Test Criteria:
  - 1. Contractor shall perform field adhesion hand pull test in conformance with the sealant manufacturer's criteria requirements. Contractor shall have Architect present for approval of field adhesion hand pull test.

C. Sealant Repair in Adhesion Test Area:

1. Repair the sealant pulled from the test area by applying new sealant to the test area. Assuming good adhesion was obtained, use the same application procedure to repair the areas as was used to originally seal it. Care should be taken to ensure that the original sealant surfaces are clean and that the new sealant is in contact with the original sealant.

**END OF SECTION**

# DIVISION

# 8



## DOORS & WINDOWS

## **SECTION 08210**

### **FLUSH WOOD DOORS**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of flush wood doors within this project shall be as indicated on drawings and as specified herein. It shall include all materials, equipment, and labor as required for a complete fully functional installation. Flush wood door work shall include, but are not limited to, the following:

- 1. Wood doors for interior applications
  - a. Door system components include door panel(s) and door frame(s)
- 2. Lite frames, glazing, and louver kits
- 3. Miscellaneous components and accessories

##### 1.2 RELATED SECTIONS:

- A. Section 06100 – Rough Carpentry
- B. Section 06200 – Finish Carpentry
- C. Section 07900 – Sealants
- D. Section 08710 – Finish Hardware
- E. Section 08800 – Glass and Glazing
- F. Section 09260 – Gypsum Wallboard Systems
- G. Section 09900 – Painting
- H. Division 15 – Mechanical
- I. Division 16 - Electrical

##### 1.3 SUBMITTALS:

- A. Product Data: Submit manufacturer's specifications and catalog sheets for each type of product specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes.
- B. Shop Drawings: Include elevations, door edge details, frame profiles, preparations for hardware, and other details. Show anchorage and accessory items.
- C. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.
- D. Label Construction Certification: For assemblies required to be fire-rated and exceeding label limitations, submit manufacturer's certification that each assembly has been constructed to conform to design, materials and construction equivalent to requirements for labeled construction.

##### 1.4 QUALITY ASSURANCE:

- A. Single Source Manufacturer: Provide doors from a single manufacturer from a single source.

##### 1.6 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
- B. Inspect work upon delivery for damage. Minor damages may be repaired in field provided the finished items are equal in all respects to new work and are acceptable to Architect. Otherwise, remove and replace damaged items as directed.
- C. Store doors and frames at the job site under cover. Place the units in a manner that will prevent rust and damage. The doors and frames shall be stored vertically. Stack in such a manner to allow for air circulation.

D. Handle doors in compliance with manufacturer's recommendations.

1.7 PROJECT CONDITIONS:

A. Installer must examine the substrates and conditions under which doors are to be installed. Notify General Contractor and Architect in writing of any unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

1.8 WARRANTY:

A. Provide manufacturer's standard warranty for door systems.

1. Manufacturer shall warrant systems to be free of manufacturing defects in material and workmanship for 1 year.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS:

A. Basis Of Design: The products and systems as specified herein are as manufactured by the following:

1. Interior Wood Doors: Masonite International Corp.

B. Alternate Manufacturers: Other acceptable manufacturers, pending specific approval by Architect indicating their compliance with all requirements of this specification, may include the following:

1. Prior Approved Equal

2.2 INTERIOR WOOD DOOR(S):

A. Door Panel:

1. Flush Door Series – Particleboard Core, Interior Doors: Flush doors shall be fabricated using loose layup assembly that includes high pressure decorative laminate (hpdl) facings, wood stiles, wood rails, and particleboard core. Door facings are to be bonded to stiles rails, and core forming a 3 ply structural attachment.

a. Facing Materials:

1) High pressure decorative laminate (hpdl) facing shall be selected by Architect from manufacturer's full range of laminates.

2. Hinge preparations to be machined for standard weight butt hinges per manufacturer's specifications. Face bore(s) for cylindrical lock and deadbolt shall be machined per manufacturer's specifications. Coordinate with specification Section 08710 – Finish Hardware.

3. Vertical edge of door to be square, beveled both sides. Coordinate with Architect prior to ordering and fabricating.

4. Glazing stops and preparation of flush doors to receive glazing.

B. Door Frame (Shop Built per Section 06200):

1. Wood frames shall be fabricated as a milled wood assembly as detailed on drawings. Hardware preparation shall coordinate with Section 08710 – Finish Hardware and doors shall be prepared per manufacturer's specifications.

C. Hardware:

1. Reinforce, drill and tap for hardware furnished under Section 08710 – Finish Hardware; except drilling and tapping for surface door closers, door closer brackets and adjusters shall be done in field. Obtain templates from hardware suppliers.

D. Finish: Doors shall be thoroughly cleaned to insure proper adhesion of high pressure decorative laminate (hpdI) by manufacturer. Architect shall select and approve high pressure decorative laminate prior to proceeding. Provide samples for selection and verification.

2. LITE FRAMES AND LOUVERS (WHEN SHOWN):

A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard flush wood beads unless otherwise indicated.

1. Wood Species: Species compatible with door faces
2. Profile: Flush rectangular beads, profile per Marshfield W-6
3. Finish: Paint grade as selected by Architect

B. Wood Louvers: Door manufacturer's standard solid-wood louvers unless otherwise indicated.

1. Wood Species: Species compatible with door faces
2. Louver Type: Round slat
3. Finish: Paint grade as selected by Architect

**PART 3 - EXECUTION**

3.1 EXAMINATION:

- A. Installer shall ensure that site verification of substrate conditions is acceptable for installation in accordance with manufacturer's specifications.
- B. Installer shall verify that door frame openings are plumb, true and level before beginning installation process.
- C. Installer shall use fasteners of adequate type, number, and quantity to perform for site conditions.

3.2 INSTALLATION:

- A. Comply with manufacturer's product data, including product technical bulletins, installation instructions, and packaging instructions for installation.

3.3 ADJUSTING AND CLEANING:

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including metal work that is warped, bowed, or otherwise unacceptable.

**END OF SECTION**

## **SECTION 08310**

### **ACCESS DOOR PANEL**

#### **PART 1 – GENERAL**

##### 1.1 SCOPE:

- A. The scope of access door panels in this project shall be as generally indicated in drawings. **Not all locations are specifically shown on drawings. Provide where required for access to in-wall and above ceiling work, sized as necessary.** Access panel work shall include all materials, equipment, and labor necessary for complete installation. Access door panels shall include, but not limited to, the following:

1. Providing access door panels in gypsum wallboard
2. Miscellaneous components and accessories

##### 1.2 RELATED SECTION:

- A. Section 06100 – Rough Carpentry
- B. Section 07900 - Sealants
- C. Section 09260 – Gypsum Wallboard System
- D. Section 09900 - Painting
- E. Division 15 – Mechanical
- F. Division 16 - Electrical

##### 1.3 QUALITY ASSURANCE:

- A. Standards: Except as otherwise shown or specified, comply with the applicable standards published by ASTM, etc.
- B. Manufacturer's Fire-Rated access doors and frames shall conform to U.L. and Warnock Hersey requirements.

##### 1.4 SUBMITTALS:

- A. Product Data: Submit manufacturer's product data, including installation instructions, fabrication, finishing, accessories, and details specific for this scope. Include certified test laboratory reports as necessary to show compliance with the requirements.
- B. Shop Drawings: Submit shop drawings to Architect for the fabrication and installation of access panels and associated components of work. Include all elevations at 1/4" scale, typical unit elevations at a 1" scale and full-size detail sections. Show anchors, joint system, and any job specific details.

##### 1.5 DELIVERY:

- A. Package, handle, deliver and store access panels at the project site in a manner that will avoid damage.

##### 1.6 PROTECTING:

- A. Store materials indoors in a clean, dry area in accordance with manufacturer's instructions.
- B. Protect materials and finishes from damage during handling and installation.

#### **PART 2 – PRODUCTS**

##### 2.1 MANUFACTURERS:

- A. Basis of Design: Access panels listed herein are as manufactured by Larsen's Manufacturing Co.
- B. Alternate Manufacturers: Other acceptable manufacturers, pending specific product approval

from Architect indicating compliance with all specification requirements, may include the following:

1. J.L. Industries
2. Prior Approved Equal

## 2.2 MATERIALS AND COMPONENTS:

### A. Non-rated flush access panels:

1. Designed for flush installation in wall and ceiling construction, utilizing a recessed type frame. Panel shall be flush with the wall/ ceiling surface and shall receive gypsum board panel in the recessed door.
2. Manufacturers:
  - a. L-DWR Series as manufactured by Larsen's Manufacturing Co.
  - b. J.L. Industries
  - c. Prior Approved Equal
3. Door Panel Frame: 16 gauge cold rolled steel frame with 22 gauge galvanized drywall corner bead
4. Door Panel and Pan: 16 gauge cold rolled steel door recessed 5/8 inch to receive gypsum board
5. Finish: Baked on powder coat finish
6. Hinge: Concealed pivoting rod hinge
7. Latches: Key operated cam lock
8. Size: As indicated on drawings. Where not indicated, provide size as required for adequate access to work behind. Coordinate with Architect.

## 2.3 FABRICATION:

- A. Furnish as necessary each access panel assembly manufactured complete with all parts ready for installation.

## **PART 3 – EXECUTION**

### 3.1 INSPECTION:

- A. Verify that wall and ceiling openings are correctly dimensioned and perimeter framed to receive access door panels. Coordinate all associated trades prior to installation.
- B. Notify Contractor and Architect of any noncompliance issues. Do not proceed with installation until all issues have been corrected.

### 3.2 INSTALLATION:

- A. Install access doors in accordance with manufacturer's instructions at all locations where access into walls/ ceilings are required, whether specifically indicated or not. Coordinate with mechanical and electrical drawings/ specifications.
- B. All joints between metal and adjacent material shall be tightly caulked. All materials shall be screwed in place and sealed using backing, or anchor straps as required.
- C. Install access doors plumb, level, square, rigid, without warp or rack. Anchor frames securely in place into perimeter substrate condition, using proper fasteners as recommended by manufacturer.
- D. Replace defective or damaged doors or other components as directed by Architect.

### 3.3 ADJUSTING:

- A. Adjust access doors and latches for smooth operation without binding. Inspect and adjust locks to operate properly. Touch-up marred finishes with manufacturer supplied paint.

3.4 CLEANING:

- A. Clean surfaces in accordance with manufacturer's instructions. Do not use abrasive cleaners.

3.5 PROTECTION:

- A. Protect access doors and finish from damage during construction.

**END OF SECTION**

## **SECTION 08410**

### **ALUMINUM STOREFRONT DOOR AND WINDOW SYSTEMS**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of aluminum storefront door and window systems shall be as shown on drawings, in schedules, and as specified herein. It shall include all materials, equipment, and labor as required for a complete, fully operational system. Aluminum storefront door and window systems shall include, but are not limited to, the following:
  - 1. Exterior aluminum manual swing entrance doors (with glazing).
  - 2. Exterior aluminum storefront wall system (with glazing).
  - 3. Miscellaneous perimeter trims, brake metal adaptor, brake metal cover plates, stools, accessories and components, shims, anchors, glass and glazing, door hardware, and sealant for complete system.

##### 1.2 RELATED SECTIONS:

- A. Section 04200 – Unit Masonry Work
- B. Section 06100 – Rough Carpentry
- C. Section 07600 – Flashing and Sheet Metal
- D. Section 07900 – Sealants
- E. Section 08710 – Finish Hardware
- F. Section 08800 – Glass and Glazing

##### 1.3 DEFINITIONS:

- A. Definitions: For fenestration industry standard terminology refer to American Architectural Manufacturers Association (AAMA) – AAMA Glossary (AAMA AG).

##### 1.4 SYSTEM PERFORMANCE REQUIREMENTS:

- A. General Performance: Aluminum framed systems shall withstand the effects of the following performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Storefront System Performance Requirements:
  - 1. Wind Loads: Provide storefront system; including anchorage, capable of withstanding project specific wind load design pressures.
  - 2. Air Infiltration Framing Systems: The test specimen shall be tested in accordance with ASTM E283. Air infiltration rate shall not exceed 0.06 cfm/ft<sup>2</sup> at a static air pressure differential of 6.24 psf.
  - 3. Air Infiltration Entrance Systems: For single acting pivot or butt hung entrances in the closed and locked position, the test specimen shall be tested in accordance with ASTM E283 at a pressure differential of 1.57 psf for single and pairs of doors. A single 3'-0" x 7'-0" entrance door and frame shall not exceed 1.0 cfm/ft<sup>2</sup>. A pair of 6'-0" x 7'-0" entrance doors and frame shall not exceed 1.0 cfm/ft<sup>2</sup>.
  - 4. Water Resistance Framing Systems: The test specimen shall be tested in accordance with ASTM E331. There shall be no leakage at a minimum static air pressure differential of 8 psf as defined in AAMA 501.
  - 5. Uniform Load Framing Systems: A static air design load of 20 psf shall be applied in the positive and negative direction in accordance with ASTM E330. There shall be no deflection in excess of L/175 of the span of any framing member. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.
  - 6. Structural Performance of Entrance Systems: Corner strength shall be tested per

manufacturer dual moment load test procedure and certified by an independent testing laboratory to ensure weld compliance and corner integrity.

#### 1.5 SUBMITTALS:

- A. Product Data: Include construction details, materials descriptions, dimensions of individual components and profiles, hardware, finishes, and installation instructions for each type of aluminum framed storefront door and window systems indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, hardware, and attachment to project specific conditions of other work, operational clearances, and installation details.
- C. Samples for Initial Selection: For units with factory applied color finishes include samples of hardware and accessories involving color selections. Provide metal chips for Architect selection from manufacturer's full standard and custom color line.
- D. Samples for Verification: Provide finished samples for Architect verification.
- E. Other Action Submittals:
  - 1. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.
- F. Test Reports: Provide certified test reports from a qualified independent testing laboratory showing that aluminum framing systems have been tested in accordance with specified test procedures and comply with project performance characteristics indicated.
- G. Manufacturer's Installation Instructions: Indicate special installation procedures and recommended installation procedures.
- H. Warranties: Sample of special warranties.

#### 1.6 QUALITY ASSURANCE:

- A. Installer Qualifications: Engage an experienced Installer who has completed installations of aluminum storefront doors and windows similar in design and extent to those required for the project and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer's Qualifications: Provide aluminum storefront door and window systems produced by a firm experienced in manufacturing systems that are similar to those indicated for this project and that have a record of successful in-service performance.
- C. Design Criteria: The drawings indicate the size, profile, and dimensional requirements of aluminum storefront door and window work required, and is based on the specific types and models indicated. Aluminum storefront doors and windows by other manufacturers may be considered, provided deviations in dimensions and profiles are minor and do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.
- D. Accessible Entrances: Comply with applicable provisions in the Americans with Disabilities Act and Architectural Barriers Act (ADA/ ABA) Accessibility Guidelines and ICC/ANSI A117.1.
- E. Source Limitations: Obtain aluminum framed storefront door and window systems from single source from single manufacturer.
- F. Welding Qualifications: Qualify procedures and personnel according to AWS D1.2, "Structural Welding Code Aluminum."

#### 1.7 DELIVERY, STORAGE, AND HANDLING:

- A. Delivery: Deliver aluminum storefront door and window components in the manufacturer's original protective packaging.
- B. Storage: Store aluminum components in a clean dry location away from uncured masonry or concrete. Cover components with waterproof paper, tarpaulin or polyethylene sheeting in a manner to permit circulation of air.
  - 1. Stack framing components in a manner that will prevent bending and avoid significant or permanent damage.

1.8 PROJECT CONDITIONS:

- A. Field Measurements: Check openings by accurate field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of the work.
  - 1. Where necessary, proceed with fabrication without field measurements, and coordinate fabrication tolerances to ensure proper fit.

1.9 WARRANTY:

- A. Manufacturer's Warranty: Submit, for the Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights the Owner may have under the Contract Documents.
  - 1. Warranty: Include coverage for complete system (storefront doors and windows) for failure to meet specified requirements.
  - 2. Warranty Period: Two (2) years from Date of Substantial Completion.

**PART 2 – PRODUCTS**

2.1 MANUFACTURERS:

- A. Basis of Design: The materials, components and systems specified herein are as manufactured by Kawneer Company Inc.
  - 1. Exterior Aluminum Storefront and Window Systems: Trifab 400 Framing System (Non-Thermal) Series System as manufactured by Kawneer Company Inc or prior approved equal
  - 2. Exterior Aluminum Entrance Systems: 350 Medium Stile Swing Entrance Doors as manufactured by Kawneer Company Inc or prior approved equal
- B. Acceptable Manufacturers: Other acceptable manufacturers, pending specific product compliance by Architect indicating their compliance with the requirements of this specification, may include the following:
  - 1. YKK, AP
  - 2. US Aluminum
  - 3. Prior Approved Equal

2.2 MATERIALS:

- A. Aluminum Extrusions: Alloy and temper recommended by aluminum storefront door and window system manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.070 inch wall thickness at any location for the main frame and complying with ASTM B221: 6063-T6 alloy and temper.
- B. Fasteners: Aluminum, non-magnetic stainless steel or other materials to be non-corrosive and compatible with aluminum framing members, trim hardware, anchors, and other components.
- C. Anchors, Clips, and Accessories: Aluminum, non-magnetic stainless steel, or zinc-coated steel or iron complying with ASTM B633 for SC3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand project design pressure indicated.
- D. Reinforcing Members: Aluminum, non-magnetic stainless steel, or nickel/ chrome-plated steel complying with ASTM B456 for Type SC3 severe service conditions, or zinc coated steel or iron complying with ASTM B633 for SC3 severe service conditions or other suitable zinc coating; provide sufficient strength and anchorage to structure to withstand project design pressure indicated.
- E. Sealant: For sealants required within fabricated storefront door and window systems, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant

manufacturer for joint size and movement.

- F. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of storefront door and window members are nominal and in compliance with AA Aluminum Standards and Data.

### 2.3 STOREFRONT FRAMING SYSTEMS:

- A. Brackets and Reinforcements: Manufacturer's standard high strength aluminum with non-staining, nonferrous shims for aligning system components.
- B. Fasteners and Accessories: Manufacturer's standard corrosion resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials. Where exposed shall be stainless steel.
- C. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.
- D. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- E. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront and entrance materials and components to avoid damage. Protect storefront and entrance material against damage from elements, construction activities, and other hazards before, during, and after storefront and entrance installation.
- F. Exterior Storefront Door and Window System Features:
  - 1. Trifab 400 (Non-Thermal) Series Framing System
  - 2. 4 inch deep and 1-3/4 inch sightline
  - 3. +/- 8 1/4" Tall Adjustable Sidelite Base x 2"
  - 4. 6" Mid Mullion
  - 5. Brake Metal Adaptor (451VG150) and Brake Metal Closure (at window head and at pair of doors jamb)
  - 6. Screw spline fabrication
  - 7. Center plane glass application, 1/4 inch heat treated tempered tinted coating glazing
  - 8. Integrates 350 Swing Entrance Doors, Medium Stile

### 2.4 GLASS AND GLAZING MATERIALS:

- A. Glass and Glazing Materials: As specified in Section 08800 – Glass and Glazing.
- B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, extruded EPDM rubber.
- C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.
- D. Bond Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.
- E. Glazing Sealants: As recommended by manufacturer for joint type, and as follows:
  - 1. Structural Sealant: ASTM C1184, single component neutral curing silicone formulation that is compatible with system components with which it comes in contact, specially formulated and tested for use as structural sealant and approved by sealant manufacturer for use in aluminum framed systems indicated. Color shall be black.

### 2.5 ENTRANCE DOOR SYSTEMS:

- A. Exterior Entrance Doors: Manufacturer's standard glazed entrance doors for manual swing operation.
- B. Entrance Door Hardware: As specified in Section 08710 – Finish Hardware and herein.
- C. Non-brackets and Reinforcements: Manufacturer's standard high strength aluminum with non-staining, nonferrous shims for aligning system components.
- D. Fasteners and Accessories: Manufacturer's standard corrosion resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials. Where exposed shall be stainless steel.
- E. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

- F. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- G. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront and door materials and components to avoid damage. Protect storefront and door materials against damage from elements, construction activities, and other hazards before, during, and after installation.
- H. Exterior Swing Entrance Door System Features:
  - 1. 350 Swing Entrance Door System, Medium Stile
  - 2. Single or pairs as indicated on drawings
  - 3. 3-1/2 inch vertical stiles, 3-1/2 inch top rail, 10 inch bottom rail, and 1-3/4 inch deep thickness
  - 4. 6" Mid Mullion
  - 5. Brake Metal Adaptor (451VG150) and Brake Metal Closure (at door head and at pair of doors jamb)
  - 6. Single acting
  - 7. Dual moment welded corner construction
  - 8. 1/4 inch heat treated tempered tinted coating glazing
  - 9. Integrates Trifab 400 (Non-Thermal) Series Framing System

## 2.6 ACCESSORY MATERIALS:

- A. Joint Sealants: For installation at perimeter of aluminum framed storefront and entrance systems, as specified in Section 07900 - Sealants.
- B. Bituminous Paint: Cold-applied, asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos; formulated for 30 mil (0.762 mm) thickness per coat.

## 2.7 DOOR HARDWARE:

- A. General: Provide manufacturer's assembly hardware fabricated from aluminum, stainless steel, or other corrosion resistant material compatible with aluminum; designed to smoothly operate, tightly close, and secure aluminum frames entrance doors.
- B. The specific models listed in this Section for door hardware are to indicate the standard of quality to be provided.
  - 1. Lever: Door trim and escutcheon plate to accommodate cylinder (cylinder for each door leaf).
  - 2. Butt Hinge: Manufacturer's Heavy Weight Hinges Stainless Steel US32D.
  - 3. Door Closer: LCN 4040 (with stop per schedule).
  - 4. Exit Device: For all exterior doors with Rhodes type lever at exterior.
    - a. Von Duprin 9927 Surface mounted Vertical Rod Exit Device Series with 996L style exterior lever, for pair of aluminum doors; Sargent 8800 Series or prior approved equal.
    - b. Von Duprin 99 Rim Exit Device Series with 996L style exterior lever for single aluminum doors; Sargent 8800 Series or prior approved equal.
  - 2. Rim Cylinder: See Section 08710 for keyed cylinder (double and single keyed classroom function per schedule).
  - 3. Threshold (ADA): Extruded aluminum threshold with bumper (Aluminum Mill Finish),
    - a. Pemko 2005AT or National Guard Products 896S
  - 4. Weatherstripping: Manufacturer's standard applied to stop at exit (adjustable astragal weathering at pair of doors).
  - 5. Door Sweep: Pemko 3452DV or National Guard Products 1015VDKB, sweep as door bottom (Finish to match storefront system).
  - 6. Door Bottom: Pemko 211DV or National Guard Products 313VDKB, shoe as door bottom (Finish to match storefront system).

- C. Hardware Schedule: Reference Section 08710 for coordinating hardware.

HW SET #1

Door 1 - (Pair) Exterior from Lobby

Butt Hinges

Lever handles at exterior

Double Keyed Classroom Cylinder Locks. See Section 08710 for cylinder.

Exit Device (active leaf)

Exit Device (inactive leaf)

Closer with Stop (at each leaf)

Threshold (ADA w/ Bumper)

Weatherstripping

Door Sweep

Door Bottom

HW SET #2

Door 2 - Exterior from Corridor 1

Door 2 - Exterior from Corridor 2

Door 2 - Exterior from Training

Butt Hinges

Lever handle at exterior

Interior Keyed Classroom Cylinder Lock in panic device (no exterior cylinder). See Section 08710 for cylinder.

Exit Device

Closer with Stop

Threshold (ADA w/ Bumper)

Weatherstripping

Door Sweep

Door Bottom

2.8 FABRICATION:

- A. Extrude aluminum shapes before finishing.
- B. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
1. Profiles that are sharp, straight, and free of defects or deformations.
  2. Accurately fit joints; make joints flush, hairline and weatherproof.
  3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
  4. Physical and thermal isolation of glazing from framing members.
  5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
  6. Provisions for field replacement of glazing.
  7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
  8. Prepare components with internal reinforcements for door hardware.
- C. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- D. Structural Sealant Glazed Framing Members: Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.
- E. Storefront Framing: Fabricate components for assembly using manufacturer's standard installation instructions. See drawings for details.
- F. Entrance Door Framing: Fabricate aluminum framed glass entrance doors in sizes indicated. Include a complete system for assembling components and anchoring doors. Fabricate aluminum framed glass entrance doors that are reglazable without dismantling perimeter framing.

1. Door corner construction shall consist of mechanical clip fastening, SUGMA deep penetration plug welds and 1-1/8" long fillet welds inside and outside of all four corners. Glazing stops shall be hook-in type with epdm glazing gaskets reinforced with non-stretchable cord.
2. Accurately fit and secure joints and corners. Make joints hairline in appearance.
3. Prepare components with integral reinforcement for door hardware.
4. Arrange fasteners and attachments to conceal from view.

G. Weatherstripping: Provide weatherstripping locked into extruded grooves in door panels or frames as indicated on manufacturer's drawings and details.

H. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

## 2.9 FINISHES, GENERAL:

- A. Comply with AAMA-AFPA "Anodic Finishes/ Painted Aluminum" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.10 ALUMINUM FINISHES:

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Factory Finishing:
  1. Kawneer Permadyze™ (50% PVDF), AAMA 2604, Fluoropolymer Coating. Color to be selected by Architect from Manufacturer's full custom color line.

## **PART 3 -EXECUTION**

### 3.1 EXAMINATION:

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weather tight installation.
  1. Masonry Surfaces: Visible dry and free of excess mortar, sand, and other construction debris.
  2. Metal Surfaces: Dry, clean, free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
  3. Wood Framed Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that all nail heads are driven flush with surfaces in openings and within 3 inches of openings.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION:

- A. Comply with drawings, shop drawings, and manufacturer's written instructions for installing aluminum framed storefront and entrance systems, accessories, and other components.
- B. Install aluminum framed storefronts and entrance systems level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural

- support, and in proper relation to wall flashing and other adjacent construction.
- C. Set sill members in bed of sealant or with gaskets, as indicated, for weather tight construction.
- D. Install aluminum framed storefront and entrance systems and components to drain condensation, water penetrating joints, and moisture migrating within system to the exterior.
- E. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

### 3.3 FIELD QUALITY CONTROL:

- A. Field Tests: Architect shall select storefront and entrance units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.
  - 1. Testing: Testing shall be performed by a qualified independent testing agency. Testing Standard per AAMA 503, including reference to ASTM E783 for Air Infiltration Test and ASTM E1105 Water Infiltration Test.
    - a. Air Infiltration Tests Framing Systems: Conduct tests in accordance with ASTM E783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft<sup>2</sup>, whichever is greater.
    - b. Water Infiltration Tests Framing Systems: Conduct tests in accordance with ASTM E1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 6.24 psf.
- B. Manufacturer's Field Services: Provide periodic site visit by manufacturer's field service representative. Provide Architect with written field reports.

### 3.4 ADJUSTMENT AND PROTECTION OF FINISHED WORK:

- A. Adjustment: Adjust finished work and hardware for smooth operation of door swing, operation, locking, etc.
- B. Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum storefront and entrance systems from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.

### 3.5 CLEANING:

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- C. Remove excess sealant by method acceptable to sealant manufacturer.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during the construction period.

**END OF SECTION**

## **SECTION 08530**

### **EXTERIOR VINYL FIXED WINDOWS**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of exterior vinyl fixed windows shall be as indicated on drawings and as specified herein. It shall include all materials, equipment, and labor to install complete weather resistant window systems. Exterior vinyl fixed window work shall include, but is not limited to, the following:

1. Vinyl fixed windows
2. All miscellaneous components and accessories as required for a complete and watertight installation

##### 1.2 RELATED SECTIONS:

- A. Section 04200 – Unit Masonry Work
- B. Section 05500 – Metal Fabrication
- C. Section 06100 – Rough Carpentry
- D. Section 07250 – Sheet Weather Barrier
- E. Section 07460 – Cementitious Boards and Trims
- F. Section 07600 – Flashing and Sheet Metal
- G. Section 07900 - Sealants

##### 1.3 REFERENCES:

- A. American Architectural Manufacturers Association (AAMA):
1. AAMA 303 - Voluntary Specification for Poly (Vinyl Chloride) (PVC) Exterior Profile Extrusions; American Architectural Manufacturers Association.
  2. AAMA 502 – Voluntary Specification for Field Testing of Windows and Sliding Doors.
- B. ASTM International:
1. ASTM C1036 – Flat Glass
  2. ASTM C1048 – Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass
  3. ASTM D1929 – Standard Test Method for Determining Ignition Temperature of Plastics
  4. ASTM E283 – Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Difference Across the Specimen
  5. ASTM E547 - Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Differential
  6. ASTM E1105 – Standard Test Method for Field Determination of Water Penetration of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
- C. Window and Door Manufacturers Association (WDMA):
1. ANSI/AAMA/NWWDA 101/I.S.2 – Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.

##### 1.4 PERFORMANCE REQUIREMENTS:

- A. Windows shall meet Rating FW-HC85 specifications in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-05.
- B. Window Air Leakage, ASTM E283: Window air leakage when tested at 1.57 psf (25 mph) shall be 0.01 cfm/ft<sup>2</sup> of frame or less.

- C. Window Water Penetration, ASTM E547: No water penetration through window when tested under static pressure of 3.0 psf (34 mph) after 4 cycles of 5 minutes each, with water being applied at a rate of 5 gallons per hour per square foot.

1.5 SUBMITTALS:

- A. Comply with Division 1 requirements.
- B. Product Data: Submit manufacturer's product data, including installation instructions.
- C. Shop Drawings: Submit manufacturer's shop drawings, indicating dimensions, construction, component connections and locations, anchorage methods and locations, hardware locations, and installation details.
- D. Samples: Submit full-size or partial full-size sample of vinyl fixed windows illustrating glazing system, quality of construction, and color of finish for Architect selection and verification.
- E. Warranty: Submit manufacturer's standard warranty.

1.6 QUALITY ASSURANCE:

- A. Mockup:
  - 1. Provide sample installation for field testing window performance requirements and to determine acceptability of window installation methods.
  - 2. Approved mockup shall represent minimum quality required for the Work.
  - 3. Approved mockup shall remain in place within the Work.

1.7 DELIVERY, STORAGE, AND HANDLING:

- A. Delivery: Deliver materials to site undamaged in manufacturer's original, unopened containers and packaging, with labels clearly identifying manufacturer and product name. Include installation instructions.
- B. Storage:
  - 1. Store materials in accordance with manufacturer's instructions.
  - 2. Store materials off ground and under cover.
  - 3. Protect materials from weather, direct sunlight, and construction activities.
- C. Handling: Protect materials and finish during handling and installation to prevent damage.

**PART 2 - PRODUCTS**

2.1 MANUFACTURER:

- A. Basis Of Design: The products and systems as specified herein are as manufactured by LAS Enterprises, Richard Maia (504) 495-3334.
- B. Alternate Manufacturer: Other acceptable manufacturer's pending specific approval by Architect indicating their compliance with requirements of this specification, may include the following:
  - 1. Pella Corporation
  - 2. Prior Approved Equal

2.2 VINYL FIXED WINDOWS:

- A. Vinyl Fixed Windows:
  - 1. Series: Weathergard II Windows, 4500 Vinyl Fixed Windows Series by LAS Enterprises or prior approved equal
  - 2. Factory assembled custom built windows with glass installed in frame.
  - 3. Frame Material: Manufactured from extruded virgin vinyl and reinforced with steel and aluminum

B. Frame:

1. Type: Picture Frame with nailing fin (No. 4507E) with 7/8 inch glazing bead (No.4413)
2. Nominal Frame Dimensions: 3-1/4 inch by 1-3/4 inch
3. Frame Corners: Mitered and fully welded at factory

C. Glazing:

1. Insulated Glazing: Multi-layer factory assembly composed of 1/8 inch heat strengthened tinted (bronze or grey as selected by Architect), low E coating on Surface 2 (Cardinal LoE<sup>3</sup>-366), argon gas, and 1/8 inch heat strengthened clear
  - a. Total Glazing Thickness: 7/8 inch

2.3 TOLERANCES:

A. Windows shall be fabricated to accommodate the following opening tolerances (field verify all built openings):

1. Horizontal Dimensions Between High and Low Points: Plus 1/4 inch, minus 0 inch.
2. Width Dimensions: Plus 1/4 inch, minus 0 inch.
3. Building Columns or Masonry Openings: Plus or minus 1/4 inch from plumb.

2.4 FINISH:

- A. Window Frame Vinyl Extrusions: Integral color throughout profile.
- B. Exposed Surfaces: Smooth, glossy, and uniform in appearance.
- C. Color: Blue-white, Cream-white, or Beige as selected by Architect

2.5 INSTALLATION ACCESSORIES:

- A. Flashing/ Sealant Tape: As recommended by manufacturer and coordinated with Section 07250 – Sheet Weather Barrier
- B. Interior Insulating Foam Sealant: Low-expansion, low-pressure polyurethane insulating window and door foam sealant.
- C. Exterior/ Interior Perimeter Sealant: High quality, multi-purpose sealant. See Section 07900 - Sealants

**PART 3 - EXECUTION**

3.1 EXAMINATION:

- A. Examine areas to receive vinyl fixed windows. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.
- B. Field verify all opening dimensions prior to fabricating each window unit. Coordinate with General Contractor early in schedule as required.

3.2 INSTALLATION:

- A. Install vinyl fixed windows in accordance with manufacturer's instructions.
- B. Install vinyl fixed windows to be weathertight.
- C. Maintain alignment with adjacent work.
- D. Secure assembly to framed openings, plumb and square, without distortion.
- E. Integrate vinyl fixed window installation with exterior weather-resistant barrier using flashing/ sealant tape. Apply and integrate flashing/ sealant tape with weather-resistant barrier using watershed principles in accordance with window manufacturer's instructions.
- F. Seal vinyl fixed windows to exterior wall cladding with sealant and related backing materials at

perimeter of assembly.

- G. Place interior seal around vinyl window perimeter to maintain continuity of building thermal and air barrier using backer rod and sealant and insulating-foam sealant.

3.3 CLEANING:

- A. Clean vinyl fixed windows in accordance with manufacturer's instructions.
- B. Do not use harsh cleaning materials or methods that would damage finish or glass.
- C. Remove labels and visible markings.
- D. Keep weep holes open and clear of obstructions.

3.4 PROTECTION:

- A. Protect installed vinyl fixed windows to ensure that, except for normal weathering, windows will be without damage or deterioration at time of substantial completion.

**END OF SECTION**

## **SECTION 08710**

### **FINISH HARDWARE**

#### **PART 1 – GENERAL**

##### 1.1 SCOPE:

- A. Furnish all finishing hardware as shown or specified and as obviously necessary to complete the building in accordance with the intent of the Contract Documents. Items not specifically mentioned but necessary for the completion of the work shall be of the most suitable type, matching in quality and finish the items which are described. Keying system to match existing master keying system.
- B. Furnish all necessary adaptors, shoes, brackets and other devices for proper application of the hardware.
- C. Related Sections:
  - 1. Section 08210 – Flush Wood Doors
  - 2. Section 08410 – Aluminum Storefront Doors and Window System

##### 1.2 QUALITY ASSURANCE:

- A. Supplier: Hardware shall be furnished by those having appropriate experience competent to correctly interpret the floor plans, detailed drawings and specifications, to furnish appropriate and complete hardware and who shall be prepared at all times to promptly provide an efficient Builder's Hardware Technician regularly employed by them to intelligently help solve any hardware problems on the job as may be required. This individual shall be immediately available at all times after hardware contract has been awarded and until completion of the job by the Contractor and acceptance by the Owner.
- B. Installer: Assign the installation of hardware to experienced tradesmen, either at the door and frame fabrication plant or at the project site, at Contractor's option, except as otherwise indicated. It is assumed that the carpentry trade will install hardware items, except as otherwise required by the manufacturer, or otherwise directed by the Contractor, or otherwise specified.
- C. Scheduled Designations: Unless otherwise noted in Schedule, numeric designations in the hardware schedule are those of the first manufacturer listed below:
  - 1. Butts: Stanley, Hager, McKinney
  - 2. Lock Set: Schlage to match campus standard
  - 3. Cylinder Locks: Schlage to match campus standard
  - 4. Closers: LCN, Corbin-Russwin, Sargent
  - 5. Stops: Ives, Hager, Glynn-Johnson, Rockwood
  - 6. Thresholds and Weatherstripping: National Guard, Pemko, Zero
  - 7. Kick Plates: Hager, Rockwood, Ives

##### 1.3 SUBMITTALS:

- A. Product Data: Provide manufacturers product specifications and catalog cuts for each proposed item of hardware. Include information necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finishes.
- B. Hardware Schedule: Submit five (5) copies of the final hardware schedule. Include a separate key schedule, showing clearly how final instructions on keying of locks have been fulfilled. Hardware schedules are intended for coordination of the work.
- C. Format of Schedule: The hardware schedule shall be in the following format or similar format acceptable to the Architect. Organize hardware schedule into "Hardware Sets" indicating complete designations of every item required for each door or opening. Include the following information:
  - 8. Type, style, function, size and finish of each hardware item.
  - 9. Name and manufacturer of each item.

10. Fastenings and other pertinent information.
11. Location of hardware set cross-referenced to indications on Drawings.
12. Explanation of all abbreviations, symbols, codes, etc. contained in schedule.
13. Mounting locations for hardware
14. Door and frame sizes and materials.
15. Keying information.

D. Submit schedule to avoid delay to other work where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule.

E. Templates:

1. Furnish dimensioned data to suppliers of doors, frames and other work to be factory-prepared for the installation of hardware. Hardware supplier shall check shop drawings of such other work, to confirm that adequate provisions are made for proper location and installation of hardware.

#### 1.4 JOB CONDITIONS:

- A. Hardware Delivery: Hardware shall be received in the hardware supplier's warehouse for checking and consolidation prior to delivery to job site. No hardware shall be shipped directly from the manufacturer to the job site.
- B. Coordination: Coordinate hardware with other work. Tag each item or package separately with identification related to the final hardware schedule and include basic installation instructions in the package.
- C. Provide secure lock-up for hardware delivered to the project, but not yet installed. Control handling and installation of hardware items which are not immediately replaceable, so that completion of the work will not be delayed by hardware losses, both before and after installation.

### **PART 2 – PRODUCTS**

#### 2.1 FASTENERS:

- A. All hardware shall be furnished with necessary screws, bolts or other fastenings of suitable size and finish to anchor hardware in place. Furnish Phillips-head type for all exposed.

#### 2.2 HARDWARE ITEMS:

A. General: Unless otherwise indicated in the hardware schedule, hardware shall be as follows:

1. Hinges: Quality and type as specified, sized per door weight as recommended by manufacturer.
  - a. Butts: Size of hinge shall be 4-1/2" high for 1-3/4" doors up to 36" wide; 5" high for doors up to 48" wide. Doors up to 90" high shall have one and one-half (1-1/2) pair of butts.
  - b. Heavy weight stainless steel butts shall be used at exterior doors. Ball bearing butts to be used on doors with door closers. NRP for exterior doors opening out.
  - c. F179 and FBB 179 by Stanley; 1279 and BB1279 by Hager; or prior approved equal.
2. Closers: Fully hydraulic with full rack and pinion action. Closers shall have separate adjustments for latch speed, general speed and back-check. All closers shall be from one manufacturer and carry a five (5) year warranty.
  - a. Size of door closer as recommended by door closer manufacturer. Where possible, mount closers inside rooms. All drop brackets, parallel arm brackets or special jamb plates shall be furnished as required
  - b. Closer: 4000 Series by LCN; 8000 by Corbin-Russwin or prior approved equal.

3. Overhead Stop: Shall be heavy-duty door holder, surface mount door stop or door holders, in stainless steel. Surface holders to be installed with the jamb bracket mounted on top.
  - a. Glynn Johnson 90 Series, US32D; Rixon #9 Series, US32D or prior approved equal.
4. Lock Design (Manual): Cylindrical locks for 1-3/8" door thickness shall be heavy-duty with keyway to match campus standard (verify).
  - a. ALX Series Cylindrical Locksets (Rhodes Lever) by Schlage Commercial to match existing campus standard.
5. Threshold (at exterior exits): Extruded aluminum, ADA compliant silicone bumper threshold 1/2" x 5" wide (aluminum mill finish)
  - a. 2005AT by Pemko; 896 S by National Guard Products or prior approved equal.
6. Weatherstripping: Extruded aluminum trim with silicone bulb.
  - a. 160S by National Guard Products; 303AS by Pemko or prior approved equal.
7. Door Bottom Sweep: Extruded aluminum alloy with vinyl sweep.
  - a. 1015V\_ door bottom sweep by National Guard Products; 3452\_V by Pemko or prior approved equal.
8. Door Bottom Shoe: Extruded aluminum alloy with vinyl shoe.
  - a. 313V\_, door bottom shoe by National Guard Products; 211\_V by Pemko or prior approved equal.
9. Push & Pull Plate Design:
  - a. Push Plate 40R/Pull Handle Plate 44G by Hager; Push Plate 70RCC /Pull Plate 110x70RCC, or prior approved equal.
10. Interior Door Seals: Vinyl Door Shoe, Vinyl Perimeter Trim and Vinyl Astragal Seals
  - a. 12V, 160V and 97V (Set) by National Guard Products; 234AV, 303AV, 305CN by Pemko or prior approved equal.
11. Kick/Mop Plates: Metal Kick Plate – Heavy-Duty (0.062" thk.), satin stainless steel finish with countersunk holes and Torx security screws.
  - a. Full height of bottom rail (maximum of 12"). Push side plate width - 2" less than full door width. Pull side plate width – 1-1/2" less than door width.
  - b. K1062 (kick) 10" and (mop) 4" tall plate by Rockwood; 220S 10"/4" tall plate by Hager or prior approved equal.
12. Door Stops: Provide door stops at all locations required by conditions to prevent door or hardware from hitting fixed objects or walls of the building. Wall stops shall be concave with satin stainless steel finish mounted to walls.
  - a. WS406/407CCV by Ives; 409 by Rockwood, or prior approved equal.
13. Exit Devices: Shall be furnished at all locations as required by code and NFPA 80, NFPA 101 and RS40, even though hardware of other functions may have been listed in Schedule of Hardware through error. Outside lever trim shall be provided and shall match Lock Design lever type (Rhodes lever).
  - a. Surface-Mounted Vertical Rod Exit Device. Von Duprin 98/99 Series; Sargent 8800 Series or prior approved equal.
  - b. Rim Exit Device Von Duprin 98/99 Series; Sargent 8800 Series or prior approved equal.
14. Doors Not Specifically Mentioned: Shall have hardware of equal quality, design, and function as required by intended use and conditions in keeping with codes and NFPA 80, NFPA 101, & RS40.

## 2.3 FINISHES:

A. General: Unless otherwise indicated in the hardware schedule, finishes shall be as follows:

1. Butts (Exterior): Stainless Steel US32D
2. Butts (Interior): Dull Chrome Steel US26D
3. Locksets (Exterior): Stainless Steel US32D
4. Locksets (Interior): Stainless Steel US32D
5. Kick, Push, and Pull Plates: US32D
6. Door Stops & Misc.: Dull Chrome Steel US26D
7. Closers: Painted Aluminum with Stainless Steel screws
8. Panic Hardware: Dull Chrome Steel US26D

## 2.4 KEYING:

A. All locks shall be master keyed with interchangeable cores (to match campus standard), at the lock manufacturing plant. Verify on job and coordinate keying meeting with Owner and Architect prior to fabrication.

B. Key Handling:

1. Provide a minimum of four keys for each opening and each master key system. Turn in all keys to Architect and/or Owner at least 10 days prior to final inspection.
2. Provide four (4) typewritten key sheets showing heading number, room number, key change number, and number of keys along with tagged keys. Retain one signed copy for receipt.
3. Contractor is responsible for lost keys.
4. Manufacturer to furnish typed duplicate list of key bitting on job. Include GMK or SMK information.
5. Project Closeout: Prior to acceptance, supplier shall check completed hardware installation and make any final adjustments necessary for smooth and proper operation. Also, he shall schedule a meeting with Owner to discuss hardware maintenance.

## 2.5 TYPES OF HARDWARE:

### HW SET #1

Door 1 – (Pair) Exterior from Lobby

Double Keyed Classroom Cylinder Locks (exterior and interior in exit devices)  
Balance of hardware per Section 08410

### HW SET #2

Door 2 - Exterior from Corridor 1  
Door 2 - Exterior from Corridor 2  
Door 2 - Exterior from Training

Single Keyed Classroom Cylinder Lock (no exterior cylinder, only interior in exit device)  
Balance of hardware per Section 08410

### HW SET #3

Door 3 Lobby from Training

Butt Hinges  
Lever handle  
Single Keyed Classroom Cylinder Lock  
Rim Exit Device  
Closer with Stop and Hold-Open

HW SET #4

Door 3 Corridor 2 from Office Area

Butt Hinges  
Keyed Classroom Lock  
Closer with Stop

HW SET #5

Door 3 Corridor 1 to Training  
Door 3 Lobby to Corridor 1  
Door 3 Lobby to Corridor 2  
Door 3 Corridor 3 to Corridor 2 (lock on Corr. 3 side)  
Door 3 Corridor 2 to Office Area  
Door 3 Corridor 1 to Lounge  
Door 3 Lounge from Corridor 2 (lock on Lounge side)

Butt Hinges  
Keyed Classroom Lock  
Wall Stop

HW SET #6

Door 4 Corridor 2 to Consult  
Door 4 Office area to Office 1  
Door 4 Office area to Office 2  
Door 4 Corridor 2 to Office 3/IT  
Door 4 Office area to Office 4  
Door 4 Office area to Office 5

Butt Hinges  
Keyed Office Lock  
Wall Stop

HW SET #7

Door 4 Corridor 1 from Janitor

Butt Hinges  
Keyed Storeroom Lock  
Overhead Stop

HW SET #8

Door 4 Corridor 3 to Women's  
Door 4 Corridor 3 to Men's

Butt Hinges  
Pull Plate  
Push Plate  
Closer with Stop  
Door Bottom Shoe  
Kick Plates  
Mop Plates

HW SET #9

Door 4 Corridor 3 to Storage

Butt Hinges  
Keyed Storeroom Lock  
Wall Stop

HW SET #10

Door 5 (Pair) Corridor 1 from Attic Access

Butt Hinges (swing-clear) 180 deg for access  
Keyed Storeroom Lock (on active leaf)  
Flush Bolts (top and bottom) (on inactive leaf)  
Door Bottom Shoes  
Door Perimeter Seals  
Astragal Seals (overlapping)  
Wall Stop (at each leaf)

**PART 3 – EXECUTION**

3.1 HARDWARE MOUNTING HEIGHTS:

- A. Mount hardware units at heights recommended in "Recommended Locations for Builders' Hardware" by NBHA, except as otherwise specifically indicated or required to comply with governing regulations, except as may be otherwise directed by Owner and coordinate with existing frames noted to remain.

3.2 INSTALLATION:

- A. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, install each item completely and then remove and store in a secure place during the finish application. After completion of the finishes, re-install each item. Do not install surface-mounted items until finishes have been completed on the substrate.

3.3 ADJUST AND CLEAN:

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Lubricate moving parts with type lubrication recommended by manufacturer (graphite-type if no other recommended). Replace units which cannot be adjusted and lubricated to operate freely and smoothly as intended for the application made.

**END OF SECTION**

## **SECTION 08800**

### **GLASS AND GLAZING**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The extent of glass and glazing work is indicated on the drawings and as specified herein. It shall include all materials, equipment, and labor for a complete installation of all glass and glazing including all components and accessories. The required applications of glass and glazing includes, but are not necessarily limited to, the following:
  - 1. Glazing storefront systems, doors, sidelites, transoms, vision panels, windows, etc.
  - 2. Misc. glazing where indicated in drawings.

##### 1.2 REFERENCE:

- A. ASTM C1036 - Standard Specification for Flat Glass
- B. ASTM C1048 - Standard Specification for Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated
- C. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass
- D. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass
- E. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation
- F. ASTM E546 - Standard Test Method for Frost Point of Sealed Insulating Glass Units
- G. ASTM E576 - Standard Test Method for Frost Point Sealed Insulating Glass Units in the Vertical Position
- H. ASTM E1300 Standard Practice for Determining Load Resistance of Glass in Buildings
- I. ASTM C1349 - Standard Specification for Architectural Flat Glass Clad Polycarbonate
- J. ANSI Z97.1 - Performance Specifications and Methods of Test for safety Glazing Materials Used in Buildings
- K. CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing Materials
- L. NFPA 80 - Fire Doors and Windows

##### 1.3 QUALITY ASSURANCE:

- A. Glass Thickness: If not specifically called out, provide thickness of glass as required to meet local Building Code wind load (pounds/ square foot) requirements, but not less than 1/4 inch.
- B. Glazing Standards: Comply with recommendations of Flat Glass Marketing Association (FGMA) "Glazing Manual" and "Sealant Manual" except where more stringent requirements are indicated. Refer to those publications for definitions of glass and glazing terms not otherwise defined in this section or other referenced standards.
- C. Identification: Provide each piece of glass with manufacturer's label designating glass type and thickness. Each piece of tempered glass shall have permanent identification etched or ceramic fired on the glass, which shall be visible when the glass is installed.
- D. Manufacturer of glass and glazing material and fabrication and installation of glazing materials, shall meet the requirements of the Safety Standard for Architectural Glazing Material (16 CFR Part 1201) amended February 27, 1984, issued by the Consumer Product Safety Commission, and any amendments thereto.
- E. Prime Glass Standard: Comply with ASTM C1036.
- F. Heat-Treated Glass Standard: Comply with ASTM C1048 (Kind FT for tempered and Kind HS for heat-strengthened).
- G. Laminated Glass Standard: Refer to prime glass and heat treated glass requirements relating to properties of glass making up laminated glass products.
- H. Manufacturer/ Fabricator of Glass:
  - 1. Viracon, Inc.
  - 2. Vitro Architectural Glass/ PPG Industries, Inc.

3. Pilkington
4. Guardian Glass
5. Prior Approved Equal

#### 1.4 SUBMITTALS:

- A. Product Data: Submit copies of manufacturer's specifications and product data for glass and glazing products and installation, handling, storing, cleaning and protecting instructions for each type of glass required. Provide product data indicating assembled R Value, U Value, and Solar Heat Gain coefficient.
- B. Testing Data: Submit copies of manufacturer's current testing reports for compliance with severe windstorm design criteria for exterior cladding and compliance with fire rated glazing meeting the specified minute rating.
- C. Glazing Samples: Submit samples of each type of glazing specified for selection and approval by Architect.

#### 1.5 JOB CONDITIONS:

- A. The glazier must examine the framing and glazing channel surfaces, backing, removable stop design and the conditions under which the glazing is to be performed and notify the General Contractor and Architect in writing of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the glazing until unsatisfactory conditions have been corrected in a manner acceptable to the glazier.
- B. Weather Conditions: Do not proceed with glazing under adverse weather conditions or when temperatures are below or above manufacturer's recommended limitations for installation.

### **PART 2 - PRODUCTS**

#### 2.1 HEAT-TREATED (TEMPERED) GLASS:

- A. Heat-Treated Glass Standard: Provide heat-treated glass which complies with ASTM C1048 requirements, including those indicated by reference to kind, condition, type, quality, class, and, if applicable, form, finish, and pattern. Tempered glass shall comply with ANSI Z97.1 and CPSC 16 CFR Part 1201, Category II.
- B. Manufacturing Process: Manufacture tempered glass by horizontal (roller hearth) process with roll wave distortion parallel with bottom edge of glass as installed.
- C. Clear Tempered Glass: Uncoated clear heat-treated float glass, Condition A (uncoated surfaces), Type I (transparent glass, flat), Class 1 clear, Quality Q3 (glazing select), Kind FT (fully tempered).
- D. Tinted Tempered Coated Glass: Type I, Class 3, tint with manufacturer applied surface coating:
  1. Glazing Tint: As selected by Architect from one of the selections below.
    - a. Bronze Tint: 53% visible light transmittance for 1/4" thickness
      - 1) Bronze-4 as manufactured by Viracon, Inc. or prior approved equal
    - b. Gray Tint: 47% visible light transmittance for 1/4" thickness
      - 1) Gray-3 as manufactured by Viracon, Inc. or prior approved equal
  2. Coating: Low-E coating to be manufacturer applied to surface #2

#### 2.2 FABRICATION:

- A. Sizes: Fabricate glass to sizes required for glazing openings indicated, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of glass manufacturer. Provide thicknesses indicated or, if not otherwise indicated, as recommended by glass manufacturer for application indicated.

### 2.3 GLAZING SEALANTS/ COMPOUNDS:

#### A. General:

1. Provide exposed glazing materials of color to match the framing system. Provide hardness of materials as recommended by the manufacturer for the required application and condition of installation in each case. Provide only compounds which are approved to be fully compatible with surfaces contacted.
2. Heel-Bead Compound: Solvent-based, acrylic terpolymer, thermoplastic sealant; 95 percent of solids acrylic; compounded specially for glazing; complying with FS TT-2-00230, Class B, Type II.
3. Silicone Sealant: See Section 07900 – Sealants

### 2.4 GLAZING GASKETS:

- #### A. Entrances, Storefronts, Curtainwalls, and Windows: Glazing gaskets shall be furnished as part of the systems specified in Sections 08410.

### 2.5 MISCELLANEOUS GLAZING MATERIALS:

- A. Setting Block: Neoprene, EPDM, or silicone, 70-90 Shore A durometer hardness, with tested compatibility with sealants used.
- B. Spacers: Neoprene, 40-50 durometer hardness, with proven compatibility with sealants used.
- C. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
- D. Glazing Tape: Manufacturer's standard preformed solvent-free butyl-polyisobutylene formulation with a solids content of 100 percent or closed cell polyvinyl chloride (pvc) foam. Comply with AAMA A804.1.

## **PART 3 – EXECUTION**

### 3.1 STANDARDS AND PERFORMANCE:

- A. Watertight and airtight installation of each piece of glass is required. Each installation must withstand normal temperature changes, wind loading, impact loading (for exterior doors, lites, transoms, clerestories and windows) without failure of any kind including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of glazing materials and other defects in the work.
- B. Protect glass from edge damage at all times during handling, installation and operation of the building.
- C. Glazing channel dimensions as shown are intended to provide for necessary minimum bite on the glass, minimum edge clearance and adequate sealant thicknesses, with reasonable tolerances. The glazier is responsible for correct glass size for each opening, within the tolerances and necessary dimensions.
- D. Comply with combined recommendations of glass manufacturer and manufacturer of sealants and other materials used in glazing, except where more stringent requirements are shown or specified, and except where manufacturer's technical representatives direct otherwise.
- E. Comply with "Glazing Manual" by Flat Glass Marketing Association except as shown and specified otherwise and except as specifically recommended otherwise by the manufacturers of the glass and glazing materials.
- F. Inspect each piece of glass immediately before installation and eliminate any which have observable edge damage or face imperfections.
- G. Cut and install tinted coated glass as recommended by manufacturer.

### 3.2 PREPARATION FOR GLAZING:

- A. Inspect work of glass framing erector for compliance with manufacturing and installation tolerances, including those for size, squareness, offsets at corners; for existence of minimum required face or edge clearances; and for effective sealing of joints. Do not proceed with glazing

work until unsatisfactory conditions have been corrected.

- B. Clean the glazing channel, or other framing members to receive glass immediately before glazing.
- C. Remove coatings which are not firmly bonded to the substrate. Remove lacquer from metal surfaces wherever elastomeric sealants are used.
- D. Apply primer or sealer to joint surfaces wherever recommended by sealant manufacturer.

### 3.3 GLAZING:

- A. Tempered Glazing: Tempered glass shall be provided in all locations as indicated AND wherever required to comply with applicable Federal, State, and Local Codes (whether or not specifically shown in drawings).
- B. Glazing Methods:
  - 1. Clear Glass and Tinted Glass: Unless otherwise shown in drawings, all building interior glass shall be clear and all exterior glass tinted. Refer to drawings, and bring any discrepancies to the attention of the Architect for clarification prior to bidding.
  - 2. Glaze fixed glass framing using resilient gaskets and snap-in stops (where appropriate) supplied by the window framing manufacturer.
  - 3. Steel and Plastic Laminate Faced Doors: Set glass using glazing tape at both glass faces, with removable stops supplied by door manufacturer.
  - 4. Install setting blocks of proper size in sill rabbet, located at 1/4th of glass width from each corner. Set blocks in thin course of the heel-bead compound.
  - 5. Provide spacers inside and out and of proper size and spacing for all glass sizes larger than 50 united inches, except where gaskets are used for glazing. Provide 1/8 inch minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.
  - 6. Do not attempt to cut, seam, nip or abrade glass which is tempered.
  - 7. Where wedge shaped gaskets are driven into one side of the channel to pressurize the gasket on the opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when subjected to dynamic movement. Anchor gasket to stop with matching ribs, including embedment of gasket tail in cured heel bead.
  - 8. Gasket Glazing: Miter cut and bond ends together at corners where gaskets are used for channel glazing so that gaskets will not pull away from corners and result in voids or leaks in the glazing system.

### 3.4 CURE, PROTECTION AND CLEANING:

- A. Cure glazing sealants and compounds in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength and surface durability.
- B. Protect glass from breakage immediately upon installation by attachment of crossed streamers to framing held away from glass. Do not apply markers of any type to surfaces of glass.
- C. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during the construction period, including natural causes, accidents and vandalism.
- D. Maintain glass in a reasonably clean condition during construction so that it will not be damaged by corrosive action and will not contribute (by wash off) to the deterioration of glazing materials and other work.
- E. Wash and polish glass on both faces not more than four (4) days prior to Owner's acceptance of the work in each area. Comply with glass manufacturer's recommendations.

**END OF SECTION**

# DIVISION

# 9



FINISHES

## **SECTION 09260**

### **GYPSUM WALLBOARD SYSTEMS**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of gypsum board systems in this project shall be as shown on drawings and as specified herein. It shall include all labor, materials, and equipment necessary for complete installation. This section includes, but not limited to, the following:
  - 1. Gypsum (and other composition) board assemblies attached to framing and furring
  - 2. Trims, moldings, reveals, pockets, etc.
  - 3. Miscellaneous components and accessories

##### 1.2 RELATED SECTIONS:

- A. Section 06100 - Rough Carpentry
- B. Section 07210 – Building Insulation
- C. Section 07900 – Sealants
- D. Section 08210 – Flush Wood Doors
- E. Section 08310 – Access Door Panel
- F. Section 08410 – Exterior Aluminum Storefront Door and Window Systems
- G. Section 08413 – Interior Aluminum Window Systems
- H. Section 09300 – Tile
- I. Section 09510 – Acoustical Ceiling System
- J. Section 09680 - Carpet
- K. Section 09900 – Painting
- L. Division 10 – Specialties
- M. Division 15 – Mechanical
- N. Division 16 - Electrical

##### 1.3 QUALITY ASSURANCE:

- A. Industry Standard:
  - 1. Gypsum Association (GA):
    - a. GA-214 Recommended Levels of Gypsum Board Finish
    - b. GA-216 Application and Finishing of Gypsum Board Finish
    - c. GA-226 Application of Gypsum Board to Form Curved Surfaces
    - d. GA-232 Painting New Gypsum Board
    - e. GA-234 Control Joints for Fire-Resistant Rated Systems
    - f. GA-801 Handling and Storage of Gypsum Panel Products: A Guide for Distributors, Retailers, and Contractors
  - 2. Fire-Resistance Ratings:
    - a. Where indicated, provide materials and construction identical to assemblies tested for fire resistance per ASTM E119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
    - b. Provide indicated fire-resistance rated assemblies identified in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.
  - 3. Allowable Tolerances: 1/8" offsets between planes of board faces, and 1/4" in 8'-0" for plumb, level, warp and bow.
  - 4. Manufacturer: Provide gypsum/ composition board produced by one of the following:

- a. National Gypsum Co.
  - b. USG Corp.
  - c. Georgia-Pacific Gypsum, LLC.
  - d. Prior Approved Equal
5. Manufacturer: Provide gypsum board reveal trims and shapes produced by one of the following:
- a. Fry Reglet Architectural Metals
  - b. Gordon Interior Specialties
  - c. Trim-Tex Drywall Products
  - d. Gypsum/ Composition Board Manufacturer listed above
  - e. Prior Approved Equal
6. Manufacturer: Provide recessed/ flush non-rated access panels produced by one of the following:
- a. See Section 08310 – Access Door Panel
  - b. Prior Approved Equal

1.4 SUBMITTALS:

- A. Product Data: Provide product data, literature, and manufacturer's cut sheets of each product and components.
- B. Certificates: Provide product, evaluation, and manufacturer certificates indicating compliance with codes and standards, including third party programs.

1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Notify manufacturer of damaged materials received prior to installation.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers with manufacturer's identification labels intact.
- C. Protect cold formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling as required by AISI S202 "Code of Standard Practice".
- D. Store and handle all materials in compliance with manufacturer's recommendations and written guidelines.

**PART 2 - PRODUCTS**

2.1 BOARD PRODUCTS:

A. Gypsum Board:

- 1. Thickness, 5/8" thick (unless indicated otherwise); Sheet Size: 4'-0" wide x maximum length available which will minimize number of end joints in work. All gypsum board shall be Type "X" gypsum core, with additives to enhance fire resistance as required. Complying with ASTM C1396 and Federal Specifications SS-L-30D Type III Grade X for exposed gypsum board, hereby defined to include work indicated for painted finish and similar forms of decoration as well as unfinished work.
  - a. Gold Bond Brand Fire-Shield Gypsum Board by National Gypsum Company
  - b. Sheetrock Brand Gypsum Panels Firecode Core by USG Corporation
  - c. Prior Approved Equal

B. Cement Board Backerboard Panel:

- 1. Thickness, 5/8" thick; Sheet Size: 4'-0" wide x maximum length available which will minimize number of end joints in work. Cement board shall have a cementitious core, water-durable,

fiberglass mesh surface on front and back, with tapered edges. Complying with ASTM C1325, ASTM D3273, and ASTM C473.

- a. PermaBase Brand Cement Board by National Gypsum Company
- b. Durock Cement Board by USG Corporation
- c. Prior Approved Equal

## 2.2 ACCESSORY PRODUCTS (GYPSUM BOARD):

- A. Trim Accessories: Provide manufacturer's standard trim accessories of types necessary for complete and detailed drywall work (for conditions not specifically indicated below and as indicated on drawings), formed of galvanized steel with either knurled and perforated or expanded flanges for screwing and beaded for concealment of flanges in joint compound with hemmed edges where exposed. Provide beads (corner, casing, etc.), trims ("J", "U", "L", etc.) one-piece control joint, etc.
- B. Extruded Aluminum Reveal Moldings and Trims (When Specifically Shown):
  1. "Z" Reveal Molding, extruded aluminum, non-vented, thickness to match gypsum board as manufactured by Fry Reglet or prior approved equal. Coordinate with Architect for placement.
  2. "L" Trim Molding, extruded aluminum, thickness to match gypsum board, length as indicated on drawings as manufactured by Fry Reglet or prior approved equal.
  3. Reveal Base Molding, extruded aluminum, thickness to match gypsum board, length as indicated on drawings as manufactured by Fry Reglet or prior approved equal.
  4. Reveal Molding, extruded aluminum, non-vented, thickness to match gypsum board, reveal width as indicated on drawings as manufactured by Fry Reglet or prior approved equal.
  5. Other trim moldings as called out on drawings.
- C. Fasteners: Screws complying with GA-216 and with gypsum board manufacturer's recommendations. Comply with UL Assembly fastener requirements in fire rated walls and ceilings.
- D. Joint Treatment Materials:
  1. Joint Tapes: Perforated; Comply with ASTM C475.
  2. Joint Compound: Adhesive with or without fillers complying with ASTM C475. Provide pre-mixed ready for application and as follows: Single Compound Treatment - Provide manufacturer's single component compound for both bedding and finishing joints.

## **PART 3 - EXECUTION**

### 3.1 UL RATED ASSEMBLIES:

- A. Contractor shall be responsible for complying with all installation requirements of applicable UL Assemblies for rated walls and/ or ceilings as shown in drawings to be provided. This shall include layout and spacing of studs and/ or furring members, type and spacing of fasteners, and application and fastening of gypsum board. UL Assembly (with installation standards) for each rated wall and/ or ceiling may be obtained from Architect prior to bidding.

### 3.2 INSTALLATION OF GYPSUM BOARD:

- A. Standards: Comply with ASTM C840 and "Recommended Specifications for the Application and Finishing of Gypsum Board," (GA-216, by the Gypsum Association), except where more detailed or more stringent requirements are indicated here or by the manufacturer's instructions and recommendations.
- B. Locate exposed end-butt joints as far from center of walls and ceilings as possible and stagger not less than 1'-0" in alternate courses of board.
- C. Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends without more than 1/16" open space between boards. Do not force into place.

- D. Locate either edge or end joints over supports, except in horizontal applications or where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that both tapered edge joints abut and mill-cut or field-cut end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.
- E. Gypsum board shall be held off structural floor slab 1/4" maximum (3/16" minimum; no slab contact allowed in any length).
- F. Attach gypsum board to framing and blocking as required for additional support at openings and cut-outs.
- G. Cutting: After scoring face paper and breaking core, cut back paper; do not tear or snap.

### 3.3 INSTALLATION OF DRYWALL TRIM ACCESSORIES:

- A. General: Coordinate and integrate the installation of trim accessories with the installation of gypsum board. Use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Install all trims, components and accessories in compliance with GA-216 Gypsum Association Guidelines.
- B. Install manufacturer's standard beads (corner, casing, etc.) at corners of drywall work (where specialty trims not indicated). Paint to match gypsum work.
- C. Install manufacturer's standard trims ("J", "U", "L", etc.) wherever edge of gypsum board would otherwise be exposed or semi-exposed (where specialty trims not indicated). Paint to match gypsum work.
- D. Install specialty trims (type and locations as indicated) in compliance with manufacturer's written recommendations for a complete, neatly detailed and finished condition. Use pre-formed corners, intersections, etc. when available.
- E. Install manufacturer's standard one-piece control joints in rated and non-rated walls at locations indicated below. Placement of control joints shall be in accordance with GA-216 Gypsum Association Guidelines (where not specifically located on drawings).
  - 1. Control joints shall be installed where a wall or partition runs in an uninterrupted straight plane exceeding 30 linear feet. Control joints shall be located at door jambs, extending from door head to ceiling, whenever possible (left side). When this is not possible in maintaining 30 foot maximum spacing, contact Architect for specific direction.
  - 2. Where a control joint occurs in an acoustical or fire-rated system, blocking shall be provided behind the control joint by using a backing material such as 5/8 inch type X gypsum panel products, mineral fiber or other tested equivalent.
  - 3. Control joints shall be installed in ceilings to limit dimensions in either direction to 50 feet. Coordinate locations with Architect.
  - 4. Control joints or intermediate blocking shall be installed when ceiling framing or furring members change direction.

### 3.4 PARTITION IDENTIFICATION:

- A. Stencil the wall rating on each side of wall above the ceiling (in room without ceiling, stencil high on wall). Letters shall be minimum 2" high and labeled at 20 foot centers.
  - 1. Label as "FIRE (with No. of hours) RATED" for walls indicated on drawings
  - 2. Label as "SMOKE PARTITION" for smoke and/ or draft stop walls indicated on drawings

### 3.5 DRYWALL FINISHING:

- A. Finish exposed drywall surfaces with joints, corners and exposed edges reinforced or trimmed as specified and with all joints, fastener heads, trim accessory flanges and surface defects filled with joint compound in accordance with manufacturer's recommendations for a smooth, flush surface. Form true, level or plumb lines, without joints, fastener heads, flanges of trim accessories or defects visible after application of field-applied decoration.
- B. Use joint tape to reinforce joints formed by tapered edges or butt ends of drywall units and at interior corners and angles. Set tape in joint compound then apply skim coat over tape in one application.

1. Where open spaces of more than 1/16" width occur between abutting drywall units (except at control joints), pre-fill joints with joint compound and allow pre-fill to dry before application of joint tape.
- C. Application of Joint Compounds: After mixing, do not use joint compounds if recommended pot-life time has expired. Allow drying time between applications of joint compound in accordance with manufacturer's recommendations for the relative humidity and temperature levels at the time of application. In no case, allow less than 24 hours drying time between applications of joint compound. Apply not less than three (3) separate coats of joint compound over joints, fastener heads and metal flanges.
- D. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA- 214 from Gypsum Association.
1. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistive-rated assemblies.
  2. Level 4 for gypsum board surfaces indicated to receive wallcoverings.
  3. Level 4 for gypsum board surfaces indicated to receive paints and high performance coatings.

### 3.6 INSTALLATION OF CEMENT BOARD BACKERBOARD (BEHIND ALL WALL TILE):

- A. Standards: Install in accordance with manufacturer recommendation and ANSI A108.11 and current Tile Council of North America (TCNA) guidelines.
- B. Install cement boards staggered joints in successive courses.
- C. Install exposed cement board with printed face side out. Do not install imperfect, damaged or damp boards. Closely butt board ends and edges together. Do not force into place.
- D. Fasten cement board into field of board first, working towards ends and edges. Space fasteners maximum of 8" o.c. for walls, 6" o.c. for ceilings with perimeter fasteners at least 3/8" and less than 5/8" from ends and edges.
- E. Locate either edge or end joints over supports, except in horizontal applications or where intermediate supports or cement board back-blocking is provided behind end joints. Position boards so that both tapered edge joints abut and mill-cut or field-cut end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.
- F. Cement board shall be held off structural floor slab 1/4" maximum.
- G. Attach cement board to framing and blocking as required for additional support at openings and cut-outs.
- H. Cutting: Cut utilizing utility knife. Cut or score cement board on printed side of panel.
- I. Stop board short of top of tile wainscots as shown on drawings.

### 3.7 BACKING PLATES:

- A. Provide galvanized sheet-metal backing plates at required locations for securing all wall-hung cabinets, lavatories, grab bars, railings, wall panels, etc. Plates shall be 20 gauge at cabinets, and other light to moderate load conditions; 16 gauge at railings/ grab bars and lavatories; 18 gauge, 6" high at cementitious wood fiber wall panel anchor points. Secure to at least two adjacent studs.

### 3.8 CLEANING AND PROTECTION:

- A. Cleaning: Promptly remove any residual joint compound from adjacent surfaces.
- B. Protection: Provide final protection and maintain conditions that ensure gypsum board assemblies remain without damage or deterioration at the time of Substantial Completion.

**END OF SECTION**

## **SECTION 09300**

### **TILE**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of tile work in this project shall be as shown on drawings and as specified herein. It shall include all materials, equipment, and labor necessary for complete installation. This section includes, but is not limited to, the following:
  - 1. Tile over concrete floors; latex portland cement mortar; epoxy grout; thin-set applications.
  - 2. Tile wall and base over cementitious backer board on walls; latex portland cement mortar, epoxy grout; thin-set applications
  - 3. Mortar, grout, accessories, and thresholds

##### 1.2 RELATED SECTIONS:

- A. Section 03300 – Concrete
- B. Section 06100 – Rough Carpentry
- C. Section 06200 – Finish Carpentry
- D. Section 07900 – Sealants
- E. Section 09260 – Gypsum Wallboard Systems
- F. Section 09650 – Resilient Vinyl Flooring
- G. Division 10 – Specialties
- H. Division 15 – Mechanical
- I. Division 16 – Electrical

##### 1.3 REFERENCES:

- A. Industry Standards: The Industry Standards listed below refer to the latest date of issue or editions, unless otherwise indicated.
- B. American National Standards Institute (ANSI):
  - 1. ANSI A108/A118/A136.1 - Specifications for the Installation of Ceramic Tile
  - 2. ANSI A137.1 - Specifications for Ceramic Tile
- C. American Society for Testing and Materials (ASTM):
  - 1. ASTM C150 - Standard Specification for Portland Cement
  - 2. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes
  - 3. ASTM D4397 - Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
- D. Tile Council of North America (TCNA): TCNA Handbook for Ceramic Tile Installation

##### 1.4 PERFORMANCE REQUIREMENTS:

- A. Dynamic Coefficient of Friction: For tile installed on walkway surfaces, only provide products that pass DCOF AcuTest per ANSI A137.1 Tile Slip Test by The Tile Council of North America (TCNA).
  - 1. 0.42 (wet)

##### 1.5 SUBMITTALS:

- A. Product Data: Submit manufacturer's specifications, product data, and installation recommendations for each type of product proposed (tile, adhesive, grout, accessories, metal

transition strips, etc.).

- B. Shop Drawings: Indicate tile patterns, locations and widths of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
  - 1. Locate precisely each joint and crack in tile substrates by measuring, record measurements on shop drawings, and coordinate them with tile joint locations, in consultation with Architect.
- C. Samples for Initial Selection: Actual tile samples of tile showing full range of colors, textures, and patterns available for each type and composition of tile indicated. Include samples of grout and accessories involving color selection.
- D. Samples for Verification: Provide 2 samples of each different color, pattern, and finish used for Architect to verify initial selection, showing full range of variations expected in these characteristics.
  - 1. Tile: full size pieces of each type, size, and finish of tile
  - 2. Accessories and Trims: 12-inch-long sections of each type of trim and accessory for each color required
  - 3. Metal Transition Strips in 6-inch lengths.
- E. Mock-up: Submit mock-up of each tile with corresponding colored mortar and grout for approval before installation. Tile mock-ups shall be submitted on 24-inch by 24-inch plywood.
- F. Acceptance: When accepted, mock-up will demonstrate minimum standard for the Work.

#### 1.6 QUALITY ASSURANCE:

- A. Single-Source Responsibility for Tile: For tile to be used throughout the project select a single source, which matches color, grade, finish, type, composition and variety of tile.
- B. Single-Source Responsibility for Setting and Grouting Materials: Obtain ingredients of a uniform quality from one manufacturer for each cementitious and admixture component and from one source or producer for each aggregate. Grouting materials shall include coloring agents to match grout to tiles included in the project.
- C. Installer Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design, and extent to that indicated for Project.
- D. Regulatory Requirements: All specifications for tile installation must conform to local building codes, ordinances, trade practices and climatic conditions.

#### 1.7 DELIVERY, STORAGE, AND HANDLING:

- A. Delivery and Storage: Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement of TCNA for labeling sealed tile packages.
- B. Protection: Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.

#### 1.8 PROJECT CONDITIONS:

- A. Environmental Conditions: Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. Ventilation: Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.
- C. Temperature: Maintain temperatures at 50 °F (10 °C) or more in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer's instructions.

#### 1.9 EXTRA MATERIALS:

- A. Deliver extra materials to Owner. Furnish extra materials that match products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents.

- B. Tile and Trim Units for Attic Stock: Furnish quantity of full-size units equal to 5 percent of amount installed, for each type, finish, composition, color, pattern, and size.

## **PART 2 - PRODUCTS**

### **2.1 PRODUCTS, GENERAL:**

- A. ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 "Specifications for Ceramic Tile" for types, compositions, and grades of tile indicated.
- B. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with products and materials indicated for setting and grouting.
- C. Colors, Textures, and Patterns: Provide selections as indicated within Manufacturers Section and as indicated within drawings.
- D. Provide tile trim and accessories that match color and finish of adjoining flat tile unless otherwise indicated.
- E. Factory Blending: For tile exhibiting color variations within the ranges selected during sample submittals, blend tile in factory and package accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples.
- F. Mounting: Where factory mounted tile is required, provide back or edge mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.

### **2.2 TILE PRODUCTS:**

- A. Tile Products: Refer to the Manufacturer Section and Drawings for manufacturer, size, shape, color selections and additional information.
- B. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with following requirements:
  - 1. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.
  - 2. Standard Shapes: As follows, selected from manufacturer's standard shapes: MT-6 built up base with bullnose top (for use at painted gypsum board walls), MT-6A built up base (for use at walls with ceramic tile wainscot), S-886 bullnose, SC-886 bullnose corner, SC-816 round cap corner, and SB-816 round cap in-corner as required for smooth transitions at inside and outside corners and neat installation where tile abuts adjacent finishes.
  - 3. Special Shapes: All special shapes and sizes as required to complete the installation as designed.
  - 4. External Corners: Pre-manufactured external corners or bullnose shape with a radius of at least 1/2 inch unless otherwise indicated. Coordinate with Architect.
  - 5. Internal Corners: Coved (round-in) styled; use bullnose base and cap angle pieces designed to member with stretcher shapes. Coordinate with Architect.

### **2.3 PORCELAIN TILE:**

- A. Basis of Design: Porcelain tile as manufactured by American Olean.
- B. Other acceptable manufacturers, pending the specific product approval by Architect, are as follows:
  - 1. Prior Approved Equal
- C. Colors and Patterns: All tile and grout colors in individual spaces shall be as selected by Architect. See drawings for floor and wall patterns indicating where changes in tile colors occur. Project has multiple color selections.
- D. Continuity of Wall Pattern: Where a tile wall pattern is shown on any interior elevation of any space, it is intended that the same pattern as shown shall extend, continuously and unbroken, over all tile walls in that room. Figure matching patterns on all walls of any given space, whether or not specifically shown.

1. Field Tile: Flat tile as follows for floor, base, and wall FIELD tile:
  - a. Series: Unglazed Mosaic
  - b. Composition: Unglazed colorbody porcelain mosaic
  - c. Surface: Meets Dynamic Coefficient of Friction minimum of 0.42 (wet)
  - d. Module Size: 2-inch x 2-inch. See drawing finish plans and interior elevations for locations and patterns.
  - e. Nominal Thickness: 1/4-inch
  - f. Face: Unglazed
  - g. Manufacturer: American Olean Tile Co.
  - h. For Field Tile Color: Architect to select from Price Group 1
  
2. Accent Tile: Flat tile as follows for the wall ACCENT Tile:
  - a. Series: Unglazed Mosaic
  - b. Composition: Unglazed colorbody porcelain mosaic
  - c. Surface: Meet Static Coefficient of Friction minimum of 0.42 (wet)
  - d. Module Size: 1-inch x 1-inch and 2-inch x 2-inch. See drawing finish plans and interior elevations for locations and patterns.
  - e. Nominal Thickness: 1/4-inch
  - f. Face: Unglazed
  - g. Manufacturer: American Olean Tile Co.
  - h. For Accent Tile Color: Architect to select from Price Group 1, and 2
    - i. **Note:** Project will have multiple color selections. General Contractor shall figure maximum of five (5) colors to be used.

- E. Misc. Shapes and Trims: As required for a complete installation, matching tile (floor and walls) and/or base as required for pattern continuity. This shall include, but not limited to, inside corners, outside corners, bullnose, cove base, etc.

#### 2.4 TRIM, TRANSITION, AND EXPANSION ACCESSORIES:

- A. Extruded metal transition strips and trims at edge at adjacent materials and elevation differences (floors and walls). Transitions shall be in compliance with ADA/ ABA Accessibility Guidelines.
  1. Provide edge protection, transitions (same height and sloped), and expansion joint profiles by Schluter Systems or prior approved equal. Architect to select trims and finishes for transition from manufacturer's full line. Trims and transitions shall include, but not limited to, the following:
    - a. Same Height Transitions: VPT ACGB or prior approved equal
    - b. Sloped Transitions: Reno-AEU or prior approved equal
    - c. Surface and Expansion Joints: Dilex Series or prior approved equal

#### 2.5 SETTING BED MATERIALS FOR TILE (FLOORS AND WALLS):

- A. Latex Portland Cement Thin Bed Mortar for thin set and slurry bond coats to be weather, frost, shock resistant, non-flammable and meet and/or exceed the following physical requirements:
  1. ANSI A118.4AE Specification for Modified Dry-Set Cement Mortar
  2. ANSI A118.11 Specification for Exterior Glued Plywood (EGP) Latex-Portland Cement Mortar
  3. VOCs: 0 g per L
  4. Shear Strength – Ceramic (ANSI A118.4): > 200 psi (1,38 MPa)
    - a. Ker 121 as manufactured by Mapei Corp.
    - b. 254 Platinum as manufactured by Laticrete International Inc.
    - c. Prior Approved Equal

## 2.6 GROUT:

- A. Epoxy Grout shall be non-toxic, non-flammable, non-hazardous during storage, mixing, application and when cured and shall meet and/or exceed the following physical requirements:
1. ANSI A118.3 Specification for Chemical Resistant, Water Cleanable Tile-Setting and - Grouting Epoxy and Ware Cleanable Tile-Setting Epoxy Adhesive
  2. Water Cleanability ANSI A118.3 (5.1): 80 minutes
  3. Initial Setting Time ANSI A118.3 (5.2): > 2 hours
  4. Service Setting Time ANSI A118.3 (5.2): < 7 days
  5. Shrinkage ANSI A118.3 (5.3): < 0.25%
  6. Sag ANSI A118.3 (5.4): no change
  7. Quarry Shear Bond ANSI A118.3 (5.5): > 1,000 psi (6,90 MPa)
  8. Compressive Strength ANSI A118.3 (5.6): >3,500 psi (24,1 MPa)
  9. Tensile Strength ANSI A118.3 (5.7): >1,000 psi (6,90 MPa)
  10. Thermal Shock ANSI A118.3 (5.8): > 500 psi (3,45 MPa)
  11. VOCs: 7 g per L
  12. Cured Epoxy Grout to be chemically and stain resistant to ketchup, mustard, tea, coffee, milk, soda, beer, wine, bleach (5% solution), ammonia, juices, vegetable oil, brine, sugar, cosmetics, and blood, as well as chemically resistant to dilute acids and dilute alkalis.
    - a. Water-Cleanable, Tile-Setting and Grouting Epoxy (ALL FLOORS and WALL BASES): ANSI A118.3, grout color as selected by Architect from manufacturer's full range of colors.
      - 1) Kerapoxy as manufactured by Mapei Corp.;
      - 2) SpectraLOCK as manufactured by Laticrete International Inc.;
      - 3) Prior Approved Equal

## 2.7 EXPANSION AND CONTROL JOINTS SEALANT:

- A. Expansion and Control Joint Sealant to be a one component, neutral cure, exterior grade silicone sealant and meet and/or exceeds the following requirements:
1. ASTM C834 Standard Specification for Latex Sealants
  2. VOCs: <25 g per L
    - a. Keracaulk U as manufactured by Mapei Corp.;
    - b. Latasil as manufactured by Laticrete International Inc.;
    - c. Prior Approved Equal

## 2.8 TILE SEALERS:

- A. Silicone Sealers: Colorless, penetrating, highly polymerized resin for use on grout joints and unglazed tile.
1. Approved Products/ Manufacturers:
    - a. Magic Seal as manufactured by Bostik Hydromet.
    - b. Silicone Grout Sealer as manufactured by L & M Manufacturing Co.
    - c. Prior Approved Equal

## 2.9 PATCHING AND LEVELING COMPOUNDS:

- A. Self-Leveling Underlayment shall be mixed with water to produce a pumpable, fast setting, free flowing cementitious underlayment which can be poured from a feather-edge to 1-1/2" (38mm) thick in one pour.
1. 4 Hour Compressive Strength (ANSI A118.4 Mod.): >1500 psi (10.3 MPa)

2. 1 Day Compressive Strength (ANSI A118.4 Mod.): >2800 psi (19.3 MPa)
3. 28 Day Compressive Strength (ANSI A118.4 Mod.): >4300 psi (29.7 MPa)
4. Tensile Strength (ANSI A118.7): >500 psi (3.5 MPa)
5. Time To Foot Traffic: 3 – 4 Hours
6. Total VOC Content: < 0.05 mg/m3

B. Patching and Leveling Compounds: As recommended by tile manufacturer and compatible with both substrate and setting materials.

1. Approved Manufacturers:
  - a. Mapei Corp.
  - b. Laticrete International, Inc.
  - c. Ardex Group
  - d. Prior Approved Equal

#### 2.10 MIXING MORTARS AND GROUT:

A. Mixing: Mix mortars and grouts to comply with requirements of referenced standards and manufacturers including those for accurate proportioning of materials, water, or additive content; type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated. Mortars and grout for tile shall be pure white, grout for tile must be mixed to each separate tile color. Submit mock-up of each tile with corresponding colored grout for approval before installation.

#### 2.11 CEMENTITIOUS BACKER BOARD:

A. Approved Products/ Manufacturers: See Section 09260

### **PART 3 - EXECUTION**

#### 3.1 EXAMINATION:

A. Examination: Examine substrates and areas where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm, dry, clean, and free from oil or waxy films and curing compounds.
2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in, or behind, tile has been completed before installing tile.
3. Verify that all concrete slopes to floor drains are uniform and true.

B. Acceptance: Do not proceed with installation until unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION:

A. Blending: For tile exhibiting color variations within the ranges selected during sample submittals, verify that tile has been blended in factory and packaged accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

#### 3.3 INSTALLATION, GENERAL:

A. ANSI Tile Installation Standard: Comply with parts of ANSI A108 series of tile installation standards included under "Standard Specifications for the Installation of Ceramic Tile" that apply to type of setting and grouting materials and methods indicated.

- B. TCNA Installation Guidelines: TCNA "Handbook for Ceramic Tile Installation"; comply with TCNA installation methods indicated.
- C. Workmanship: Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions except as otherwise shown. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
  - 1. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so that plates, collars, or covers overlap tile.
- D. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths unless otherwise shown.
  - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so that extent of each sheet is not apparent in finished work.
- E. Expansion Joints: Locate expansion joints and other sealant filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw cut joints after installation of tiles.
  - 1. Locate joints in tile surfaces directly above joints in concrete substrates and also spaced in large areas as recommended by TCNA.
  - 2. Prepare joints and apply sealants to comply with requirements of Section 07900 -Sealants.
- F. Grouting: Grout tile to comply with the requirements of ANSI A108.3 for epoxy grout. When recommended by manufacturer, seal all tile to grouting in colors to prevent staining.
- G. Mildew Resistant Sealant: Use where tile abuts plumbing fixtures, countertops, and items penetrating tile floor and walls, wainscots and bases, such as pipes and outlets. Refer to Section 07900 - Sealants.
- H. Patching/ Leveling Compounds: Install in accordance with manufacturer's strict written guidelines. Provide smooth level transitions between surfaces. Where patching/ leveling compounds are used for slope to drain, provide smooth transition and positive drainage.
- I. Cementitious Backer Board per Section 09260: At wall tile applications, install over studs in accordance with manufacturer's instructions. Prepare as directed by the manufacturer.

### 3.4 PORCELAIN TILE INSTALLATION METHODS:

- A. General: Install mortar bed, tile, and grout in accordance with manufacturer's instructions and TCNA Handbook for Ceramic Tile Installation.
- B. All materials and methods shall be in strict accordance with the recommendations of TCNA and tile manufacturer for the specific installation conditions shown or referenced in drawings. This shall include, but not be limited to, bond coats, mortar beds, wire reinforcement, waterproofing membranes, fiberglass tape, expansion joints, etc. Subject to specific conditions of the job, setting materials/ methods shall be as follow.
  - 1. Floors – Thin Set: TCNA # F115
  - 2. Wall and Base – Thin Set: TCNA # W244C
- C. Thin Bed Method: Install latex portland cement mortar in compliance with current revisions of ANSI A108.02 (3.11), A108.1B and ANSI A108.5. Use the appropriate trowel notch size to ensure proper bedding of the tile, brick or stone selected. Work the latex portland cement mortar into good contact with the substrate and comb with notched side of trowel. Spread only as much latex portland cement mortar as can be covered while the mortar surface is still wet and tacky. When installing large format (>8" x 8"/200mm x 200mm) tile/ stone, rib/ button/ lug back tiles, pavers or sheet mounted ceramics/mosaics, spread latex portland cement mortar onto the back of (i.e. 'back-butter') each piece/ sheet in addition to troweling latex portland cement mortar over the

substrate. Beat each piece/ sheet into the latex portland cement mortar with a beating block or rubber mallet to insure full bedding and flatness. Allow installation to set until firm. Clean excess latex portland cement mortar from tile or stone face and joints between pieces.

### 3.5 GROUTING OR POINTING:

- A. Chemical Resistant, Water Cleanable Tile-Grouting Epoxy (ANSI A118.3): Follow manufacturer's recommendations for minimum cure time prior to grouting. Store liquid components of Grout for 24 hours @ 70-80°F (21-27°C) prior to use to facilitate mixing and application. Substrate temperature must be 40-95°F (4-35°C).
- B. Verify joints are free of dirt, debris or grout spacers. Sponge or wipe dust/ dirt off tile faces and remove water standing in joints. Apply grout release to face of absorptive, abrasive, non-slip or rough textured ceramic tile, pavers, bricks, stone or trim units that are not hot paraffin coated to facilitate cleaning. Cut open pouch and pour Grout Part A Liquid into a clean mixing pail. Then open pouch and pour Grout Part B Liquid into the mixing pail. Mix by hand or with a slow speed (<300 rpm) mixer until the two liquids are well blended. Then, while mixing, add Grout Part C Powder and blend until uniform. Install Grout in compliance with current revisions of ANSI A108.02 (3.13) and ANSI A108.6 (3.0 - 4.0). Spread using a sharp edged, hard rubber float and work grout into joints. Using strokes diagonal (at 45° angle) to the grout lines, pack joints full and free of voids/ pits. Then hold float face at a 90° angle to grouted surface and use float edge to "squeegee" off excess grout, stroking diagonally to avoid pulling grout out of filled joints. Once excess grout is removed, a thin film/ haze will be left. Initial cleaning of the remaining film/ haze can begin approximately 20-30 minutes after grouting (wait longer at colder temperatures). Begin by mixing cleaning additive packet with 2 gallons (7.6 L) of clean water in a clean bucket to make cleaning solution. Dip a clean sponge into the bucket and then wring out cleaning solution until sponge is damp. Using a circular motion, lightly scrub grouted surfaces with the damp sponge to dissolve grout film/ haze. Then drag sponge diagonally over the scrubbed surfaces to remove froth. Rinse sponge frequently and change cleaning solution at least every 50 ft<sup>2</sup> (4.7m<sup>2</sup>). Discard sponges as they become "gummy" with residue. Within one (1) hour of finishing first cleaning, clean the same area again following the same procedure but utilizing a clean white scrub pad and fresh cleaning solution. Rinse scrub pad frequently. Drag a clean sponge diagonally over the scrubbed surfaces to remove froth. Use each side of sponge only once before rinsing and change cleaning solution at least every 50 ft<sup>2</sup> (4.7m<sup>2</sup>). Allow cleaned areas to dry and inspect tile/ stone surface. For persistent grout film/ haze (within 24 hours), repeat scrubbing procedure with undiluted white vinegar and clean pad. Rinse with clean water and allow surface to dry. Inspect grout joint for pinholes/ voids and repair them with freshly mixed Grout. Cautions: Do not use undiluted white vinegar on polished marble or limestone unless a test spot in an inconspicuous area indicates no change in finish appearance; do not use acid cleaners on epoxy grout less than 7 days old.

### 3.6 EXPANSION AND CONTROL JOINTS:

- A. Expansion and Control Joints: Provide layout of proposed joint locations for Architect's approval prior to installation.
  1. Substrate joints must carry through, full width, to surface of tile, brick or stone.
  2. Install expansion joints in tile, brick or stone work over construction/ cold joints or control joints in substrates.
  3. Install expansion joints where tile, brick or stone abut restraining surfaces (such as perimeter walls, curbs, columns), changes in plane and corners.
  4. Joint width and spacing depends on application - follow TCNA "Handbook for Ceramic Tile Installation" Detail "EJ-171 Expansion Joints" or consult sealant manufacturer for recommendation based on project parameters.
  5. Joint width:  $\geq 1/8"$  (3mm) and  $\leq 1"$  (25mm).
  6. Joint width: depth ~2:1 but joint depth must be  $\geq 1/8"$  (3mm) and  $\leq 1/2"$  (12mm).
  7. Layout (field defined by joints): 1:1 length: width is optimum but must be  $\leq 2:1$ . Remove all contaminants and foreign material from joint spaces/ surfaces, such as dirt, dust, oil, water, frost, setting/ grouting materials, sealers and old sealant/backer. Use manufacturer Primer for underwater and permanent wet area applications, or for porous stone (e.g. limestone,

sandstone etc.) installations. Install appropriate Backing Material (e.g. closed cell backer rod) based on expansion joint design and as specified in Section 07900. Apply masking tape to face of tile, brick or stone veneer. Use caulking gun, or other applicator, to completely fill joints with sealant. Within 5-10 minutes of filling joint, 'tool' sealant surface to a smooth finish. Remove masking tape immediately after tooling joint. Wipe smears or excess sealant off the face of non-glazed tile, brick, stone or other absorptive surfaces immediately.

### 3.7 CLEANING AND PROTECTION:

- A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
  - 1. Remove epoxy grout residue from tile as soon as possible.
- B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.
  - 1. Joints shall be uniform in width; straight, level, plumb and aligned in both directions; neatly grouted without irregularities, holes and gaps.
  - 2. Tile, trim, and thresholds shall be the colors, patterns and textures indicated for each location, and shall match the approved samples.
  - 3. Exposed surfaces of tile and trim units shall be uniform and even in plane, without offsets over 1/32-inch in adjacent units.
  - 4. Cut edges of tile and trim units shall be concealed by joint grout, sealant, or overlapping escutcheons of penetrating items.
- C. Grout and Tile Sealer: After grout has fully cured, apply sealer to grout joints and unglazed tile surfaces in accordance with manufacturer's instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.
- D. Protection: Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensures that tile is without damage or deterioration.
  - 1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls, floors, and ceilings. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
  - 2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.
- E. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

**END OF SECTION**

## **SECTION 09510**

### **ACOUSTIC CEILING SYSTEMS**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of acoustical tile ceiling system work in this project shall be as shown on drawings, schedules, and as specified herein. It shall include all materials, equipment, and labor as necessary for a complete installation. This section includes, but is not limited to, the following:
  - 1. Acoustical ceiling system (tile, grid, hanger wires, etc.)
  - 2. Transition trims and accessories between gypsum board, metal ceiling systems and acoustical ceiling systems, and elsewhere as shown in drawings.
  - 3. Edge moldings, specialty suspension trims and accessories

##### 1.2 RELATED SECTIONS:

- A. Section 06100 – Rough Carpentry
- B. Section 09260 - Gypsum Wall Board System
- C. Divisions 15 – Mechanical
- D. Division 16 - Electrical

##### 1.3 QUALITY ASSURANCE:

- A. Standards for Terminology and Performance: Applicable publications by the Acoustical and Insulating Materials Association (AIMA), including "Performance Data, Architectural Acoustical Materials."
- B. Coordinate layout of acoustic ceilings with all other work which penetrates the ceiling or is supported by (or works to) ceiling suspension systems, i.e., light fixtures, grilles, registers, diffusers, sprinkler heads, uni-strut, etc.
- C. Fire Performance:
  - 1. Acoustical Panels: Provide acoustical panels with surface burning characteristics specified below, based on ASTM E84 tests performed by UL or other independent agency acceptable to authorities having jurisdiction. Identify packaged products with approval markings of test agency.
    - a. Flame Spread: 25 or less
    - b. Smoke Developed: 50 or less

##### 1.4 SUBMITTALS:

- A. Product Data: Manufacturer's specifications and installation instructions for each type of product proposed for use.
  - 1. Include test reports to confirm fire performance and acoustical properties of proposed acoustical units.
- B. Samples For Verification:
  - 1. 12-inch-long samples of suspension system members and special shapes, including moldings, specialty trims, transition trims, etc., of color and system type proposed for use.
  - 2. 12-inch square samples of each acoustical unit type, pattern and color proposed for use.

##### 1.5 PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. Deliver acoustic ceiling materials to the job site in original, unopened packages, bearing

manufacturer's name and label identifying each type of acoustic unit.

- B. Storage Areas: Comply with acoustic material manufacturer's recommendations for storage of units to be used in the work.

#### 1.6 PROJECT CONDITIONS:

- A. Installation Conditions: Do not install acoustical ceilings until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and temperature and humidity will be continuously maintained near levels intended for final occupancy.

#### 1.7 EXTRA MATERIALS:

- A. Deliver extra materials to Owner. Furnish extra materials that match products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents.
- B. Acoustical Tile, Suspended Grid System, Trims, Etc.: Furnish quantity of full-size units equal to 5 percent of amount installed, for each type, composition, color, pattern, and size. Provide ceiling touch-up latex paint to match ceiling tiles in quart size cans for each color.

### **PART 2 - PRODUCTS**

#### 2.1 SUSPENSION SYSTEM MATERIALS AND COMPONENTS:

- A. Quality Standard: Comply with the requirements of ASTM C635 and as further specified.
- B. Structural Classification: ASTM C635 Intermediate Duty
- C. Attachment Devices: Size for five times the design load indicated in ASTM C635, Table 1, Direct Hung, unless otherwise indicated.
- D. Hanger and Tie Wires: Galvanized carbon steel, ASTM A641, Class 1 zinc coating, soft temper, pre-stretched, with a yield-stress load of at least 3 times design load, but not less than 12 gauge (0.106").
- E. Beams and Tees: All main beams and cross tees shall be commercial quality hot dipped galvanized steel as per ASTM A653. Beams and tees shall be of double-web steel construction with exposed flange design. Exposed surfaces shall be chemically cleansed, capping prefinished galvanized steel in baked polyester paint. Main beams and cross tees shall have rotary stitching.
- F. Edge Moldings and Trim: Metal of extruded aluminum of types and profiles indicated or, if not indicated, Manufacturer's standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated. Except as detailed otherwise use manufacturer's standard angle molding with trims at flat ceilings at wall with finish to match beams and cross tees.
- G. Material Transition Trim: Metal of extruded aluminum of types and profiles indicated or, if not indicated, Manufacturer's standard transition trim for edges and penetrations between different materials, that fit type of edge detail and suspension system indicated. Use manufacturer's standard transition molding with trims, with finish to match beams and cross tees.
- H. Manufacturers: Companies offering suspension systems to comply with the requirements specified herein, include the following.
  - 1. Armstrong World Industries
  - 2. USG
  - 3. Chicago Metallic by Rockfon
  - 4. Prior Approved Equal
- I. Suspension Systems (SS): Provide suspension systems complying with the following requirements.
  - 1. For Spaces as Designated on Drawings (15/16" Ceiling Grid with 2'-0" x 2'-0" Square Lay-In Acoustical Tiles):
    - a. Main Beams & Cross Tees:

- 1) 15/16" face dimension, exposed tee profile, hot-dipped galvanized steel with baked enamel finish white (unless noted otherwise).
- b. Acceptable Products:
  - 1) Prelude 15/16" Exposed Tee System as manufactured by Armstrong World Industries
  - 2) Prior Approved Equal
2. Provide wall moldings and accessories as required to install job specific conditions. This shall include, but is not limited to, the following:
  - a. 3/4 inch by 3/4 inch shadow edge molding in rooms where detailed (standard "L" elsewhere)
  - b. Expansion sleeves
  - c. Cross tee adapter
  - d. Closure clips
  - e. Direct load ceiling clips
  - f. Splices
  - g. Corner covers
  - h. Escutcheons for tile penetrations
  - i. Retention clips

## 2.2 ACOUSTIC UNIT MATERIALS:

- A. Manufacturers: Companies offering acoustical units to comply with the requirements include the following.
  1. Armstrong World Industries
  2. USG
  3. Rockfon
  4. Prior Approved Equal
- B. Acoustic Panels (AP): Provide panels complying with the following requirements.
  1. For Spaces as Designated on Drawings (15/16" Ceiling Grid with 2'-0" x 2'-0" Square Tegular Acoustical Tiles):
    - a. Size: 24" x 24" x 1", compatible with 15/16" suspension system
    - b. Description: Fiberglass, with factory-applied latex paint acoustically transparent membrane and CAC backing
    - c. Edge Profile: Square Tegular, for interface with specified suspension system
    - d. Features:
      - 1) Noise Reduction Coefficient (NRC): 0.90
      - 2) Ceiling Attenuation Class (CAC): 26
      - 3) Fire Rating: Class A
      - 4) Light Reflectance (LR): 0.88
      - 5) Humidity/ Sag Resistance: HumiGuard Plus maintaining superior sag resistance in high humidity
      - 6) Anti-Mold/ Mildew: BioBlock coating mold/ mildew inhibitor
      - 7) White color
    - e. Acceptable Product: Optima Tegular Item No. 3354, by Armstrong or prior approved equal

## **PART 3 - EXECUTION**

### **3.1 COORDINATION:**

- A. Prior to start of acoustic ceiling work, verify built conditions and coordinate other trades and contractors involved to determine areas of potential interference. Do not start installation of ceiling systems until all interferences have been resolved.
- B. Do not alter ceiling layouts or heights to accommodate other trades, without specific written permission from the Architect.
- C. Coordinate with work of other trades and outside contractors (ie. - Owner provided equipment) to insure that ceilings work neatly to built-in structure, specialty ceiling fixtures, equipment, etc. Do not start ceiling work in procedure rooms until pre-installation meetings with all parties have been held.

### **3.2 INSTALLATION OF SUSPENSION SYSTEMS:**

- A. General: Install all components in accordance with the specific recommendations of the product Manufacturer.
- B. Compliance: Install suspension systems which are part of non-fire-related assemblies in accordance with manufacturer's instructions; the requirements of Article 2 "Installation of Components" of "Standard Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels" ASTM C636; and as further specified.
  - 1. Loading of any component shall not cause deflection of more than 1/360 of the span.
- C. Support main runners directly from hangers; do not bear on walls or partitions. Space main runners to support acoustic panels and other work resting in or on the ceiling, as required to comply with specified performance requirements. Interlock cross-runners with either main runners or with cross-runners structurally classified as main runners.
- D. Hangers: Space not more than 6" from each end and not more than 4'-0" o.c. between ends of members to be supported. Provide additional hangers at items to be supported by the ceiling suspension system as required preventing eccentric deflection or rotation of supporting runners.
  - 1. Provide hangers at cross tees for each corner of all light fixtures.
  - 2. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eye-screws or other devices which are secure and appropriate for the substrate and which will not deteriorate or fail with age or elevated temperatures.
- E. Moldings and Trims: Install as directed by product Manufacturer for each suspension system type specified herein. Provide where ceilings meet walls, partitions, columns, other vertical elements, tile penetrations, and where indicated on drawings.
  - 1. Miter cut inside and outside corners.
  - 2. Unless otherwise noted (or recommended by Manufacturer) install moldings with exposed leg in same plane as bottom flange of runners.
  - 3. Provide specialty moldings and trims of shapes in specified colors and at locations where indicated on drawings and specified herein.
    - a. This shall include but is not limited to shadow molding to be installed at entire perimeter of ceiling system in all rooms with clerestory windows. See drawings.
- F. Multi-Level Ceilings (When Applicable):
  - 1. When installing multi-level ceilings, comply with Manufacturer's strict installation guidelines to achieve the design effect as shown on drawings for a complete, and structurally sound, installation. Provide hangers, secured to building structure above, of sufficient gauge and spacing to carry all imposed live and dead loads.
  - 2. Provide shop drawings, for Architect's prior approval, showing layout of each ceiling area

prior to proceeding with work. Plans shall be dimensioned, with heights shown for each ceiling level.

3. Specialty suspension trim shall be used at all exposed edges of ceiling transitions and at all other locations as detailed. All radii shall be curved in a neat, uniform manner. Use Manufacturer's recommended components and installation details for a complete trimmed out job.

### 3.3 INSTALLATION OF ACOUSTIC PANELS:

- A. Prepare and install all panels in accordance with the specific recommendations of the product Manufacturer.
- B. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out.
- C. Do not proceed with installation until building is climate controlled.
- D. Examine construction and conditions under which the system will be installed. Do not proceed with installation until unsatisfactory conditions have been corrected. Coordinate panel layout with mechanical and electrical fixtures.
- E. Proper design for both supply air and return air, maintenance of the HVAC filters and building interior space are essential to minimize soiling. Before starting the HVAC system, make sure supply air is properly filtered and the building interior is free of construction dust.
- F. Balance border areas to avoid units of less than 1/2-unit width wherever possible. Wherever ceiling area is a multiple of full-size acoustic units used in the work, balance alignment to be square and true and install only full-size units for entire ceiling, including borders.
- G. Install panel edge to rest on flanges of grid tees with border units supported by moldings.
- H. Lay-in acoustic panels shall be neatly cut at penetrating work, adding additional grid were necessary for best visual effect. Provide escutcheon plates at all penetrations for final trim-out to match color of ceiling tile.

### 3.4 COMPLETION:

- A. Ceilings: Clean, touch-up and repair exposed surfaces of acoustical ceilings, including trim, moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage.
  1. Remove and replace work that cannot be cleaned and repaired to permanently eliminate evidence of soiling, staining, and damage.
- B. Other Work: Touch-up with matching color, repair or remove and replace as necessary other items damaged due to acoustical ceiling work.
- C. Completed Work: Acoustical ceilings shall be clean, undamaged and complete. Suspension members and moldings shall be securely attached, with neat, aligned joints. Acoustical units shall be properly sized and supported by suspension system and wall moldings at all sides.
- D. Ceilings shall be level to tolerance of 1/8" in 12'-0".

**END OF SECTION**

## **SECTION 09650**

### **RESILIENT VINYL FLOORING**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of resilient flooring systems shall be as shown on drawings and as specified herein. It shall include all materials, equipment, and labor as required for a complete installation. Resilient flooring work shall include, but is not limited to, the following:

1. Luxury vinyl flooring (LVT)
2. Vinyl composition tile (VCT)
3. Resilient base
4. Flooring transitions and trims

##### 1.2 RELATED SECTIONS:

- A. Section 03300 – Concrete
- B. Section 06200 – Finish Carpentry
- C. Section 07900 – Sealants
- D. Section 08410 – Aluminum Storefront Door & Window System
- E. Section 08210 – Flush Wood Doors
- F. Section 09260 – Gypsum Wallboard Systems
- G. Section 09300 – Tile
- H. Section 09680 – Carpet

##### 1.3 QUALITY ASSURANCE:

- A. Single-Source Responsibility: Obtain each type, color, and pattern of resilient material from a single source. Provide each type of resilient material and associated primer, leveling compound and adhesive as produced or recommended by a single manufacturer.
- B. Production Quality Control: Assure consistent appearance by providing each pattern and color of flooring and base (including end stops and corner units) from a single production run or dye lot for each room or space.
- C. Fire Performance Characteristics: Provide flooring with the following characteristics as determined by testing by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
1. Critical Radiant Flux: 0.45 watts per sq. cm or more per ASTM E648
  2. Flame Spread: 75 or less per ASTM E84
  3. Smoke Density: 450 or less per ASTM E662
- D. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1.
1. Required Attendees: Manufacturer's representative, Installer, Contractor, and Architect.
  2. Inspect condition of substrate and other preparatory work performed by other trades. Discuss any corrections required to substrates or other work required for installation of resilient flooring(s).
  3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  4. Review special resilient flooring designs and patterns.
  5. Review dust control procedures and substrate moisture conditions.
  6. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions.

#### 1.4 PERFORMANCE REQUIREMENTS:

- A. ASTM F137 Standard Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus
- B. ASTM F2199 Standard Test Method for Determining Dimensional Stability and Curling Properties of Resilient Flooring after Exposure to Heat
- C. ASTM F540 Standard Test Method for Squareness of Resilient Floor Tile by Dial Gage Method
- D. ASTM F970 Standard Test Method for Measuring Recovery Properties of Floor Coverings after Static Loading
- E. ASTM F1914 Standard Test Methods for Short-Term Indentation and Residual Indentation of Resilient Floor Covering
- F. ASTM E648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
- G. ASTM E662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
- H. ASTM F1515 Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change
- I. ASTM F925 Standard Test Method for Resistance to Chemicals of Resilient Flooring
- J. ASTM F1514 Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color Change
- K. ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
- L. ASTM F 1700 Standard Specification for Solid Vinyl Tile
- M. ASTM F 1861 Standard Specification for Resilient Wall Base
- N. ASTM F 1869 Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
- O. ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
- P. ASTM C1028 Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method

1.  $\geq 0.5$  leather; 0.6 rubber

#### 1.5 SUBMITTALS:

- A. Product Data: Submit manufacturer's product literature and delivery, storage, handling, and installation instructions for each type of resilient flooring, accessory item, and installation material required. Include methods of installation for each type of substrate.
  - 1. Submit written data on physical characteristics and flame resistance characteristics.
  - 2. Submit written recommendations from resilient flooring manufacturers on resilient flooring adhesive.
- B. Samples for Initial Selection: Provide 1 finish selector of all available colors for Architect's review.
- C. Samples for Verification: Provide 2 samples of each different color and pattern of resilient material for Architect to verify initial selection, showing full range of variations expected in these characteristics.
  - 1. Luxury Vinyl Tile (LVT): Full size planks
  - 2. Vinyl Composition Tile (VCT): Full size tiles
  - 3. Accessories and Trims: 12-inch-long sections
- D. Acceptance of Substrate: Provide letter of substrate acceptance, signed by Contractor, Manufacturer and Installer.
  - 1. Manufacturer, Contractor and Installer shall review substrate testing including results of moisture testing and bond / adhesion test reports and any other tests required by manufacturer prior to accepting substrate. Inform Architect of substrate testing results indicating any non-compliance or failure.

- E. Bond and Adhesion Test Reports: Submit test data and reports on bond and moisture tests for concrete subfloors. Distribute copies to Installer, resilient flooring manufacturer, Contractor, adhesive manufacturer, and Architect for review prior to installation.
- F. Maintenance Data: For resilient products to include in maintenance manuals.
- G. Mockup: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Size: Minimum 50 sq. ft. for each type, color, and pattern in locations as directed by Architect.
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained within mockups, unless Architect specifically approved such deviations in writing.
  - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING:

- A. Store flooring and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50-degree F (10 degree C) or more than 90-degree F (32 degree C). Store flooring on flat surfaces.

1.7 FIELD CONDITIONS:

- A. HVAC system should be operational and running for a minimum of 7 days prior to resilient flooring installation and remain running after resilient flooring installation.
- B. Maintain ambient temperatures within range recommended by manufacturer, but not less than 65-degree F (18 degree C) or more than 85-degree F (29 degree C), in spaces to receive flooring during the following time periods:
  - 1. 48 hours before installation
  - 2. During installation
  - 3. Permanently after installation
  - 4. Close spaces to traffic during flooring installation
  - 5. Close spaces to traffic, all heavy rolling loads, and point loads for 48 to 72 hours after flooring installation.
  - 6. Install flooring after other finishing operations, including painting, have been completed.

1.8 WARRANTY:

- A. Manufacturer agrees to repair or replace defective material within specified warranty period.
  - 1. Contractor's Warranty: Standard 1-year Warranty
  - 2. Limited Commercial Wear Warranty (flooring): Limited 10-year Warranty
  - 3. Limited Commercial Wear Warranty (base): Limited 5-year Warranty

1.9 EXTRA MATERIALS:

- A. Deliver extra materials to Owner. Furnish extra materials that match products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents.
- B. Resilient Flooring, Trims, Accessories, Etc.:
  - 1. Resilient Flooring: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of flooring installed.
  - 2. Trims, and Accessories: Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS:**

- A. Basis Of Design: The products and systems specified herein are as manufactured by Mannington Commercial
- B. Alternate Manufacturers: Other acceptable manufacturers pending specific product approval by Architect indicating their compliance with the requirements of this specification, may include the following:
  - 1. Prior Approved Equal

### **2.2 LUXURY VINYL FLOORING:**

- A. Luxury Vinyl Flooring as manufactured by Mannington Commercial or prior approved equal, with the following characteristics:
  - 1. Series: Walkway 20 Collection or Spacia First 20 Collection
  - 2. Construction: LVT with micro-beveled edges
  - 3. Sizes: 6-inch x 36-inch or 7.25-inch x 49", as selected by Architect from full range of manufacturer sizes
  - 4. Wear Layer Thickness: 20 mil
  - 5. Overall Thickness: 0.098 inches
  - 6. Warranty: Limited 10-year Commercial Warranty
  - 7. Static Load Limit (ASTM F970 mod.): 1,500 psi; Residual Indent  $\leq 0.005"$
  - 8. Classification (ASTM F1700): Class III, Type B
  - 9. Resistance to Heat (ASTM F1514): Passes
  - 10. Chemical Resistance (ASTM F925): Passes
  - 11. Colors: Colors to be selected by Architect from manufacturer's full range of colors.
    - a. For bidding purposes, General Contractor shall figure one (1) color to be selected for entire project.
  - 12. Flooring Layout Pattern: As selected by Architect.

### **2.3 VINYL COMPOSITION TILE (VCT):**

- A. Vinyl composition tile flooring as manufactured by Armstrong Flooring, Inc. or prior approved equal, with the following characteristics:
  - 1. Series: Premium Excelon Crown Texture
  - 2. Size: 12" by 12"
  - 3. Overall Thickness: 0.125 inches, 1/8"
  - 4. Static Load Limit: 125 psi
  - 5. Specification ASTM F1066: Class 2
  - 6. Static Coefficient of Friction: Meets ADA/ ABA Guidelines
  - 7. Flooring Radiant Panel ASTM E648: 2:0.45 watts/ cm<sup>2</sup>, Passes (class 1)
  - 8. N.B.S. Smoke Chamber ASTM E662: <450, Passes
  - 9. Warranty: Limited 5 year Commercial Warranty
  - 10. Pattern Repeat: Non-directional
  - 11. Colors: As selected by Architect from manufacturer full range of colors.
    - a. For bidding purposes, General Contractor shall figure three (3) colors to be selected for entire project.
  - 12. Flooring Layout Pattern: As selected by Architect.

## 2.4 VINYL BASE:

- A. Traditional Vinyl Wall Base as distributed by Mannington Commercial or prior approved equal, with the following characteristics:

1. Series: BurkeBase Type TV 1/8"
2. Manufactured from a thermoplastic vinyl formulation.
3. Classification: ASTM F1861 Type TV, Group 1
4. Thickness: 1/8" thick
5. Profile: Coved
6. Size: 4"
7. Static Load (ASTM E970): 500 psi
8. Flooring Radiant Panel (ASTM E648): passes, Class 1;  $\geq 0.45$  watts/cm<sup>2</sup>
9. Smoke Density (ASTM E662): passes, < 450
10. Colors: Colors to be selected by Architect from full line of available colors.

- a. For bidding purposes, contractor shall figure one (1) color to be selected.

## 2.5 INSTALLATION MATERIALS AND ACCESSORIES:

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement-based formulation provided or approved by resilient product manufacturer for applications indicated. Provide all necessary components including, but not limited to, primers, aggregate, etc. Provide products from the following:

1. Feather Finish by Ardex Engineered Cements or prior approved equal
2. K15 as manufactured by Ardex Engineered Cements or prior approved equal

- B. Adhesives: As recommended by flooring manufacturer to meet specific project site conditions and substrate materials. Products might include the following as applicable.

1. Luxury Vinyl Flooring:
  - a. M-Guard V-88 Adhesive as manufactured by Mannington Commercial
    - i. Relative Humidity: 99% RH as determined per ASTM F2170
    - ii. Calcium Chloride: Max moisture level of 12lbs as determined by ASTM F1869
  - b. Prior Approved Equal
2. Vinyl Composition Tile:
  - a. S-515 Clear Thin Spread Tile Adhesive by Armstrong Flooring
  - b. Prior Approved Equal

3. Vinyl Wall Base:

- a. MR-101 Acrylic Wall Base Adhesive as manufactured by Mannington Commercial
- b. Prior approved equal.

- C. Extruded metal transition strips and trims at edge at adjacent materials and elevation differences. Transitions shall be in compliance with ADA/ ABA Accessibility Guidelines.

1. Provide edge protection, transitions (same height and sloped), and expansion joint profiles by Schluter Systems or prior approved equal. Architect to select trims and finishes for transition from manufacturer's full line. Trims and transitions shall include, but not limited to, the following:
  - a. Same Height Transitions: VPT ACGB or prior approved equal

- b. Sloped Transitions: Reno-AEU or prior approved equal
  - c. Surface and Expansion Joints: Dilex Series or prior approved equal
- D. When applicable provide threshold of thickness and width as shown on the drawings.

## 2.6 THRESHOLDS:

- A. Coordinate with transition thresholds as indicated on drawings and as specified within Sections 08410 and 08710.

## **PART 3 - EXECUTION**

### 3.1 INSPECTION:

- A. Examine substrates prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring.
- B. Inspect substrates prior to installation to determine that surfaces are free from residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.
- C. Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- D. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the substrates. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

### 3.2 PREPARATION:

- A. Prepare substrates according to flooring manufacturer's written instructions to ensure adhesion of resilient products.
- B. Smooth substrate surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints, and other defects with products as recommended by the manufacturer.
- C. Remove paint, coatings, and waxes that are incompatible with adhesives. Remove residual adhesives as recommended by the flooring manufacturer.
- D. Mechanically remove contamination on the substrate that may cause damage to the flooring. Permanent and non-permanent markers, pens, crayons, paint, etc., must not be used to write on the back of materials or used to mark the substrate as they could bleed through and stain the flooring materials.
- E. Fill cracks, holes, depressions and irregularities in the substrate with recommended patching compounds and remove bumps and ridges to produce a uniform and smooth substrate. Close all gaps with color-matched sealant.
  - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- F. Vacuum or broom clean surfaces to be covered immediately before the application of base. Make substrate free from dust, dirt, grease, and all foreign materials.
- G. Concrete Substrates: Prepare according to ASTM F710.
  - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor plank manufacturer. Do not use solvents.
  - 3. Alkalinity and Adhesion Testing: Perform tests recommended by floor plank manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 7 pH or more than 10 pH.
  - 4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor plank manufacturer's written recommendations, but not less stringent than the following:

- a. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates are equal to or below 90 percent relative humidity level.
- H. Do not install floor planks until they are the same temperature as the space where they are to be installed.
- I. At least 48 hours in advance of installation, move resilient floor plank and installation materials into spaces where they will be installed.

### 3.3 FLOOR PLANK INSTALLATION:

- A. Comply with manufacturer's written instructions for installing floor planks.
- B. Lay out floor planks from center marks established with principal walls, discounting minor offsets, so planks at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half plank at perimeter.
  - 1. Lay in pattern selected and directed by Architect.
- C. Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. unless otherwise noted.
- D. Extend floor planks into toe spaces, door reveals, closets, and similar openings. Extend floor planks to center of door openings. Abut plank to metal transition strips with Schluter floor trim as indicated on drawings.
- E. Match floor planks for color and pattern by selecting planks from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed planks.
  - 1. Lay planks with grain running in one direction in pattern of colors and sizes as selected and directed by Architect.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor planks as marked on substrates. Use chalk or other nonpermanent marking device.
- G. Where applicable, install planks on floor access covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of plank installed on covers and adjoining planks. Tightly adhere plank edges to substrates that abut covers and to cover perimeters.
- H. Scribe, cut, and fit floor planks to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- I. Roll with 100-pound roller in the field areas, as recommended by manufacturer. Refer to specific rolling instructions of the flooring manufacturer.
- J. Adhere floor planks to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

### 3.4 VINYL COMPOSITION TILE INSTALLATION:

- A. Install vinyl composition tile in strict compliance with manufacturer's written guidelines.
- B. Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
  - 1. Conform to specific pattern, layout and work points indicated on Drawings, where shown.
  - 2. Lay tiles square with room axis unless otherwise shown on Drawings.
- C. Match tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.

1. Lay tiles with grain direction in same direction (**no basket-weave pattern or checkerboarding**). Architect shall approve the tile layout pattern prior to installation.
- D. Scribe, cut, and fit tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including plumbing fixtures, built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosing's.
  - E. Extend tiles into toe spaces, door reveals, closets, and similar openings.
  - F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, non-staining marking device.
  - G. Adhere tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
    1. Hand roll resilient materials where required by flooring manufacturer.
- H. For vinyl composition tile, apply protective floor polish to horizontal surfaces that are free from soil, visible adhesive, and surface blemishes.
    1. Use products recommended by flooring manufacturer.
    2. Use commercially available product acceptable by the flooring manufacturer.
    3. Coordinate selection of floor polish with Owner's maintenance service.

### 3.5 INSTALLATION OF ACCESSORIES:

- A. Comply with manufacturer's written instructions for installation of resilient base.
- B. Apply resilient base as indicated on drawings to walls, columns, pilasters, and other permanent fixtures in rooms and areas where base is required (unless otherwise indicated).
- C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. Corners: Abutting joints must be neatly fit without gaps, mis-cuts, etc.
- G. Apply metal edge/transition strips where between differing flooring types and where shown on drawings per manufacturer's standard installation for project specific conditions. Secure units to the substrate, complying with manufacturer's recommendations.

### 3.6 CLEANING AND PROTECTION:

- A. Comply with flooring manufacturer's written instructions for cleaning and protection of flooring products.
- B. Perform the following operations immediately after completing installation:
  1. Remove adhesive and other blemishes from exposed surfaces. Deep Clean, prep and condition new floor surfaces to remove manufacturing residue and ground in installation debris.
  2. Sweep and vacuum surfaces thoroughly.
  3. Damp wipe surfaces to remove marks and soil.
- C. Wait 72 hours after installation before performing initial cleaning.
- D. Perform the regular maintenance until project acceptance of Substantial Completion. Instruct Owner of regular maintenance program procedures.
- E. Protect flooring from marks, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

**END OF SECTION**

## **SECTION 09680**

### **CARPET**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of carpet work in this project shall be as shown on drawings and as specified herein. It shall include all labor, materials, and equipment necessary for complete installation. This section includes, but is not limited to, the following:
  - 1. Carpet plank for floors
  - 2. Connectors, accessories, and trims

##### 1.2 RELATED SECTIONS:

- A. Section 03300 – Concrete
- B. Section 06200 – Finish Carpentry
- C. Section 08210 – Flush Wood Doors
- D. Section 08710 – Finish Hardware
- E. Section 09260 – Gypsum Wallboard Systems
- F. Section 09650 – Resilient Vinyl Flooring

##### 1.3 DEFINITIONS:

- A. Shading: A localized change in appearance of the carpet brought about by the tufts leaning in different directions. Shading may be temporary or permanent.
- B. Temporary Shading: Localized surface effects where the pile is disturbed by normal conditions of use such as footmarks, scuffmarks and vacuum marks, which can be removed or changed in appearance by brushing or vacuuming.
- C. Permanent Shading: A type of pile reversal that exhibits itself visually and is permanent.
  - 1. Tracking: A form of permanent shading resulting from traffic patterns within an installation. The main lines of traffic and turning points of traffic are susceptible to this type of shading and are predictable.
  - 2. Random Permanent Shading: Other terms commonly used to describe this type of change in appearance include watermarking and pooling. Random permanent shading effects are not related to known traffic patterns within an installation. Areas of random permanent shading may vary in shape size and orientation through the installation resulting in a random patterning, which can cross seams. Areas appear light from one direction and dark from another. Carpet may look as though water has been spilled (in pools) on areas of the carpet in random, irregular patterns.

##### 1.4 PERFORMANCE REQUIREMENTS:

- A. Test Reports: Test reports for the following performance assurance tests shall be submitted upon request. Submitted results shall represent average results for production goods of the referenced style. All carpet products shall meet the following:
  - 1. Carpets:
    - a. Dimensional Stability (Aachen Test): Passes
    - b. Electrostatic Propensity (AATCC 134): < 3.0 kV
    - c. Flooring Radiant Panel (ASTM E648): Passes – Class 1;  $\geq 0.45$  watts/cm<sup>2</sup>
    - d. Smoke Density (ASTM E662): Passes;  $\leq 450$
    - e. Methenamine Pill Test (ASTM D2859): Passes
    - f. Hexapod (ASTM D5252) TARR: 3.5

## 1.5 SUBMITTALS:

- A. Standards: All manufacturers' product submittals shall be in accordance with General and Supplementary Conditions of the Contract for Construction and Division 1 requirements.
- B. Product Data: Submit manufacturer's product literature and delivery, storage, handling, and installation instructions for each type of carpet, accessory item, and installation material required. Include methods of installation for each type of substrate.
  - 1. Submit written data on physical characteristics and flame resistance characteristics.
  - 2. Submit written recommendations from carpet manufacturers on carpet adhesive.
- C. Samples for Selection: Provide 1 finish selector of all available colors for Architect's review.
- D. Samples for Verification Purposes: Provide 2 manufacturer's physical examples, showing full range of color, texture, and pattern variations expected for Architect to verify initial selection. Prepare Samples from same material to be used for the Work. Submit the following:
  - 1. Carpet: Full size pieces
  - 2. Accessories and Trims: 12-inch-long sections
- E. Shop Drawings: Show the following:
  - 1. Seaming Diagrams: Dimensioned drawings showing carpet layout (seam locations, carpet orientation, etc.). Verify field conditions and include field measurements. Comply with manufacturer's instructions for seam location and for lay of carpet. Clearly indicate the following:
    - a. Seam locations, types, and methods
    - b. Carpet type, color, and dye lot
    - c. Pattern type, repeat size, location, direction and center point
    - d. Type, color and location of carpet insets and borders
    - e. Critical pattern match relationships between carpet types
    - f. Direction and lay of pile
    - g. Installation starting point and sequencing
    - h. Installation method for each space, location, or carpet type
    - i. Pattern match relationship at stair installations
    - j. Type and location of edge, transition, and other accessory strips
    - k. Transition details to other flooring materials
    - l. Location of building expansion joints and joint/ carpet details
    - m. Indicate columns, doorways, enclosing walls/ partitions, built-in cabinets, and locations where cutouts are required in carpet
    - n. Installation details at any special conditions
- F. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention in submittal.
- G. Certification: Submit manufacturer's certificate stating that materials furnished comply with specified requirements for fire performance characteristics and physical properties and warranty requirements.
  - 1. Test Reports: Submit certified laboratory test data and reports evidencing material compliance with requirements for the following:
    - a. Fire performance characteristics
- H. Acceptance of Substrate: Provide letter of substrate acceptance, signed by Contractor, Manufacturer, and Installer as defined herein:
  - 1. Contractor, Manufacturer, and Installer shall review substrate testing including results of moisture testing and bond / adhesion test reports and any other tests required by

manufacturer prior to accepting substrate. Inform Architect of substrate testing results indicating non-compliance or failure.

- I. Bond and Adhesion Test Reports: Submit certified test data and reports on bond and moisture tests for concrete subfloors. Distribute copies to Installer, carpet manufacturer, Contractor, adhesive manufacturer, and Architect for review prior to installation.
- J. Floor Flatness Documentation:
  - 1. Submit certification that floor flatness criteria established herein has been maintained in areas to receive carpet.
  - 2. Maintenance Manual: Submit copies of manufacturers' instructions for daily and periodic maintenance of all installed carpet types. Include methods and frequency recommended for maintaining carpet in optimum conditions under anticipated traffic and use conditions. Include cleaning and stain removal products and procedures recommended. Include precautions against products and methods, which may be detrimental to appearance and performance. Include instructions for repairing materials.
- K. Maintenance Training: Prior to Substantial Completion, review maintenance manual with Owner's maintenance staff and demonstrate recommended methods for cleaning and maintaining carpet.
- L. Warranty: Submit manufacturers and Installer's sample warranties.

#### 1.6 QUALITY ASSURANCE:

- A. Source of Materials:
  - 1. Carpet Materials: To ensure matching of quality, color, pattern, and texture, install materials produced from same dye lot and production run. Where materials cannot be obtained from a single lot or production run, notify the Architect so that the extent and use of each lot or run can be controlled.
  - 2. Carpet and Installation Materials and Accessories: Provide material obtained from one single source for each type of material used in the Work. Do not change source or brands of materials during progress of Work.
- B. Qualifications:
  - 1. Installer must be approved and certified by the Manufacturer.
- C. Manufacturer Qualifications: Upon request by Architect, manufacturer shall provide representative to assist in project start- up and to inspect installation while in process and upon completion.
- D. Fire-Test-Response Characteristics: Provide products with the critical radiant flux classification indicated herein, as determined by testing identical products per ASTM E648 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- E. Test concrete subfloors for compliance with ASTM F2170 and for determining adhesion and dryness characteristics.
- F. ADA/ ABA Accessibility Guideline Compliance: Carpet, as installed, shall be securely attached to the subfloor in compliance with ADA/ ABA.
- G. Pre-installation Conference: One week prior to commencing Work of this Section, conduct pre-installation conference at Project site to comply with requirements in Divisions 0 and 1.
  - 1. Required Attendees: Manufacturer's representative, Installer, Contractor, and Architect.
  - 2. Inspect condition of substrate and other preparatory work performed by other trades. Discuss any corrections required to substrates or other work required for installation of carpet.
  - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review special carpet designs and patterns.
  - 5. Review dust control procedures.
  - 6. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions.

1.7 DELIVERY, STORAGE, AND HANDLING:

- A. General: Comply with CRI 104, Section 5, "Storage and Handling."
- B. Delivery: Deliver materials to Project site in original factory wrappings and containers, labeled with identification of manufacturer, brand name, and lot number.
- C. Storage: Store materials in protective packaging to prevent damage prior to installation. Comply with manufacturer's instructions and recommendations.
  - 1. Lay flat, on continuous blocking off ground.
  - 2. Keep materials dry at all times. Protect against exposure to weather and contact with damp or wet surface.
  - 3. Protect adhesives from freezing. Follow manufacturer's recommendations for minimum temperatures to which adhesives are exposed.

1.8 PROJECT CONDITIONS:

- A. General: Comply with CRI 104, Section 7.2, "Site Conditions; Ambient Temperature and Humidity Suitable Substrates."
- B. Space Enclosure and Environmental Limitations: Do not install carpet until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will continuously be maintained at values anticipated for final occupancy.
- C. Subfloor Moisture Conditions: Do not install carpet over concrete slabs until they have cured nor over existing substrates until they are sufficiently dry. The moisture emission rate shall be acceptable to carpet and carpet adhesive manufacturers per the In Situ Relative Humidity Test in accordance with ASTM F 2170 guidelines, but in any case, not more than 95% for new concrete slabs.

**NOTE:** Application substrates shall show no condensation within 48 hours on underside of 4 foot by 4 foot polyethylene sheet, fully taped at perimeter to substrate.

- D. Subfloor Alkalinity Conditions: A pH range acceptable to carpet and carpet adhesive manufacturers, but in any case, not more than 10, when subfloor is wetted with distilled water and pHDrion paper is applied.

1.9 CARPET WARRANTIES:

- A. Manufacturer's Warranty: Carpet warranty shall be the sole responsibility of the manufacturer. Second source warranties and warranties that involve parties other than the carpet manufacturer are unacceptable.
  - 1. Limited Lifetime Warranty: Warranty shall cover against:
    - a. Face wear
    - b. Moisture barrier
    - c. Delamination
    - d. Tuft bind
    - e. Unraveling
    - f. Static protection
  - 2. Bleach Resistant Warranty: ColorSafe with limited lifetime warranty against color loss from bleach spills
  - 3. Stain Resistant Warranty: XGuard with limited lifetime warranty against stains
  - 4. If the product fails to perform as warranted when properly installed and maintained, the affected area shall be repaired or replaced at the discretion of the manufacturer.
  - 5. Chair pads are recommended, but not required for carpet warranty coverage.
- B. Installer's Warranty: Flooring contractor shall provide Owner a written installation warranty that guarantees the completed installation to be free from defects in materials and workmanship.

1. Warranty Period: One (1) year from date of Substantial Completion.

1.10 EXTRA MATERIALS:

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Carpet: Equal to 5 percent of amount installed for each color indicated, but not less than 10 sq. yd.
    - a. Provide percent overage of calculated yardage for each type of carpet (include carpet needed for complete installation plus waste and usable scraps in calculated yardage) as specified by Architect and/ or Owner.
- B. Usable Scraps: Upon completion of the carpet installation, deliver usable scraps to the Owner. Package usable scraps per manufacturer's instructions and clearly label and identify packages. "Usable scraps" will not be accepted as inventory requirement for replacement/ maintenance materials.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS:

- A. Basis of Design: The products in this Section are as manufactured by Mannington Commercial
- B. Alternate Manufacturers: Other acceptable manufacturer's products, pending approval of specific products by the Architect indicating compliance with requirements of this specification, may include the following:

1. Prior Approved Equal

2.2 MATERIALS:

- A. Urban Patina Collection - Elevation as manufactured by Mannington Commercial or Prior Approved Equal
1. Product Type: Modular
  2. Construction: Textured Patterned Loop
  3. Face Fiber: ECONYL 100% Regenerated Type 6 Nylon
  4. Dye Method: Solution
  5. Gauge: 5/64
  6. Stitches Per Inch: 9.16
  7. Pile Thickness: 0.091 inches
  8. Backing Type: Infinity 2
  9. Density: 5,538
  10. Standard Size: 18" x 36" Modular Tiles
  11. Adhesive: Infinity Adhesive
  12. Installation Method: Monolithic, Quarter-turn, Horizontal Brick Ashlar, Vertical Ashlar Herringbone, or Shuffled / Radom Pattern as selected by Architect
  13. Colors: As selected by Architect from manufacturer's full color line.
- B. Urban Patina Collection - Span as manufactured by Mannington Commercial or Prior Approved Equal
1. Product Type: Modular
  2. Construction: Textured Patterned Loop
  3. Face Fiber: ECONYL 100% Regenerated Type 6 Nylon
  4. Dye Method: Solution
  5. Gauge: 5/64

6. Stiches Per Inch: 8.83
  7. Pile Thickness: 0.091 inches
  8. Backing Type: Infinity 2
  9. Density: 5,538
  10. Standard Size: 18" x 36" Modular Tiles
  11. Adhesive: Infinity Adhesive
  12. Installation Method: Monolithic, Quarter-turn, Horizontal Brick Ashlar, Vertical Ashlar Herringbone, or Shuffled / Radom Pattern as selected by Architect
  13. Colors: As selected by Architect from manufacturer's full color line.
- C. For bidding purposes, General Contractor shall figure two (2) colors to be selected from either carpet line for entire project.

### 2.3 ACCESSORIES:

- A. Wall Base: See Section 09650 for requirements and Drawings for locations.
- B. Leveling and Patching Compound: Latex type recommended by carpet manufacturer and acceptable to adhesive manufacturer.
  1. Feather Finish by Ardex Engineered Cements or prior approved equal
  2. K15 as manufactured by Ardex Engineered Cements or prior approved equal
- C. Adhesives: Water-resistant, mildew-resistant, non-staining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and that is recommended by carpet manufacturer.
  1. Mannington Infinity 2 Adhesive, XpressStep Adhesive, or prior approved equal that is compatible with flooring and approved by flooring manufacturer.
    - a. Relative Humidity: 95% RH as determined per ASTM F2170
    - b. Max moisture level: 10lbs / 1,000 sq. ft. / 24 hours as determined by ASTM F1869
- D. Floor Transition Profiles:
  1. Description: Extruded metal transition strips and trims at edge at adjacent materials and elevation differences. Transitions shall be in compliance with ADA/ ABA Accessibility Guidelines.
  2. See Sections 09300 and 09650 for coordination with adjacent flooring transition strips.
  3. Provide edge protection, transitions (same height and sloped), and expansion joint profiles by Schluter Systems. Architect to select trims and finishes for transition from manufacturer's full line. Trims and transitions shall include, but not limited to, the following:
    - a. Same Height Transitions: VPT ACGB or prior approved equal
    - b. Sloped Transitions: Reno-AEU or prior approved equal
    - c. Surface and Expansion Joints: Dilex Series or prior approved equal

## **PART 3 - EXECUTION**

### 3.1 INSPECTION:

- A. Substrate Conditions: Inspect application surfaces to determine that they are free from defects impairing performance or appearance of the installed materials. Application surfaces shall be:
  1. Straight and true to plane within 1/8 inch in 8 feet, without local irregularities and abrupt changes in plane which could telegraph through new materials.
  2. Smooth and free from cracks, holes, ridges and similar defects.
  3. Clean and free from foreign materials including incompatible curing compounds, paint, oils, waxes, sealers, grease and similar substances which would prevent adhesive bond.

- B. Testing: Perform tests on concrete substrates to determine if surfaces are sufficiently cured and dry as well as to ascertain presence of curing compounds and other coatings, which would prevent adhesive bond. All results shall be given to Architect for review prior to proceeding. Floor testing shall include but may not be limited to:
  - 1. pH level analysis
  - 2. Calcium Chloride Tests
  - 3. Relative Humidity Tests
- C. Acceptance: Start of carpet installation will be considered acceptance by Installer, Contractor, and manufacturer of conditions as satisfactory for proper installation. Do not proceed with carpet installation until application surfaces are free from defects that would impair the in-use performance and appearance of carpet.

### 3.2 PREPARATION:

- A. General: Prepare unsatisfactory application surfaces as follows:
  - 1. Fill, level and make smooth cracks 1/16 inch or more, holes, unevenness, and roughness with compatible latex floor patching compounds recommended by carpet manufacturer. Feather floor filling or leveling compound a minimum of 4 feet. Sweep floor of loose granular debris prior to filling. After filling, allow filler to dry. Damp mop floor with warm water and allow to dry. Vacuum after mopping to ensure that loose granular debris is removed and to provide a proper substrate to install carpet. Prohibit traffic until filler is cured.
  - 2. Remove ridges and surface irregularities by grinding or sanding.
  - 3. Remove foreign materials and coatings by grinding, scraping, sanding and then washing as necessary.
- B. Cleaning: Vacuum floor again immediately before installation of carpeting, re-inspect substrates, and perform additional preparation work if necessary.
- C. Sealing: Apply sealer, if recommended by carpet/ adhesive manufacturers, prior to application of adhesive. Apply in compliance with manufacturer's directions.
- D. Adhesive: Confirm compatibility of adhesive (as recommended by manufacturer) with curing compounds on concrete floors.
- E. Preheat areas to receive carpet to a minimum temperature of 68 degrees F for 72 hours prior to installation, with a relative humidity of not more than 65 percent. Maintain minimum temperature of 50 degrees F thereafter. Carpet and adhesive must be stored at a minimum temperature of 68 degrees F, for 72 hours prior to installation.
- F. Store adhesive and other liquid materials in same atmospheric conditions as carpet, 68 degrees F for at least 72 hours.

### 3.3 INSTALLATION, GENERAL:

- A. General: Follow manufacturer's instructions for installation. Butt edges tight to form seams without gaps. Roll entire area lightly to eliminate air pockets and ensure uniform bond.
- B. Layout: Comply with Architect approved seam and pattern layout as submitted. Comply with manufacturer's recommendations for seam locations and layout; maintain uniformity of carpet direction and lay of pile in relation to Architect's approved layout.
- C. Extent of Flooring: Extend flooring materials into toe spaces, door reveals, alcoves, closets, and similar openings.
  - 1. Extend carpet under furniture and furnishings, movable equipment, operable partitions, removable flanges and similar non-fixed items.
- D. Cutouts: Provide cutouts where required, and bind cut edges where not concealed by protective edge guards or overlapping flanges.
- E. Edge Guard: Install carpet edge guard where edge of carpet is exposed; anchor guards to substrate.
- F. Pattern: Coordinate with Architect for approval of pattern layout.

3.4 INSTALLATION METHOD:

- A. Manufacturer's Instructions: Comply with manufacturer's recommendations and instructions.
- B. Installation Method: Install manufacturer's adhesive compatible with carpet tiles specified. Use manufacturer's approved quantity of adhesive for carpet layout.
  - 1. Butt edges to form tight seams without gaps. Roll entire area lightly to eliminate air pockets and ensure uniform bond.

3.5 CLEANING AND PROTECTION

- A. Cleaning: Remove and dispose of debris and scraps. Vacuum with commercial machine with face-beater element. Remove soil. Replace carpet where soil cannot be removed. Remove protruding face yarn.
- B. Protection: Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, to ensure carpet is not damaged or deteriorated at time of Substantial Completion.
- C. Workmanship: Completed carpet work shall be clean and free from damage and defective materials and workmanship. Seams shall be snug, and carpeting shall be smooth and uniform, without humps and wrinkles. Edge strips shall be securely fastened and neatly fitted. There shall be no excess adhesive on carpeting and other surfaces.
  - 1. Removal and replacement of such defects will be required throughout the period specified for correction of defective work for this Project.

**END OF SECTION**

## **SECTION 09900**

### **PAINTING**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of painting work in this project shall be as shown on drawings and specified herein. It shall include all labor, materials, and equipment necessary for a complete finished installation.
- B. If the schedule herein requires two or more types of painting on the same substrate, the type will be distinguished by the term "paint" meaning an opaque finish (flat, satin, semi-gloss, gloss sheens) and "transparent" meaning a non-opaque, transparent finish (varnishes, stains).

##### 1.2 RELATED SECTIONS:

- A. Section 02600 – Concrete Paving
- B. Section 02745 – Recycled Asphalt Paving (RAP)
- C. Section 03300 – Cast-In-Place Concrete
- D. Division 5 – Metals
- E. Section 06200 – Finish Carpentry
- F. Section 07460 – Cementitious Boards and trims
- G. Section 07900 – Sealants
- H. Section 08210 – Flush Wood Doors
- I. Section 08310 – Access Door Panels
- J. Section 09260 – Gypsum Wallboard Systems
- K. Shop coats on fabricated items and structural steel
- L. Factory-applied finishes

##### 1.3 DEFINITIONS:

- A. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, coatings, stains, sealers and fillers.
- B. "Exposed surfaces" include portions of the completed construction which are visible when permanent and built-in fixtures and equipment are in place.
- C. "Exterior" includes portions of the completed construction which are subject to outdoor ambient temperature and humidity conditions, including covered but unenclosed areas.
- D. Surfaces to be Painted: Complete coverage of all exposed surfaces is intended, unless indicated "no paint" on drawings. Without restricting the extent of the work to be performed, the work shall include, but is not limited to, the following:
  - 1. Wood: Painting of all exposed woodwork and finish carpentry, interior and exterior, doors and of all architectural woodwork and finish carpentry, except that specified to be pre- finished.
  - 2. Structural Steel: Touch-up after erection (concealed work only), and complete painting for all exposed work.
  - 3. CMU, Masonry, and Plaster: All exposed surfaces.
  - 4. Ferrous Metal: All exposed surfaces of all ferrous metal work, including galvanized, both exterior and interior of building which is not finished painted under other sections, to include steel frames, steel doors, access panels, guards, lintels, gutters, gravel guards, metal flashings, railings (unless otherwise indicated), roof accessories, steel supports, sprinkler riser, roof hatch and grates, bollards, etc.
  - 5. Concrete Slab: Concrete sealer for slabs scheduled to remain a concrete surface.
  - 6. Gypsum Drywall: All exposed surfaces.
  - 7. Concrete: Sidewalk curbs, handicapped ramps, site light bases, parking striping, directional arrows, etc. (when indicated on drawings).
  - 8. All Previously Painted Surfaces.
- E. Surfaces Not to be Painted: The following areas or items will not require painting under this Section, unless otherwise noted:

1. Concealed duct shafts, concealed spaces, concealed pipes and ducts.
2. Acoustical tile and suspension system.
3. Pre-finished panels.
4. Structural steel work concealed by interior building finish.
5. Gypsum drywall surfaces to receive other finish materials.
6. Equipment platform decking.

#### 1.4 QUALITY ASSURANCE:

- A. **Single Source Responsibility:** Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.
- B. **Compatibility:** Review other Sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on finish materials to be used, to enable use of compatible prime coats. Notify the Architect of anticipated problems using the specified materials.
- C. **Industry Standards:** Comply with the recommendations of the Painting and Decorating Contractors of America, as contained in "PDCA Architectural Specification Manual", except where conflicting and more stringent requirements are specified in this Section.
- D. **Applicator Qualifications:** Engage an experienced applicator who has completed painting system applications similar in material and extent to those indicated for the Project that have resulted in a construction record of successful in-service performance.
- E. **Cooperation with Other Trades:** This work shall be scheduled and coordinated with other trades and shall not proceed until other work and/ or project conditions are as required to achieve satisfactory results. General Contractor shall examine the Specifications for the various other trades and materials and shall thoroughly familiarize himself with all their provisions regarding painting.

#### 1.5 SUBMITTALS:

- A. **Product Data:** Submit manufacturer's technical information including paint label analysis with handling, storage and application instructions for each material proposed for use. Identify purpose (primer, intermediate or finish coat) and substrate for each paint material.
- B. **Samples:** Prior to beginning work submit samples for review of color and texture only. Provide a listing of material for each coat of each finish sample.
  1. On 12" x 12" gypsum board and CMU, provide one sample of each color and material. Resubmit samples as requested by Architect until acceptable sheen, color, and texture is achieved.
  2. On 12" x 12" section of plaster, provide one sample of each color and material. Resubmit samples as requested by Architect until acceptable sheen, color, and texture is achieved.
- C. Provide one sample of natural and stained wood finish. Use wood samples approved for Sections 06100, 06200, and 08210 (where applicable). Label and identify each as to location and application.
- D. On completed wall surfaces and other building components, where directed by the Architect, duplicate painted finishes of approved samples. Provide full-coat finish samples on at least 100 sq. ft. of surface, until required sheen, color and texture is obtained; simulate finished lighting conditions for review of in-place work.
  1. Final acceptance of colors will be from samples applied on the job.
  2. Approved on-site samples will be the standard for acceptance of the permanent work, which shall match approved samples in color, sheen, texture, hiding powers, application workmanship, and other appearance characteristics. Identify, preserve and protect on-site samples.

1.6 DELIVERY, STORAGE, AND HANDLING:

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent based materials, and materials used with solvent based materials, in accordance with requirements of local authorities having jurisdiction.
- C. Storage of Materials:
  - 1. Store all materials in a single place designated by the General Contractor. The storage place shall be kept neat and clean and all damage shall be made good. Remove soiled or used rags, waste and trash from the building every night and take every precaution to avoid the danger of fire.
  - 2. Emulsion paints shall be protected from exposure to cold weather by storing in shelters so as to prevent freezing of the paint.
- D. Disposal:
  - 1. Never pour leftover coatings down any sink or drain. Use up material on the job or seal can and store safely for future use.
  - 2. Do not incinerate closed containers.
  - 3. For specific disposal contact the local waste management agency.

1.7 ENVIRONMENTAL CONDITIONS:

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limitations recommended by manufacturer for optimum results.
- B. Maintain temperature in building at a constant 65 °F or above during drying of plaster and masonry and provide adequate ventilation for escape of moisture from building in order to prevent mildew, damage to other work and improper drying of paint. Once painting has commenced, provide a constant temperature of 65 °F or above and prevent wide variations in temperature which might result in condensation on freshly painted surfaces.
- C. Exterior painting shall not be performed when the temperature is below 50 °F, while the surface is damp, during cold, rain or frosty weather, or when temperature is likely to drop to freezing within 24 hours. Avoid painting surfaces while they are exposed to hot sun.
- D. Cleaning Area: Before painting is started in any area, it shall be broom-cleaned and dust shall be removed from all areas to be painted. After painting operations begin in a given area, broom cleaning will not be allowed. Cleaning shall then be done only with commercial vacuum cleaning equipment.

1.8 PROTECTION:

- A. Drop Cloths: Protect adjacent areas and installation by the use of drop cloths or other approved precautionary measures.
- B. Hardware and Fixtures: Remove and protect hardware, accessories, device plates, lighting fixtures, factory finished work and similar items or provide ample in-place protection. Upon completion of each space, carefully replace all removed items. This work shall be done only by skilled mechanics, using adequate tools commensurate with the work to be done.

1.9 WARRANTY:

- A. Inspection of all surfaces to be coated must be done by the manufacturer's representative to insure proper preparation prior to application (General Contractor to coordinate). All thinners, fillers, primers, and finish coatings shall be from the same manufacturer to support a product warranty. Products other than those submitted shall be accompanied by a letter stating its fitness for use and compatibility.
- B. At project closeout, provide to the Owner executed copies of the Manufacturer's standard form outlining the terms and conditions of any exclusions to their Limited Warranty against Manufacturing Defect.

#### 1.10 EXTRA MATERIALS:

- A. Deliver extra materials to Owner. Furnish extra materials that match products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents.
- B. Paint, Primers, Accessories, Etc.: Provide minimum of 1 gallon of each paint type and color used for touch-up purposes. Cans shall be clearly marked with color name, number, and type of paint.
- C. At project closeout, provide the color mixture name and code to the Owner for accurate future color matching.

### **PART 2 - PRODUCTS**

#### 2.1 MANUFACTURERS:

- A. Basis Of Design: For purposes of designating type and quality for the work under this Section, drawings and specifications are based on products manufactured or furnished by Benjamin Moore & Company (BMC), except as noted specifically otherwise.
- B. Acceptable Manufacturers: The following manufacturers may have products meeting the herein specified quality that will be acceptable as approved, upon specific product review by the Architect:
  - 1. PPG Industries, Pittsburgh Paints
  - 2. Tnemec
  - 3. Prior Approved Equal

#### 2.2 PAINT MATERIALS:

- A. Except where specifically noted in this section, all paint shall arrive on job ready mixed and pre-tinted. Agitate all paint prior to and during application to ensure uniform color, gloss, and consistency.
- B. Thinner addition shall not exceed manufacturer's printed recommendations. Do not use kerosene or other organic solvents to thin water based paints.
- C. Where paint is to be sprayed, thin according to manufacturer's current written guidelines.
- D. Compatibility: Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

#### 2.3 APPLICATION EQUIPMENT:

- A. Equipment shall be adequate and commensurate for the work and workmanship required herein.

#### 2.4 ACCESSORY MATERIALS:

- A. This shall include all required ladders, scaffolding, drop cloths, masking, scrapers, tools, sandpaper, dusters, cleaning solvents and other items required to perform the work and achieve the results herein specified.

### **PART 3 - EXECUTION**

#### 3.1 EXAMINATION:

- A. The General Contractor and Installer shall review the product manufacturer's special instructions for surface preparation, application, temperature, re-coat times, and product limitations.
- B. The General Contractor and Installer shall review product health and safety precautions listed by the manufacturer.
- C. The General Contractor and Installer shall be responsible for enforcing on site health and safety requirements associated with the Work.
- D. Do not begin installation until substrates have been properly prepared.
- E. Ensure that surfaces to receive paint are dry immediately prior to application.

- F. Ensure that moisture retaining substrates to receive paint have moisture content within tolerances allowed by coating manufacturer. Where exceeding the following values, promptly notify Architect and obtain direction before beginning work.
  - 1. Concrete and Masonry: 3-5 percent. Allow new concrete to cure a minimum of 28 days.
  - 2. Exterior Wood: 17 percent.
  - 3. Interior Wood: 15 percent.
  - 4. Interior Finish Detail Woodwork, Including Trim, and Casework: 10 percent.
  - 5. Plaster and Gypsum: 15 percent.
  - 6. Concrete Slab-On-Grade: Perform calcium chloride test over 24 hour period or other acceptable test to manufacturer. Verify acceptable moisture transmission and pH levels.
- G. Examine surfaces to receive coatings for surface imperfections and contaminants that could impair performance or appearance of coatings, including but not limited to, loose primer, unsound previous coating, rust, scale, oil, grease, mildew, algae, or fungus, stains or marks, cracks, indentations, or abrasions.
- H. Correct conditions that could impair performance or appearance of coatings in accordance with specified surface preparation procedures before proceeding with coating application.

### 3.2 PREPARATION – GENERAL:

- A. Clean surfaces thoroughly prior to coating application.
- B. Do not start work until surfaces to be finished are in proper condition to produce finished surfaces of uniform, satisfactory appearance.
- C. Stains and Marks: Remove completely, if possible, using materials and methods recommended by coating manufacturer; cover stains and marks which cannot be completely removed with isolating primer or sealer recommended by coating manufacturer to prevent bleed-through.
- D. Remove Mildew, Algae, and Fungus using materials and methods recommended by coating manufacturer.
- E. Remove dust and loose particulate matter from surfaces to receive coatings immediately prior to coating application.
- F. Remove or protect adjacent hardware, electrical equipment plates, mechanical grilles and louvers, lighting fixture trim, and other items not indicated to receive coatings.
- G. Move or protect equipment and fixtures adjacent to surfaces indicated to receive coatings to allow application of coatings.
- H. Protect adjacent surfaces not indicated to receive coatings.
- I. Prepare surfaces in accordance with manufacturer's instructions for specified coatings and indicated materials, using only methods and materials recommended by coating manufacturer.

### 3.3 SURFACE PREPARATION:

- A. Concrete and Concrete Masonry: Clean surfaces free of loose particles, sand, efflorescence, laitance, form oil, curing compounds, and other substances which could impair coating performance or appearance.
- B. Concrete Floors: Remove contaminants which could impair coating performance or appearance. Verify moisture transmission and alkaline-acid balance recommended by coating manufacturer; mechanically abrade surface to achieve 80-100 grit medium-sandpaper texture.
- C. Existing Coatings:
  - 1. Remove surface irregularities by scraping or sanding to produce uniform substrate for coating application.
  - 2. Maintenance painting will frequently not permit or require complete removal of all old coatings prior to repainting. However, all surface contamination such as oil, grease, loose paint, mill scale, dirt, foreign matter, rust, mold, mildew, mortar, efflorescence, and sealers must be removed to assure sound bonding to the tightly adhering old paint. Surfaces of old paint films must be clean and dull before repainting (dull surface by sanding). After preparation, coat entire surface with primer (including well adhered previous coatings). **Check for compatibility (and bond of previous coatings) by applying a test patch of the recommended coating system, covering at least 2 to 3 square feet. Allow to dry one**

**week before testing adhesion per ASTM D3359. If the coating system is incompatible, or the bond of previous coating to substrate beneath is inadequate, complete removal of existing coatings is required. Provide test results for Architect's review showing compliance prior to ordering materials.**

- D. Gypsum Board: Repair cracks, holes and other surface defects with joint compound to produce surface flush with adjacent surfaces.
- E. Masonry Surfaces - Restored: Remove loose particles, sand, efflorescence, laitance, cleaning compounds and other substances that could impair coating performance or appearance.
- F. Metals - Aluminum, Mill-Finish: Clean and etch surfaces with a phosphoric acid-water solution or water based industrial cleaner. Flush with clean water and allow to dry, before applying primer coat.
- G. Metals - Copper: Clean surfaces with pressurized steam, pressurized water, or solvent washing.
- H. Metals - Ferrous, Unprimed: Remove rust or scale, if present, by wire brush cleaning, power tool cleaning, or sandblast cleaning; remove grease, oil, and other contaminants which could impair coating performance or appearance by solvent cleaning, with phosphoric-acid solution cleaning of welds, bolts and nuts; spot-prime repaired welds with specified primer.
- I. Metals - Ferrous, Shop-Primed: Remove loose primer and rust, if present, by scraping and sanding, feathering edges of cleaned areas to produce uniform flat surface; solvent-clean surfaces and spot-prime bare metal with specified primer, feathering edges to produce uniform flat surface.
- J. Metals - Galvanized Steel (not passivated): Clean with a water-based industrial strength cleaner, apply an adhesion promoter followed by a clean water rinse. Alternately, wipe down surfaces using clean, lint-free cloths saturated with xylene or lacquer thinner; followed by wiping the surface dry using clean, lint-free cloths.
- K. Metals - Galvanized Steel, Passivated: Clean with water-based industrial strength cleaner. After the surface has been prepared, apply recommended primer to a small area. Allow primer to cure for 7 days, and test adhesion using the "cross-hatch adhesion tape test" method in accordance with ASTM D3359. If the adhesion of the primer is positive, proceed with a recommended coating system for galvanized metal.
- L. Metals - Stainless Steel: Clean surfaces with pressurized steam, pressurized water, or water-based industrial cleaner.
- M. Plaster: Repair cracks, holes and other surface defects as required to maintain proper surface adhesion. Apply patching plaster or Joint compound and sand to produce surface flush with adjacent undamaged surface. Allow a full cure prior to coating application as recommended by the patching compound manufacturer's recommendations.
- N. Polyvinyl Chloride (PVC) Pipe: Remove contaminants and markings with denatured alcohol scuff sand and wipe with solvent for maximum adhesion. Test adhesion before starting the job.
- O. Fiberglass Doors: Remove contaminants with cleaning solvent (alcohol) scuff sand and wipe. Test adhesion of primer before starting job.
- P. Textiles - Insulated Coverings, Canvas or Cotton: Clean using high-pressure air and solvent of type recommended for material.
- Q. Wood:
  - 1. Seal knots, pitch streaks, and sap areas with sealer recommended by coating manufacturer; fill nail recesses and cracks with filler recommended by coating manufacturer; sand surfaces smooth.
  - 2. Remove mill marks and ink stamped grade marks.
  - 3. Apply primer coat to back of wood trim and paneling.
- R. Wood Doors: Seal door tops and bottoms prior to finishing.
- S. Wood Doors - Field-Glazed Frames and Sash: Prime or seal glazing channels prior to glazing.

### 3.4 MIXING:

- A. Quality: At time of application, paint shall show no signs of hard settling, excessive skinning, livering or other deterioration.
- B. Consistency: Paint shall be thoroughly stirred, strained and kept at a uniform consistency during application.

- C. Prohibited Mixing: Paint of different manufacturers shall not be mixed together.
- D. Thinning: Where necessary to suit conditions of surface, temperature, weather and method of application, packaged paint may be thinned immediately prior to application in accordance with the manufacturer's directions. The use of thinner for any reasons shall not relieve the Installer from obtaining complete hiding coverage.
- E. Colorant: Primer may be tinted with a colorant recommended by the manufacturer.

### 3.5 APPLICATION – GENERAL:

- A. Application of primers, paints, stains or coatings, by the Installer, will serve as acceptance that surfaces were properly prepared in accordance with the manufacturer's recommendation.
- B. Method of Application: Paint shall be applied in accordance with manufacturer's recommendations. On masonry surfaces, filler coat and other first coats shall be applied by brush. Subsequent coats shall be applied by brush (or roller, on smooth faced units). On all other surfaces, prime and finish coats may be applied by brush or roller.
- C. General Requirements for Workmanship:
  1. Coverage and hide shall be complete. When color, stain, dirt or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, color, appearance, thickness and coverage, at no additional cost to the Owner.
  2. Rate of application shall not exceed average rate of coverage recommended by manufacturer for the type of surface involved less ten percent (10%) allowance for losses, unless manufacturer's printed recommended specifications state that the recommended rate included normal expected losses.
  3. Minimum dry film thickness per coat shall not be less than thickness recommended by the manufacturer, and in NO case less than as specified herein.
  4. The finished surfaces shall be free from runs, drops, ridges, waves, laps, brush marks and free of variations in color, texture and finish.
  5. All interior wood trim shall be back-primed before installation with enamel undercoat or penetrating sealer, as required.
  6. Sand enamel or varnish finish applied to wood or metal with fine sandpaper and then clean between coats to produce an even, smooth finish.
  7. Remove electrical panel box covers and doors before painting wall. Paint separately and reinstall after all paint is dry.
- D. Apply each coat to uniform coating thickness in accordance with manufacturer's instructions, not exceeding manufacturer's specified maximum spread rate for indicated surface; thins, brush marks, roller marks, orange-peel, or other application imperfections are not permitted.
- E. Allow manufacturer's specified drying time, and ensure correct coating adhesion, for each coat before applying next coat.
- F. Sequence of Coats: Sufficient time shall elapse between successive coats to permit proper drying. This period shall be modified as necessary to suit adverse weather conditions.
- G. Inspect each coat before applying next coat; touch-up surface imperfections with coating material, feathering, and sanding if required; touch-up areas to achieve flat, uniform surface without surface defects visible from 5 feet.
- H. Remove dust and other foreign materials from substrate immediately prior to applying each coat.
- I. Where paint application abuts other materials or other coating color, terminate coating with a clean sharp termination line without coating overlap.
- J. Where color changes occur between adjoining spaces, through framed openings that are of same color as adjoining surfaces, change color at outside stop corner nearest to face of closed door.
- K. Re-prepare and re-coat unsatisfactory finishes; refinish entire area to corners or other natural terminations.

### 3.6 CLEANING:

- A. Clean excess coating materials, and coating materials deposited on surfaces not indicated to receive coatings, as construction activities of this section progress; do not allow to dry.
- B. Re-install hardware, electrical equipment plates, mechanical grilles and louvers, lighting fixture trim, and other items that have been removed to protect from contact with coatings.

- C. Reconnect equipment adjacent to surfaces indicated to receive coatings.
- D. Relocate to original position equipment and fixtures that have been moved to allow application of coatings.
- E. Remove protective materials.

3.7 PROTECTION AND REPAIR:

- A. Protect completed coating applications from damage by subsequent construction activities.
- B. Repair to Architect's acceptance coatings damaged by subsequent construction activities. Where repairs cannot be made to Architect's acceptance, re-apply finish coating to nearest adjacent change of surface plane, in both horizontal and vertical directions.
- C. A minimal amount of touch-up work to newly painted surfaces will be allowed (one touch-up per every 10 square feet of wall area), but only if the repair is not visible upon close inspection. Contractor must refinish a whole wall rather than spot-finish where there are numerous repairs to be made, or where remedial work is unsatisfactory.

3.8 PAINTING SCHEDULE - EXPLANATION:

- A. Except as specified under the "Surfaces Not to be Painted" paragraph, the surfaces listed in the painting schedule shall receive the surface treatment, paints and number of coats indicated. Piping and ductwork shall not be painted until the piping and ductwork have been tested and approved.

3.9 PAINTING SCHEDULE:

A. Exterior Traffic Markings:

1. First and Second Coats:

- a. Traffic Yellow: Insl-X Latex Traffic Paint TP-3224 (Yellow) Series manufactured by Benjamin Moore & Co. (BMC), Flat Sheen at 4 – 6 mils dry per coat
- b. Traffic White: Insl-X Latex Traffic Paint TP-2210 (White) Series manufactured by Benjamin Moore & Co. (BMC), Flat Sheen at 1.7 – 2.4 mils dry per coat
- c. Traffic Red: Insl-X Latex Traffic Paint TP-2202 (Red) Series manufactured by Benjamin Moore & Co. (BMC), Flat Sheen at 1.7 – 2.4 mils dry per coat
- d. Traffic Handicap Blue: Insl-X Latex Traffic Paint TP-2242 (Handicap Blue) Series manufactured by Benjamin Moore & Co. (BMC), Flat Sheen at 1.7 – 2.4 mils dry per coat

B. Exterior and Interior Steel and Ferrous Metals (Including Piping):

- 1. Surface Cleaner: As necessary, Corotech Citrus Cleaner V610 Series manufactured by Benjamin Moore & Co. (BMC) at manufacturer's recommended rates
- 2. First Coat: Fabricator's shop coat or Corotech Acrylic Metal Primer V110 Series manufactured by Benjamin Moore & Co. (BMC) at 3.0 – 4.0 mils dry per coat on tight rust surfaces or at 1.6 - 2.0 mils dry per coat on clean metal surfaces.
- 3. Second and Third Coats: Ultra Spec HP D.T.M. Acrylic Semi-Gloss HP29 Series, Semi-Gloss Sheen at 2.3 mils dry per coat.

C. Exterior and Interior Galvanized Metal (Sheet Metal, Decking, Piping, Conduits, Etc.):

- 1. Surface Cleaner: As necessary, Corotech Citrus Cleaner V610 Series manufactured by Benjamin Moore & Co. (BMC) at manufacturer's recommended rates
- 2. First Coat: Fabricator's shop coat or Corotech Acrylic Metal Primer V110 Series manufactured by Benjamin Moore & Co. (BMC) at 3.0 – 4.0 mils dry per coat on tight rust surfaces or at 1.6 - 2.0 mils dry per coat on clean metal surfaces.
- 3. Second and Third Coats: Ultra Spec HP D.T.M. Acrylic Semi-Gloss HP29 Series, Semi-Gloss Sheen at 2.3 mils dry per coat.

D. Exterior Cementitious Boards and Trims:

1. First Coat: Fresh Start Multi-Purpose Latex Primer N023 at 1.2 mils dry per coat.
2. Second and Third Coats: Regal Select Exterior Paint – High Build Low Lustre Finish N401 at 2.3 mils dry per coat.

E. Interior Gypsum Board (Ceilings):

1. First Coat: Super Hide Zero VOC Interior Latex Primer 354 Series, Flat Sheen at 1.3 mils dry per coat.
2. Second and Third Coats: Super Hide Zero VOC Interior Flat 355 Series, Flat Sheen at 1.1 mils dry per coat.

F. Interior Gypsum Board (Walls and Furr Outs):

1. First Coat: Regal Select Waterborne Interior Paint Pearl Finish 550 Series, Pearl Sheen at 1.5 mils dry per coat
2. Second and Third Coats: Regal Select Waterborne Interior Paint Pearl Finish 550 Series, Pearl Sheen at 1.5 mils dry per coat

G. Interior Wood (Painted):

1. First Coat: Advance Waterborne Interior Alkyd Primer 790 Series, Flat Sheen at 1.5 mils dry per coat
2. Second and Third Coats: Regal Select Waterborne Interior Paint Pearl Finish 550 Series, Pearl Sheen at 1.5 mils dry per coat

**END OF SECTION**

DIVISION

10



SPECIALTIES

## **SECTION 10100**

### **MARKERBOARDS**

#### **PART 1 – GENERAL**

##### 1.1 SCOPE:

- A. The scope of markerboards in this project shall be as shown in drawings and as specified herein. It shall include all materials, equipment, and labor as necessary for a complete installation. Markerboards shall include, but not limited to, the following:
  - 1. Magnetic porcelain enamel steel markerboards
  - 2. Miscellaneous components and accessories

##### 1.2 RELATED SECTION:

- A. Section 06100 – Rough Carpentry
- B. Section 07900 - Sealants
- C. Section 09260 – Gypsum Wallboard System

##### 1.3 REFERENCES:

- A. American Society for Testing Materials (ASTM):
  - 1. ASTM E84 Standard Test Method for Surface Burning Characteristics for Building Materials
  - 2. ASTM B221 Standard Specification for Aluminum and Aluminum Alloy Extruded Bars, Rods, Wires, Profiles and Tubes
- B. Porcelain Enamel Institute (PEI):
  - 1. PEI-1002 Manual and Performance Specifications for Porcelain Enamel Writing Surfaces.

##### 1.4 SUBMITTALS:

- A. Shop Drawings: Provide shop drawings for each type of visual display board required. Drawings shall indicate size, configuration, anchorage, accessories, etc.
- B. Product Data: Provide technical data for materials specified. Include Material Safety Data Sheets.
- C. Samples and Color Charts: Provide Manufacturer's full line of color charts and composition samples of face, core, backing, and trim to illustrate finish, color and texture.
- D. Manufacturer's Instructions: Provide Manufacturer's installation instructions.

##### 1.5 QUALITY ASSURANCE:

- A. Manufacturer's Qualification:
  - 1. Manufacturer shall be a firm engaged in the manufacture of visual display boards in the United States.
  - 2. Manufacturer shall have a minimum of five (5) years experience in the manufacture of visual display boards.
- B. Regulatory Requirements: Conforms to applicable code for flame/ smoke rating in tackboards in accordance with ASTM E84.
- C. Operation and Maintenance: Include data on regular cleaning, stain removal, and precautions.

##### 1.6 PROJECT CONDITIONS:

- A. Measurements: Field measure prior to preparation for shop drawings and fabrication to ensure

proper fit.

- B. Acclimatization: Comply with manufacturer's recommendations for acclimating area for interior moisture and temperature to approximate normal occupied conditions.

1.7 DELIVERY, STORAGE AND HANDLING:

- A. Schedule delivery of visual display boards with spaces sufficiently complete so that visual display boards can be installed upon delivery.
- B. Store products in manufacturer's unopened packaging until ready for installation.
- C. Store materials protected from exposure to harmful weather conditions and at temperatures and humidity conditions recommended by manufacturer.

1.8 WARRANTY:

- A. Submit a "Life of Building" warranty stating that under normal usage and maintenance and when installed in accordance with manufacturer's instructions and recommendations, porcelain enamel steel markerboard writing surfaces are guaranteed for the life of the building. Guarantee covers replacement of defective boards but does not include cost of removal or reinstallation.
- B. Writing Surface Warranty Period: Fifteen (15) years commencing on Date of Substantial Completion.

**PART 2 - PRODUCTS**

2.1 MANUFACTURER:

- A. Basis of Design: The products in this section are as manufactured by Claridge Products and Equipment, Inc.
- B. Other Acceptable Manufacturers, pending approval of specific products by Architect indicating their compliance with requirements of this Section, may include the following:
  - 1. Moore Co, Inc.
  - 2. Prior Approved Equal

2.2 MATERIALS FOR MARKERBOARDS:

- A. Writing Surface Face Sheet: Manufactured in accordance with Porcelain Enamel Institute's specification.
  - 1. Shall be enameling grade cold-rolled steel manufactured from a minimum of 30 percent post-consumer and post-industrial waste.
  - 2. Enameling grade steel shall be coated with LCS<sup>3</sup> Porcelain Enamel by Claridge Products and Equipment.
    - a. 3 Coat process shall include:
      - 1) Bottom Ground Coat: 1.5 to 2.2 mils
      - 2) Top Ground Coat: 2.0 to 2.8 mils
      - 3) Top Cover (Color) Coat: 3.0 to 4.0 mils
  - 3. Firing Temperature: Enamel shall be fired at lowest possible temperatures to reduce steel and porcelain stresses and achieve superior enamel and hardness.
  - 4. Color: As selected by Architect from Manufacturer's full line of standard colors.
- B. Writing Surface Core:
  - 1. 7/16" Medium Density Fiberboard (MDF) composed of approximately 90% post-industrial waste.
- C. Writing Surface Backing:

1. Steel Back

D. Factory Framed Markerboards:

1. Face Sheet: LCS<sup>3</sup> porcelain enamel steel Markerboard
2. Core Material: 7/16" MDF
3. Backing: Steel Back
4. Series: LCS Deluxe Series – 5/8" Face Trim, Mitered Corners
5. Frame: Anodized Aluminum, satin finish
6. Typical Arrangements: Individual. See drawings for configurations, locations, and quantities.
7. Panel Size: As indicated on the drawings
8. Accessories: 2-1/2 inch marker tray (full length)
9. Color: Matte (low gloss) sheen, color as selected by Architect from Manufacturer's full line of standard colors.

2.3 ALUMINUM TRIM:

- A. Trim: Trim shall be 6063 alloy grade aluminum with T5 tempering in accordance with ASTM B221, and shall have 201-R1 satin anodize finish.

1. Factory Built Trim:

- a. Series: LCS Deluxe Series – 5/8" Face Trim, Mitered Corners

2.4 ACCESSORIES:

A. Marker Tray:

1. Standard continuous, solid, blade-type aluminum tray with ribbed section and injection molded end closures at bottom of each markerboard.

B. Angle Clip Hangers

C. Adhesives:

1. Claridge No. 16A Adhesive provided by Manufacturer or as recommended by the Manufacturer.
  - a. Adhesive shall be stored at room temperature for 24 hours prior to use, or as recommended by the Manufacturer.
  - b. Apply adhesive in compliance with Manufacturer's installation guide and according to Manufacturer recommendations.

2.6 FABRICATION:

- A. Shop Assembly: Units shall be factory assembled markerboards and tackboards.

**PART 3 – EXECUTION**

3.1 EXAMINATION:

- A. Verify before installation that interior moisture and temperature approximate normal occupied conditions.
- B. Verify that wall surfaces are true and plumb and are prepared and ready to receive boards.

3.2 INSTALLATION:

- A. Deliver factory built units completely assembled and of dimensions shown in details and in accordance with manufacturer's shop drawings as approved by the Architect.

- B. Follow Manufacturer's instructions for storage and handling of units before installation.
- C. Do not install boards on damp walls or in damp and humid weather without heat in the building.
- D. Install level and plumb, keeping perimeter trim straight in accordance with manufacturer's recommendations, and according to the drawings.

3.3 CLEAN-UP COMPLETION:

- A. Verify that all accessories are installed as required for each unit.
- B. At completion of work, clean surfaces and trim in accordance with Manufacturer's recommendations, leaving all materials ready for use.

3.4 PROTECTION:

- A. Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

**END OF SECTION**

## **SECTION 10160**

### **TOILET COMPARTMENTS**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of toilet compartments and urinal screens in this project shall be as shown and detailed on drawings and as specified herein. It shall include all materials, equipment, and labor necessary for a complete operational system. The work shall include, but not limited to, the following:

1. Solid plastic toilet compartments, overhead braced and floor anchored
2. Solid plastic urinal screens, wall hung, floor anchored with pilaster

##### 1.2 RELATED SECTIONS:

- A. Section 05500 – Metal Fabrications  
B. Section 06100 – Rough Carpentry  
C. Section 07900 – Sealants  
D. Section 09260 – Gypsum Wallboard Systems  
E. Section 09300 – Tile  
F. Section 10800 – Toilet and Bath Accessories

##### 1.3 REFERENCES:

- A. ASTM International (ASTM):
1. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
  2. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
  3. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials

##### 1.4 SUBMITTALS:

- A. Product Data: Submit manufacturer's specification for materials, fabrication, and installation. Include job specific details of anchors, hardware, fastenings, accessories, etc.
- B. Shop Drawings: Submit dimensioned layout drawings for fabrication and erection of toilet compartments assemblies, urinal screens, templates, instructions for installation of anchorage devices built into other work. Include dimensioned layout, elevations, trim, closures, and accessories.
- C. Samples: For selection by Architect, provide 3 x 3 inch samples showing all manufacturer's available colors and textures.

##### 1.5 QUALITY ASSURANCE:

- A. Manufacturer Qualifications: A company regularly engaged in manufacture of products specified in this section, and whose products have been in satisfactory use under similar service conditions for not less than five (5) years.
- B. Installer Qualifications: A company regularly engaged in installation of products specified in this section, with a minimum of five (5) years' experience.
- C. Materials: Doors, panels, and pilasters constructed of high density polyethylene (hdpe) resins. Partitions to be fabricated from polymer resins compounded under high pressure, forming a single component which is waterproof, nonabsorbent, and has a self-lubricating surface that resists marks from pens, pencils, markers, and other writing instruments. Cover all plastic components with a protective plastic masking.
- D. Accessibility: Provide compartments indicated to be accessible, including doors and hardware

that comply with 28 CFR Part 26 ADA/ ABA Accessibility Guidelines. Notify the Architect of any observed conflicts between requirements indicated for this Project and the Guidelines.

- E. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication where possible to ensure proper fitting of work. However, allow for adjustment where taking of field measurements before fabrication might delay work.
- F. Coordination: Furnish inserts and anchorages which must be built into other work for installation of toilet compartments and related items. Coordinate delivery with other trades and work to avoid project delays.

#### 1.6 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver components in manufacturer's cartons and wrappings.
- B. Store all materials and accessories in a dry conditioned space.

#### 1.7 PROJECT CONDITIONS:

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

#### 1.8 WARRANTIES:

- A. Provide manufacturer's 25 year warranty against breakage, corrosion, and delamination under normal conditions from date of Substantial Completion.

### **PART 2 - PRODUCTS**

#### 2.1 MANUFACTURERS:

- A. Basis of Design: The products and systems as specified herein are as manufactured by Scranton Products.
- B. Alternate Manufacturers: Other acceptable manufacturers subject to compliance with requirements of this specification and approved by the Architect, may include, but are not limited to, the following:
  - 1. Accurate Partitions
  - 2. Metpar Corp.
  - 3. Prior Approved Equal

#### 2.2 MATERIALS:

- A. Doors, Panels and Pilasters:
  - 1. High density polyethylene (HDPE), fabricated from polymer resins compounded under high pressure, forming single thickness panel
  - 2. Waterproof and nonabsorbent, with self-lubricating surface, resistant to marks by pens, pencils, markers, and other writing instruments
  - 3. 1 inch thick with edges rounded to 1/4-inch radius
  - 4. Color: Architect shall choose from full line of available colors (Traditional Color Collection, Bold Color Collection, Warm Tone Color Collection and Metallic Color Collection)
  - 5. Texture: Orange Peel (OP)
- B. Zinc Aluminum Magnesium and Copper Alloy (Zamac): ASTM B86
- C. Aluminum Extrusions: ASTM B221, 6463-T5 alloy and temper
- D. Stainless Steel: ASTM A167, Type 304

#### 2.3 TOILET COMPARTMENT COMPONENTS:

- A. Basis of Design: Hiny Hiders Toilet Partitions as manufactured by and supplied by Scranton

## Products

1. Style: Floor mounted overhead braced toilet compartments

- B. Doors, Panels, and Pilasters: 1 inch thick with all edges rounded to a radius. Mount doors and dividing panels based on height of specified system.
- C. Doors and Dividing Panels: 55 inches high, mounted 14 inches above finished floor, with aluminum heat-sinc fastened to bottom edges.
- D. Pilasters: 82 inches high, fastened to pilaster sleeves with stainless steel tamper resistant Torx head sex bolt
- E. Pilaster Sleeves/ Shoes: 3 inches high, 20 gauge stainless steel, secured to pilaster with stainless steel tamper resistant Torx head sex bolt.
- F. Wall Brackets: 54 inches long, heavy-duty aluminum 6463-T5 alloy, bright dip anodized finish, fastened to pilasters and panels with stainless steel tamper resistant Torx head sex bolts.
- G. Headrail: Heavy-duty extruded 6463-T5 alloy aluminum, anti-grip design, clear anodized finish, fastened to headrail bracket with stainless steel tamper resistant Torx head sex bolt and at top of pilaster with stainless steel tamper resistant Torx head screws.
- H. Headrail Brackets: 20 gauge stainless steel, satin finish, secured to wall with stainless steel tamper resistant Torx head screws.
- I. Colors: As selected by Architect from manufacturers full line of available colors colors (Traditional Color Collection, Bold Color Collection, Warm Tone Color Collection and Metallic Color Collection)
- J. Texture: Orange Peel (OP)

### 2.4 URINAL SCREEN COMPONENTS:

- A. Panels and pilasters, 1 inch thick with edges rounded to a radius. Panel screens to be mounted at 14 inches above the finished floor. Panel screen provided with aluminum heat-sinc fastened to bottom edges.
- B. Mounting: Floor supported pilasters shall have pilaster shoes 3" high, 20 gauge stainless steel. Pilaster shoes shall be secured to the pilaster with a stainless steel tamper resistant Torx head sex bolts.
- C. Wall brackets shall be 54 inches long, heavy-duty aluminum, bright dip anodized finish, fastened to pilasters and panels with stainless steel tamper resistant Torx head sex bolts
- D. Color: As selected by Architect from manufacturers full line of available colors colors (Traditional Color Collection, Bold Color Collection, Warm Tone Color Collection and Metallic Color Collection)
- E. Texture: Orange Peel (OP)

### 2.5 HARDWARE:

- A. Wrap Around Hinges:
  - 1. 8 inches long, fabricated from heavy-duty extruded aluminum with bright dip anodized finish, wrap-around flanges, adjustable on 30-degree increments, through bolted to doors and pilasters with stainless steel, Torx head sex bolts.
  - 2. Hinges operate on field-adjustable nylon cams, field adjustable in 30 degree increments.
- B. Door Strike and Keeper:
  - 1. 6 inches long, fabricate from heavy-duty extruded 6463-T5 aluminum with bright dip anodized finish, with stainless steel tamper resistant Torx head sex bolts.
  - 2. Bumper: Extruded black vinyl.
- C. Latch and Housing:
  - 1. Heavy-duty extruded 6463-T5 aluminum
  - 2. Latch Housing: Bright dip anodized finish
  - 3. Slide Bolt and Button: Black anodized finish

4. Slide Latch and Paddle (ADA accessible stalls)
- D. Coat Hook/ Bumper:
1. Each door to be provided with one (1) coat hook/ bumper
  2. Combination type, chrome plated Zamak.
    - a. Location to be selected by Architect.
- E. Door Pulls: Chrome plated Zamak.
1. Each door to be provided with one (1) door pull
  2. Equip outswing handicapped doors with second door pull and door stop.
    - a. Location to be selected by Architect.

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION:**

- A. Examine areas to receive toilet compartments and screens for correct height and spacing of anchorage/ blocking and plumbing fixtures that may affect installation. Report any discrepancies to Architect prior to proceeding.
- B. Take complete and accurate field measurements of build conditions to complete layout.
- C. Start of work constitutes acceptance of job conditions.

#### **3.2 INSTALLATION:**

- A. General: Comply with manufacturer's recommended procedures and installation sequence. Install compartment units rigid, straight, plumb, and level. Provide clearances as required by manufacturer between pilasters and panels and walls for proper operation. Clearances shall not exceed 1 inch. Secure panels to walls with not less than two (2) stirrup brackets attached near top and bottom of panel. Align stirrup brackets with wall. Locate wall brackets so that holes for wall anchors occur in masonry or tile joints as much as possible. Install components with manufacturer's recommended anchorage devices.
- B. Floor Mounted Overhead Braced Components: Secure pilasters to floor and walls level, plumb, and tighten installation with furnished devices. Secure panels to each pilaster with required fasteners. Hang doors and adjust so that tops of doors are parallel with top of pilaster when doors are in closed position.
- C. Screens: Attach with anchoring devices as recommended by manufacturer. Set units to provide support and to resist lateral impact.
- D. Install compartments in accordance with manufacturer's instructions and approved Shop Drawings.
- E. Install rigid, straight, plumb, and level.
- F. Locate bottom edge of doors and panels 14 inches above finished floor.
- G. Provide uniform, maximum 3/8 inch vertical clearance at doors.
- H. Panels and doors fabricated with heat sinc shall have heat sinc installed on bottom side of unit. Panels and doors installed incorrectly shall have entire panel or door replaced at no additional cost to the Owner.
- I. Not Acceptable: Evidence of cutting, drilling, or patching.

#### **3.3 ADJUSTING:**

- A. Adjust doors and latches to operate correctly and freely without binding.
- B. Lubricate hardware as required for proper operation.
- C. Set hinges on in-swinging doors to hold open approximately 30 degrees from closed position when unlatched. Set out-swinging doors (and entrance swing doors) to return to fully closed position.
- D. Cleaning: Clean exposed surfaces of partition systems using materials and methods recommended by manufacturer and provide protection as necessary to prevent damage during

construction period.

3.4 COMPLETION:

- A. Workmanship: Compartments and screens shall be securely attached, straight, level, and plumb. Surfaces shall be clean, uniform, and undamaged, without telegraphing. Hardware and fittings shall be complete and rigidly attached. Fasteners shall be snug and free of burrs and damaged heads. Remove markings used for locating and installing units.
- B. Repairs and Replacement: Remove and replace with new material damaged and defective items. Repair, or remove and replace, other work, which is damaged as a result of toilet compartments and urinal screens unit work.

**END OF SECTION**

## **SECTION 10441**

### **ROOM SIGNS**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of signage shall be as specified herein. It shall include all materials, equipment, and labor as required for a complete installed system. Signage shall include, but is not limited to, the following:

- 1. Interior unframed signs

##### 1.2 RELATED SECTIONS:

- A. Section 07900 – Sealants
- B. Section 09260 – Gypsum Wallboard Systems

##### 1.3 QUALITY ASSURANCE:

- A. Manufacturer: Obtain all products in this section from a single manufacturer.
- B. Regulatory Requirements: Products shall meet requirements of the Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines (ADA/ ABA) and local amendments and modifications.
- C. Installer: Installation shall be performed by installer specialized and experienced in work similar to that required for this project.
- D. Supplier: Sign supplier to provide ONLINE REORDER website for use by Owner to order additional signs. Reorder website to include sign descriptions, sign drawings, and sign cost.

##### 1.4 SUBMITTALS:

- A. Product Data: Submit product data for all specified products. This shall include material details for each sign specified, product brochures, installation instructions, and maintenance instructions.
- B. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including dimensions, anchorage, and accessories.
- C. Samples: Submit manufacturer's standard color chart for selection purposes by Architect. Provide samples of selected colors for verification purposes.
- D. Closeout Submittals:
  - 1. Submit operation and maintenance data for installed products, including precautions against harmful cleaning materials and methods.
  - 2. Submit warranty documents specified herein.

##### 1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Store products protected from weather, temperature, and other harmful conditions as recommended by supplier.
- D. Handle products in accordance with manufacturer's instructions.

##### 1.6 WARRANTY:

- A. Project Warranty: Comply with requirements of Division 0 and Division 1.
- B. Manufacturer's Warranty: Submit manufacturer's standard warranty document executed by authorized company official.

1. Warranty Period: One (1) year from date of Substantial Completion

## **PART 2 - PRODUCTS**

### **2.1 SIGNAGE SYSTEM MANUFACTURERS:**

- A. Basis of Design: The product systems as specified herein are InForm Plaque Sign System as manufactured by ASI Signage Innovation
- B. Acceptable Manufacturers: Other acceptable manufacturer, pending specific approval of specification compliance by Architect, may include the following:
  1. Best Signs
  2. Prior Approved Equal

### **2.2 SIGN MATERIALS:**

- A. Interior Unframed Signs:
  1. Model: InForm Plaque Signs as manufactured by ASI Signage Innovation
  2. Sign Face: Extruded engineered pvc/ acrylic alloy with integral background colors and high impact resistance, pressure molded into a single component.
    - a. Extruded engineered pvc/ acrylic alloy with integral background colors and high impact resistance with Class IA fire rating.
  3. Tactile Graphics and Text: Provide tactile copy and Grade 2 Braille raised 1/32 inch minimum from plaque surface using manufacturer's co-molding process.
    - a. Provide lettering and graphics precisely formed, uniformly opaque to comply with relevant ADA/ ABA regulations and requirements indicated for size, spacing, content, position, and colors.
  4. Colors: All colors to be selected by Architect from manufacturer's full line of available colors.
    - a. High contrast semi-matte integral colors are used for graphics. All integral colors are u.v. stabilized resins utilizing industrial grade pigments.
    - b. First surface painted signs, sandblasted sign faces, and photopolymer signs are NOT acceptable.
      - 1) Background Color Single and Back Plate: Integral solid color
      - 2) Text Color: Integral solid color
  5. Mounting Method:
    - a. Interior signs, when applied to gypsum wallboard, shall be secured by tape mounting and silicone adhesive.
    - b. Interior signs, when applied to brick or concrete block, shall be secured by having 1/8 inch (0.125 mm) acrylic backer plate screw mounted to wall with plaque tape mounted to backer plate. Fasteners shall be concealed.
    - c. Interior signs, when applied to glazing, shall have back plate of the same size, shape, and color of signage on opposite side of glass to conceal signage mounting. Signage mounting shall be secured by tape mounting and silicone adhesive.
  6. Miscellaneous Components: Sign manufacturer shall provide all miscellaneous components, accessories, fasteners/ anchors, etc. as required for a complete, Code conforming, and fully detailed installation.

### 2.3 FABRICATION – GENERAL:

- A. General: Comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes, and details of construction.
- B. Design and Installation: Preassemble signs in the shop to the greatest extent possible to minimize field assembly. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in a location not exposed to view after final assembly.
- C. Fasteners: Conceal fasteners if possible; otherwise, locate fasteners to appear inconspicuously.
- D. Dimensions: Form panels to required size and shape. Comply with requirements indicated for design, dimensions, finish, color, and details of construction.
- E. Coordination: Coordinate dimensions and attachment methods to produce message panels with closely fitting joints. Align edges and surfaces with one another in the relationship indicated.

## **PART 3 - EXECUTION**

### 3.1 EXAMINATION:

- A. Site Verification of Conditions: Verify installation conditions previously established under other sections are acceptable for product installation in accordance with manufacturer's instructions.
- B. Scheduling of installation by Owner or its representative implies that substrate and conditions are prepared and ready for product installation. Proceeding with installation implies installer's acceptance of substrate and conditions.

### 3.2 INSTALLATION:

- A. Install product in accordance with supplier's instructions.
- B. Install product in locations indicated on the drawings using mounting methods recommended by sign manufacturer and free from distortion, warp, or defect adversely affecting appearance.
- C. Install product level, plumb, and at heights indicated on the drawings.
- D. Install product at heights to conform to Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines (ADA/ ABA) and applicable local amendments and regulations.
- E. Install signs within the following tolerances and in accordance with manufacturer's recommendations:
  - 1. Interior Signs: Within 1/4 inch vertically and horizontally of intended location.

### 3.3 CLEANING, PROTECTION, AND REPAIR:

- A. Repair scratches and other damage which might have occurred during installation. Replace components where repairs were made but are still visible to the unaided eye from a distance of 5 feet.
- B. Remove temporary coverings and protection to adjacent work areas. Clean products in accordance with manufacturer's instructions prior to Substantial Completion. Remove construction debris from project in accordance with provisions in Divisions 0 and 1.

### 3.4 SIGN SCHEDULE:

- A. Type 1.0 – Restroom Signage (MEN, WOMEN):
  - 1. Solid Integral Colored Plaques
  - 2. Interior Signage
  - 3. 8" h x 6" w
  - 4. Pictogram: Man, Woman, Wheelchair
  - 5. Typeset: To be determined by Architect
  - 6. Quantity: 2
- B. Type 2.0 – Low Level Exit Signage (EXIT):

1. Solid Integral Colored Plaques
2. Interior Signage
3. 6" h x 6" w
4. Typeset: To be determined by Architect
5. Quantity: 7

**END OF SECTION**

## **SECTION 10520**

### **FIRE PROTECTION SPECIALTIES**

#### **PART 1 - GENERAL**

##### 1.1 SCOPE:

- A. The scope of fire extinguisher work in this project shall be as specified herein. It shall include all labor, material, and equipment necessary for a complete installation. This section includes, but is not limited to, the following:

1. Fire extinguishers
2. Semi-recessed, non-rated, wall mounted fire extinguisher cabinet
3. Wall mounted hangers
4. Miscellaneous accessories and components

##### 1.2 RELATED SECTIONS:

- A. Section 07900 - Sealants
- B. Section 09260 - Gypsum Wallboard Systems
- C. Section 09900 - Painting

##### 1.3 REFERENCES:

- A. Industry Standards: The Industry Standards listed below refer to the latest date of issue or editions, unless otherwise indicated.
1. NFPA 10 - Standard for Portable Fire Extinguishers; National Fire Protection Association
  2. UL (FPED) - Fire Protection Equipment Directory; Underwriter's Laboratories, Inc.
  3. ADA/ ABA Accessibility Guidelines - Criteria for wall projection of fire extinguisher cabinet/ hangers and mounting heights
  4. ASTM E814 - Test Method for Fire Tests of Through-Penetration Fire Stops

##### 1.4 SUBMITTALS:

- A. Product Data: Submit product brochures, construction details, material descriptions, dimensions of individual components and profiles, and finishes for each fire-protection specialties components and accessories.
1. Fire Extinguishers: Include rating and classification
  2. Fire Extinguisher Cabinet: Including sizes, colors, installation, etc.
  3. Fire Extinguisher Wall Mounted Hangers: Include hanger type and mounting method
- B. Samples: Submit samples for verification purposes of each type of metal finish required, prepared on metal samples of same thickness and alloy indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing full range of variations expected.

##### 1.5 QUALITY ASSURANCE:

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Standard for Portable Fire Extinguishers".
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
- C. Single-Source Responsibility: Obtain fire extinguishers, cabinets, accessories, etc. from one source from a single manufacturer.
- D. Fire Resistance: Comply with ASTM E814 for fire-resistive wall performance where necessary.
- E. ADA/ ABA Compliance: Comply with Americans with Disabilities Act and Architectural Barriers

Act Accessibility Guidelines (ADA/ ABA) on mounting height requirements for fire extinguishers.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS:**

- A. Basis Of Design: The products of this Section are as manufactured by Larsen's Manufacturing Co.
- B. Acceptable Alternate Manufacturers: Other acceptable manufacturers, pending approval of specific products by Architect, are as follows:
  - 1. J.L. Industries
  - 2. Potter Roemer, Inc.
  - 3. Prior Approved Equal

### **2.2 FIRE EXTINGUISHERS:**

- A. Fire Extinguishers - Multipurpose Dry Chemical Type: UL rated 3A:40B:C, 5 lb nominal capacity. Fire extinguisher shall contain fluidized and siliconized mono ammonium phosphate powder for Class A, B, and C fires. Locations and quantities as indicated on drawings.
  - 1. MP Series, Model MP5-A as manufactured by Larsen's Manufacturing Co.
  - 2. Prior Approved Equal

### **2.3 FIRE EXTINGUISHER CABINETS:**

- A. Non-Rated Semi-Recessed Cabinet: Architectural Series Door Style, semi-recessed 1-1/2" square trim, steel finish door and trim with full clear acrylic and Larsen-Loc with baked acrylic enamel finish, cabinet construction wall construction of heavy gauge cold rolled steel with baked acrylic enamel finish, interior of cabinet white baked enamel finish, exterior of cabinet baked enamel finish as selected by Architect from manufacturers standard color line. Locations and quantities as indicated on drawings.
  - 1. Architectural Series Fire Extinguisher Cabinet, Model 2409-5R as manufactured by Larsen's Manufacturing Co.
  - 2. Prior Approved Equal

### **2.4 FIRE EXTINGUISHER HANGERS:**

- A. Non-Rated Wall Mounted Hanger: Wall mounted hanger with metal clamping hasp, with baked acrylic enamel finish. Locations and quantities as indicated on drawings.
  - 1. Model 818 as manufactured by Larsen's Manufacturing Co.
  - 2. Prior Approved Equal

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION:**

- A. Install items in locations as directed by Architect and at mounting heights to comply with applicable regulations of governing authorities. Verify heights with Architect prior to installation.
- B. Fire Extinguisher Cabinets: Where exact locations of fire extinguisher cabinets are not indicated, locate as directed by Architect. Use anchor type as recommended by manufacturer for specific substrate conditions of this project (job verify). Installations within fire rated wall construction shall maintain rated continuity, including installation of firestopping around perimeter of rough opening and extinguisher cabinet trim.
- C. Wall Mounted Hangers: Where exact locations of fire extinguisher hangers are not indicated, locate as directed by Architect. Use anchor type recommended by manufacturer for specific substrate conditions of this project (job verify). Installations within fire rated wall construction

shall maintain rated continuity, including installation of firestopping around perimeter of fasteners.

3.2 COMPLETION:

- A. Extinguishers: Keep extinguishers in locked storage until just prior to inspection for acceptance; obtain signed receipt from Owner's representative and place extinguishers in designated locations, unless instructed to maintain in storage.
- B. Verify that current certification tags are attached to each extinguisher.
- C. Replace or recharge, and re-certify, extinguishers that were discharged during construction period, either accidentally or in an emergency.
- D. Cabinets: All cabinets shall be properly located and rigidly secured, plumb, and level. Clean exposed surfaces. Remove and replace items, which are damaged and defective and which cannot be acceptably repaired. Adjust doors and locks for smooth operation.
- E. Hangers: All hangers shall be properly located and rigidly secured, plumb, and level. Clean exposed surfaces. Remove and replace items, which are damaged and defective and which cannot be acceptably repaired.
- F. Other Work: Clean and repair other surfaces damaged, soiled or marred by work of this Section; remove and replace items which cannot be acceptably cleaned or repaired.

3.3 ADJUSTING, CLEANING, AND PROTECTION:

- A. Refinish or replace units damaged during installation.
- B. Provide final protection and maintain conditions that ensure that extinguishers are without damage or deterioration at the time of Substantial Completion.

**END OF SECTION**

## **SECTION 10800**

### **TOILET AND BATH ACCESSORIES**

#### **PART 1 – GENERAL**

##### 1.1 SCOPE:

- A. The scope of toilet and bath accessories in this project shall be as shown/ scheduled in drawings and as specified herein. It shall include all labor, materials, and equipment necessary for complete installation.

##### 1.2 RELATED SECTIONS:

- A. Section 06100 – Rough Carpentry
- B. Section 07900 – Sealants
- C. Section 09260 – Gypsum Wallboard Systems
- D. Section 09300 - Tile
- E. Section 09900 – Painting
- F. Section 10160 – Toilet Compartments
- G. Division 15 – Mechanical
- H. Division 16 - Electrical

##### 1.3 REFERENCES:

- A. American National Standards Institute (ANSI):

- 1. ANSI A17.1 - accessible and Usable Building Facilities

- B. ASTM International (ASTM):

- 1. ASTM A653/ A653M: Standard Specifications for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealed) by Hot-Dip Process
- 2. ASTM A666: Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar
- 3. ASTM A1008/ A1008M: Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardened
- 4. ASTM B456: Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium
- 5. ASTM C1503: Standard Specification for Silvered Flat Glass Mirror
- 6. ASTM F446: Standard Consumer Safety Specification for Grab Bars and Accessories Installed in the Bathing Area

- C. US Federal Government:

- 1. U.S. Architectural & Transportation Barriers Compliance Board: American with Disability Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities

##### 1.4 SUBMITTALS:

- A. Submittals: Submit accessory cut sheets showing all materials, methods of installation, hardware, and fastening devices. Cut sheets shall indicate operating characteristics, materials, and finishes. Submittals shall include sample warranties and operation, care, and cleaning instructions. Provide samples of finishes for Architect selection from manufacturer's full color range.

## 1.5 QUALITY ASSURANCE:

- A. Manufacturer Qualifications: Approved manufacturer listed with minimum five (5) years' experience in the manufacture of product types. Manufacturer seeking prior approval must submit the following:
  - 1. Product data indicating compliance with requirements.
  - 2. Samples of color selections and finishes.
  - 3. List of successful installations of similar scope and size.
- B. Accessibility Requirements: Comply with requirements of ADA/ ABA and with requirements of authorities having jurisdiction.

## 1.6 WARRANTY:

- A. All products shall have a manufacturer's warranty of one (1) year.
- B. Special Mirror Warranty: Manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified period.
  - 1. Warranty Period: Fifteen (15) years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### 2.1 MANUFACTURER:

- A. Manufacturer: All accessories specified herein have been selected from the Bradley Corporation "Washroom Accessories" catalog (except as noted otherwise).
- B. Other acceptable manufacturers, pending Architect's approval of specific products intended for use, are as follows:
  - 1. Bobrick Washroom Equipment
  - 2. American Specialties, Inc.
  - 3. Georgia Pacific
  - 4. Kimberly-Clark Professional
  - 5. Wausau Paper
  - 6. Dyson
  - 7. Prior Approved Equal

### 2.2 MATERIALS:

- A. Stainless Steel: ASTM A66, Type 304 (18-8), satin finish exposed unless otherwise indicated.
- B. Steel Sheet: ASTM A1008/ A1008M, Designation CS, manufacturer's standard thickness.
- C. Galvanized Steel Sheet: ASTM A653/ A653M, with 060 hot-dip zinc coating, manufacturer's standard thickness.
- D. Galvanized Steel Mounting Devices: ASTM A153/ A153M, hot-dip galvanized after fabrication.
- E. Fasteners:
  - 1. Exposed: Screws, bolts, and other devices of same materials as accessory unit and tamper-and-theft resistant.
  - 2. Concealed: Galvanized steel.
- F. Chrome Plating: ASTM B456, Service Condition Number SC 2, moderate service.
- G. Mirrors: ASTM C1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0mm thick.
- H. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.

### 2.3 ACCESSORIES:

- A. Accessories Schedules: See drawings for the "Accessory Schedule" for each building(s), indicating accessory model numbers.

- B. Quantities and Locations: See floor plans and elevations for accessory quantities to be provided and locations for installation.
- C. Miscellaneous Materials: Provide all materials, components, etc. as recommended by the manufacturer for complete, secure, and fully trimmed installations, specific to the conditions of this project.

#### 2.4 FABRICATION:

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six (6) keys to Owner's representative.

### **PART 3 - EXECUTION**

#### 3.1 INSTALLATION:

- A. Contractor Coordination: General Contractor shall coordinate with all associated trades to provide all wall blocking and furring required for proper support and installation of toilet and bath accessories to adequately secure and support surface mounted accessories. Coordinate construction of walls for rough openings and mounting requirements to accept accessories.
- B. Assemble fixtures and associated fittings and trims in accordance with manufacturer's instructions.
- C. Install supports attached to building structure for equipment requiring supports.
- D. Grab Bars: Install grab bars to withstand downward force of not less than 250 lbf (1112 N) per ASTM F446.
- E. Install all accessories plumb, level, firmly in place, and in accordance with manufacturer's written specifications.
- F. Provide all mounting hardware, anchors, fasteners, etc. as required for vandal proof installations. Conceal fasteners where possible.
- G. Locate accessories (placement, heights, etc.) as recommended by Manufacturer in accordance with ADA/ ABA requirements. Verify with Architect prior to installation.

#### 3.2 CLEANING AND PROTECTION:

- A. Repair or replace defective work, including damaged equipment and components.
- B. Remove all dirt, stains, protective film, stickers, etc. from accessories and adjacent surfaces following installation.
- C. Turn over all keys, tools, maintenance instructions, and maintenance stock to Owner.

#### 3.3 TESTING AND ADJUSTING:

- A. Test each piece of equipment provided with moving parts to assure proper operation, freedom of movement, and alignment.
- B. Repair or replace malfunctioning equipment, or equipment with parts that bind or are misaligned.

**END OF SECTION**

D I V I S I O N

15

MECHANICAL

## **SECTION 15050 - BASIC MATERIALS AND METHODS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The General Provisions of the Contract, including General and Supplementary Conditions and General Requirements apply to the work specified in this Section.
- B. Separation of specifications into sections is for convenience only and is not intended to establish limits of work or liability. The following are the Sections that will apply to this project.

- 15050 - Basic Materials and Methods
- 15250 - Piping and Equipment Insulation
- 15400 - Plumbing
- 15800 - Heating, Ventilation and Air Conditioning
- 15850 - Testing, Adjusting, and Balancing of Air Systems
- 15900 - Valves, Strainers, Unions and Fittings

#### **1.2 DESCRIPTION OF WORK**

- A. The work to be done under this heading includes the furnishing of labor, materials, equipment, and service necessary for and reasonably incidental to the proper completion of all mechanical work as shown on the drawings and herein specified.
- B. Visit and examine the job site, and with all authorities concerned in order to become familiar with all existing conditions pertinent to the work to be performed thereon. No additional compensation will be allowed for failure to be so informed.
- C. Materials and equipment shall be new, except where otherwise indicated, of the best quality, with same brand of manufacturer for all similar material. All equipment shall be installed in accordance with manufacturer's requirements. Equipment with electrical components shall be laboratory tested.
- D. All work shall be performed in a neat and workmanlike manner, and in accordance with all codes, standards, and requirements of the industry. All workers shall be trained in the tasks they perform. Training shall be by an industry accepted trade school.
- E. In general, provide the installation of plumbing, HVAC systems and building renovations complete with all pumping, piping, fittings, fixtures, equipment, etc.

- F. Regardless of titles and subdivisions herein employed, consider these specifications as one complete document with General Section applying to all other sections. All bidders are cautioned to read entire specifications and to thoroughly familiarize themselves with all requirements thereof.
- G. Check all specifications and all drawings and bring to attention any conflicts or variations as shown as noted.
- H. Specifications and accompanying drawings apply to all contracts or sub-contracts entered into for supplying material or labor for construction of work specified herein and shown on drawings.
- I. Protect Owner and his agents including Construction Manager, Architect and/or Engineer from any and all damages and expense arising from fulfillment of contract and at completion of work repair all damages done.
- J. For any points which are not clear, or for items and/or details which the Contractor feels are in need of clarification, consult the Architect before submission of a proposal.
- K. The drawings and the specifications are complementary and what is shown and/or called for on one shall be furnished and installed the same as if shown and/or called for in the other.
- L. In case of discrepancies and/or ambiguities in the drawings and/or in the specifications, the Architect shall be consulted prior to submission of a proposal. Failure to do so on the part of the successful bidder shall be construed as explicit agreement on his part to abide by the Architect's decision in such matters.
- M. The word "provide" as used in these Specifications and on the Drawings shall be termed to mean "furnish and install".
- N. Contractor shall include in base bid the connection of all sewer, storm drain and water piping to mains as shown on the drawings. Contractor shall include all material and all costs for complete installation.
- O. If the Contractor notices during the bidding any items of the contract documents which will violate any applicable code, these items shall be brought to the attention of the Architect before the bid date. Failure to bring these items to the attention of the Architect shall be construed as explicit agreement that the Contractor has included in his bid price any and all modifications necessary to complete the project in accordance with all applicable codes.

### **1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS**

- A. All exposed piping, ductwork and other equipment requiring painting will be painted under PAINTING SECTION. Leave all these surfaces clean of oil, dirt, plaster, etc., ready for painting section's work.
- B. Power wiring for all equipment shall be done under ELECTRICAL SECTION.
- C. Provide approved wiring diagrams to the Electrical Contractor showing interlocking of all equipment and controls, assisting in all wiring problems affecting his equipment, checking and verifying that same is wired correctly under the Electrical Section for proper operating of all mechanical items.
- D. Furnish under this section all heating, air conditioning, ventilating and other mechanical systems controls, starters, firestats, relays, and related equipment.
- E. Openings for all access doors, relief and return air grilles, etc., shall be provided under the respective trade sections.
- F. Curbs, flashings, etc., for exhaust fans, vents, etc., shall be provided under the respective sections.
- G. All HVAC control wiring shall be furnished and installed by Building, Automation and Temperature Control Contractor.
- H. Piping and ductwork penetrations through fire rated partitions/floors shall be fire sealed in accordance with the UL fire resistance directory. See Sealant Specification for materials. The integrity of the fire rating, as indicated on the architectural drawings, shall be maintained.

#### **1.4 QUALITY ASSURANCE**

- A. The Contractor bidding on this portion of the work must be fully experienced in installations of equal size, complexity, and quality, and must be licensed to perform such work as required by the Louisiana State Legislature, R.S.37:2152-2163.
- B. In bidding he acknowledges that he fully understands the scope of work and design, and has the ability for the contract price to assemble and install the equipment, piping and ductwork shown or specified, so as to mold same into a satisfactory workable system and arrangement.
- C. Contractor shall recognize that a fault or error in his work remains his responsibility regardless of whether such difficulty was discovered after the work had progressed, and shall make corrections at no cost to the Owner.
- D. Adequate and competent constant supervision shall be provided by Contractor to assure that work is done in accordance with good standard practice and workmanship

and with intent of drawings and specifications. Contractor shall recognize that amount of information and detail could be provided to contract documents is limitless and could extend into every minute detail and sequence of operations, to a point where only workmen would be required, without drawing on ability, experience and ingenuity of the Contractor.

- E. All work shall be installed in strict accordance, with all existing local and state codes and ordinances, with National Board of Fire Underwriters
- F. This Contractor shall secure all permits and inspections and shall pay all fees and taxes and shall provide Owner with certificates of approval from agencies having jurisdiction over various phases of work.
- G. Contractor shall maintain and service all equipment until time of acceptance by Owner. Contractor shall include all required service access in the installation as required by the manufacturer and governing codes.
- H. Prior to starting any work, the Contractor shall submit a quality assurance plan for approval by the Architect. In the quality assurance plan, the Contractor shall provide the following information:
  - 1. List of all sub-contractors and equipment suppliers.
  - 2. List of all foreman and job superintendents including job experience for all trades.
  - 3. Construction time schedule demonstrating coordination with other trades and showing detailed time lines for test and balance and commissioning being completed prior to final punch list inspection.

## **1.5 SUBMITTALS**

### **A. Shop Drawings and Submittal Data required:**

- 1. Submit to the Architect for review, complete descriptive information and dimensional data on all items of equipment, materials and accessories, including duct and equipment layouts. Piecemeal submissions shall not be approved. Written approval thereof must be obtained before ordering or installation. The following shall be submitted:

- Plumbing Fixtures
- Plumbing Layout Drawings
- HVAC Shop Drawings
- Diffusers, Grilles & Registers
- HVAC Test & Balance Report
- DX Split Systems
- Plumbing Piping & Materials
- Valves, Strainers & Fittings

## Exhaust Fans

2. Shop drawings and submittal data shall be considered to be instruments of service only and submitted for the sole purpose of convenience to the Contractor to assist him in the performance of the contract. The Architect's review of the shop drawings and submittal data shall not supersede these specifications, the accompanying drawings, or the contract terms, unless specifically covered by a properly executed change order, and then only to the extent specifically and explicitly stipulated therein.
  3. Submit in accordance with requirements of Architectural Sections, Division 1.
  4. Ductwork shop drawings shall be at a minimum ¼" scale. Duct shop drawings shall show the following:
    - a. All structural members larger than 4".
    - b. All hydronic piping 2" or larger.
    - c. All conduit 2" or larger
    - d. All duct fittings, take-offs, volume dampers, control devices and fire dampers.
    - e. All grilles, louvers, registers and diffusers.
    - f. Duct dimensions and insulation methods.
    - g. Duct dimensioned from structural beams and columns.
    - h. Architectural ceiling heights, furrings, chases, etc.
    - i. Cross-sections in areas of congestion or conflict.
    - j. Installation details for all duct and related equipment.
    - k. Lights, speakers, smoke detectors and other ceiling mounted devices.
- B. After completion of project Contractor shall turn over to the Architect complete operating and maintenance instructions including listing of supply and repair items and locations of places to purchase same. Comply with requirements of Division 1 Sections.
- C. Substitutions:
1. All material, equipment, methods, and accessories entering into the work under this section of contract are subject to approval or disapproval of the Owner. Approval of any manufacturer, material, or product shall not constitute a waiver of Owner's right to demand full compliance with contract requirements, including shape, size, quality and performance.
  2. Equality of materials is that established by opinion of Owner. Decision of Owner is final.

3. Whenever a material or article of equipment is specified by use of a proprietary name, or by naming the manufacturer or vendor, any material or article which will perform adequately the duties imposed by the design will be considered for substitution, providing it is of equal substance, and function, meets specifications, and is aesthetically acceptable to the Owner. Refer to Division 1 Sections for approval procedures.
4. Literature, technical data, etc., includes complete data and samples if necessary, with submissions for substitutions. Burden of proof that material offered for substitution is equal, or superior, in construction and efficiency to that named, rests on Contractor, and unless proof is satisfactory to Architect, substitution will not be approved. Contractor shall note any deviations from specified equipment with the substituted submittal. Failure to note deviations will result in rejection of substituted equipment and materials.

D. See Architectural Specifications for "As-Built" requirements.

## **1.6 PRODUCT DELIVERY, STORAGE AND HANDLING**

Take necessary precautions to protect all material, equipment, apparatus and work from damage. Failure to do so to the satisfaction of the Architect will be sufficient cause for the rejection of the material, equipment or work in question. Contractor is responsible for the safety and good condition of the materials installed until final acceptance by the Owner. Comply with equipment manufacturer's requirements. No insulation or electrical components, shall be subject to water damage.

## **1.7 JOB CONDITIONS**

- A. Accompanying drawings, including plans, details, diagrams, notes, etc., are shown to limit and explain structural conditions, construction requirements, sizes, capacities and method of installation and erection. Structural and other conditions may require certain modifications and adjustments from conditions shown. Such deviations are permissible; however, specific sizes capacities and requirements affecting the satisfactory performance and operation of the installation shall remain unchanged. Make allowance for normal job conditions and interferences.
- B. Whenever it becomes necessary to shift ducts or pipes or to change shape of ducts, such changes shall be referred to Architect for approval.
- C. Ask for details whenever uncertain about method of installation. Lack of details not requested shall not excuse improper installation and correction shall be responsibility of Contractor. Contractor shall consult manufacturer for details specific to their items of equipment.

- D. Furnish detailed duct layout and equipment room shop drawings based on field measurements and actual job conditions.
- E. Schedule and perform all mechanical work to avoid delays to the Contractor and other trades.
- F. All piping, cleanouts and covers, and other mechanical items in way of construction or remodeling, shall be rerouted, relocated or otherwise adjusted to work out with such construction or changes shown or specified in any or all of various sections of specifications. Unknown piping that is encountered will be referred immediately to Architect for method of disposition before continuation of work.
- G. The Contractor shall review the architectural drawings to become familiar with the phasing of construction required for this project.

## **1.8 GUARANTEE AND SERVICE**

- A. Guarantee all equipment, materials, and workmanship for a period of one (1) year following date of acceptance.
- B. During the period of guarantee any defects in equipment, materials, or workmanship shall be promptly corrected without cost to the Owner.
- C. Guarantee includes equipment capacity and performance ratings specified without excessive noise levels. Any deficiencies in equipment capacity specified shall be promptly corrected.
- D. Guarantee does not include maintenance items.

## **PART 2 - PRODUCTS**

### **2.1 ACCESS PANELS**

- A. Provide all access panels necessary for proper access to valves, traps, fixture connections, control devices or other items installed under this contract.
- B. Panels to be Milcor, Type M, or KARP Model D3C-214M hinged with screwdriver lock or as indicated on drawings for special locations, minimum size 12" x 12" or larger as required for proper access.
- C. Exact locations for panels to be directed by Architect.

## **2.2 TOOLS AND SCAFFOLDING**

Furnish all tools, equipment, scaffolding and other facilities required to properly and expeditiously perform the work.

## **2.3 SIPHON PREVENTORS**

Furnish and install on all equipment and fixtures requiring same, backflow preventors or vacuum breakers of a type approved by the Louisiana Health and Human Resources. Water connections to fixtures and equipment shall be made in such a way as to prevent back siphonage when the water supply is out or the pressure drops. Provide reduced pressure type back flow preventors where indicated on drawings. They shall be Watts series 900 or Febco Series 825, size as indicated on drawings.

## **2.4 SLEEVES AND THIMBLES**

- A. Pipe sleeves - wrought iron or cast iron of sufficient size for piping and installation to be installed in floors, walls below grade, and grade beams where piping passes through.
- B. Thimbles above grade - heavy galvanized steel of proper size to allow freedom of piping and insulation, set in floor or roof slab as work progresses, also to be installed in wall and partitions where piping passes through.
- C. Thimbles below grade - same as pipe sleeves above.
- D. Sleeves through floors extend 1" above finished floor. Caulk around and seal all piping in chases and piping passing through floor slab.
- E. Provide sleeve seals and shields for all pipe penetrations of ground floor slab.
- F. Provide UL listed fire-stopping in all pipe penetrations of rated floors and walls, see Architectural Specifications for Requirements.

## **2.5 BUCKS, GROUNDS AND CHASES**

- A. Be responsible for proper location and sizes or for any errors or omission in placing same.
- B. Failure to inform the General Contractor promptly of such requirements shall not relieve the Mechanical installer of the responsibility for providing a complete mechanical system.

## 2.6 HANGERS

A. Horizontal piping above grade without hubs shall be rigidly supported. Distance between pipe supports:

- |                         |                |
|-------------------------|----------------|
| 1. 1/2" pipe            | 6'-0" maximum  |
| 2. 3/4" pipe            | 7'-0" maximum  |
| 3. 1" pipe              | 8'-0" maximum  |
| 4. 1 1/4" pipe          | 9'-0" maximum  |
| 5. 1 1/2" pipe and over | 10'-0" maximum |

B. Hangers shall be similar to "Split Ring" type.

C. Metal strap or wire will not be acceptable.

D. For two or more systems of piping run parallel and with same grade trapeze hangers may be used.

E. Use #22 gauge galvanized sheet steel saddles, minimum 18" long between the pipe covering and each pipe hanger on all insulated lines. Saddles shall extend along pipe runs and at least half way up piping on each side.

F. All above grade horizontal sewer drain, vent, waste and similar piping shall be hung at every hub using the same type hangers as specified for other piping.

G. All underground piping under building shall be hung from slab with stainless steel hangers. See detail on drawings.

H. Rods supporting pipe hangers shall have the following dimensions:

- |                   |          |
|-------------------|----------|
| 1/2" to 2" pipe   | 3/8" rod |
| 2-1/2" to 3" pipe | 1/2" rod |
| 4" to 5" pipe     | 5/8" rod |
| 6" pipe           | 3/4" rod |
| 8" through 12"    | 7/8" rod |

Rods for trapeze hangers shall be a minimum of 3/8" and shall have the equivalent cross section, listed above, per pipe supported.

## 2.7 PAINTING AND IDENTIFICATION

A. Equipment, including pumps, motors, and similar factory fabricated and assembled units shall be furnished with factory applied protective prime coat paint of finished

baked enamel. Equipment surfaces damaged during course of construction or shipment shall be refinished by the Mechanical Contractor.

- B. Uncoated black ferrous piping and fittings shall be cleaned under this section and painted with one coat of enamel paint under PAINTING SECTION. Color of piping shall be selected by Architect. Hangers and supports shall be coated by dipping or brush painting with one coat of asphalt varnish. Steel frame equipment supports shall be cleaned and painted with one coat of aluminum paint.
- C. Detached motor controllers, disconnects, etc., shall be identified with metal or plastic plates with etched letters to completely identify service of electrical equipment.
- D. Major control and sectionalizing valves shall be identified by means of etched brass plates bracketed to valve handle. Contractor shall prepare schedule of such identifying plates for Architect's approval.
- E. Exposed ductwork shall be cleaned under this Section and painted under Painting Section.

### **PART 3 - EXECUTION**

#### **3.1 FLASHING AND COUNTERFLASHING**

All pipes and ducts that pass through roof and walls shall run so as not to interfere with the structural system and to permit proper application of base and counterflashing. All plumbing vents are to be finished with 2-1/2 pound sheet lead turned down into pipe. Other pipes to be provided with suitable curbs and flashed to roof or walls as indicated. Flues shall be properly flashed and counterflashed with approved type jacks. Roof drains shall have 2-1/2 pound lead sheet base secured to drain clamp and extending minimum of 2'-0" in all directions.

#### **3.2 CLEANING, STERILIZING AND PIPING**

- A. When all work has been finally tested, Contractor shall clean all fixtures, pipes and exposed work.
- B. All pipes shall be free from all obstructions.
- C. All plated and other finished products shall be thoroughly cleaned and polished.
- D. New water piping shall be sterilized as required by State Sanitary Code. Provide detailed reports describing sterilization method and duration for each piping section.

- E. All piping shall be installed so that it may expand and contract freely without damages to equipment, other work, or injury to piping system. All necessary swing joints, expansion joints, or offsets to protect piping, etc., shall be installed whether indicated or not. Piping shall be graded to allow for system drainage.
- F. Stainless steel or chromium plated floor, wall and ceiling plates shall be furnished on all exposed piping passing through floor, walls, or ceilings. Plates shall be secured in place with round head screws or toggle bolts of proper size and type for adjacent construction.
- G. All piping shall be installed and sized as indicated on plans and be of equivalent materials to piping as hereinafter specified.
- I. All piping shall be installed with runs arranged parallels or perpendicular to walls and ceilings with symmetrical and equal spacing between parallel pipes. Offsets shall be made using factory fittings, bending of piping shall not be accepted.
- I. Notify Engineer a minimum 72 hours prior to enclosing piping in concealed spaces so that piping may be inspected.

### **3.3 TESTING AND INSTRUCTION**

- A. Piping shall be tested to pressure hereinafter specified. Where pressures are not mentioned, it shall be understood that testing to 1-1/2 times service conditions, before insulation is applied, will be acceptable. All tests shall be held for a minimum of 24 hours before inspection. Test pressures shall not exceed the rated working pressure of any system component.
- B. Furnish all necessary gauges, pumps, test plugs, and temporary connections and shall test sections of the building as work progresses.
- C. All new underground sewerage, waste and storm drainage piping shall be plugged at outlets and tested hydrostatically to 10 psi before being covered. Notify Engineer a minimum 72 hours prior to any backfill of underground piping so that piping may be inspected. Failure to notify Engineer prior to backfill will constitute a rejection of the underground piping installation. All other drainage piping, vent and waste risers shall be plugged and tested by filling with water from top to bottom of each floor prior to being connected to fixtures. Tests shall be held a minimum of 24 hours.
- D. All new cold and hot water supply piping shall be tested hydrostatically to 125 pounds per square inch before application of insulation. Test shall be held a minimum of 24 hours.

- E. All new gas piping shall be air tested to a pressure of 75 PSI. During the test, all joints shall be painted with a soap solution to test for leak. The test shall be held a minimum of 24 hours.
- F. All tests shall be made in the presence of the Architect or his representative. Where pipes or connections in new piping are found to leak, they shall be made tight and the tests repeated.
- G. Make all necessary adjustments to controls, dampers, valves, etc., to obtain best operation first with empty building and later under actual conditions. A minimum of two job site visits required.
- H. Thoroughly check the operation of each item of equipment and controls while testing, without waiting first for the Owner or Architect to complain about their operation. Verify that same are wired correctly and completely, notifying the proper parties for necessary corrections. Thoroughly instruct the Owner's representative in the operation and care of controls, individual equipment, and entire system. Provide training for each equipment item to include recommended maintenance procedures, control adjustments and system installation specifics. The following is the minimum training period for each item of equipment:
  - HVAC System – 4 hours
  - Plumbing System – 4 hours
- I. Provide Architect with six (6) copies of balance reports as hereinafter specified. See Section 15850.
- J. After adjustment period and before acceptance replace construction filters specified in 3.7 with specified type.

### **3.4 CUTTING AND PATCHING**

Cooperate to the fullest extent with all other trades to reduce to a minimum the amount of cutting and patching of other work necessary for this installation. Do not cut or patch the work of other trades but arrange to provide cutting templates in time, or otherwise pay the respective other contractors for changing theirs, to accommodate this work. No cutting into any structural units likely to impair the strength shall be done without the approval of the Architect.

### **3.5 CLEAN UP**

Remove debris, surplus and waste materials, oil, grease or stains resulting from the work performed and leave the premises in a broom clean condition AT THE END OF EACH

WORKING DAY. All debris, surplus and waste material shall be removed completely from the job site.

### **3.6 COMMISSIONING**

- A. Contractor shall install all items of equipment as identified in this specification in strict accordance with manufacturer's requirements (whether identified in this specification or not), shop drawings and contract documents. Contractor shall coordinate with Electrical and Building Automation and Temperature Control System Contractors to insure a complete installation. Start-up of all equipment shall be by manufacturer authorized representative. Start-up services shall be provided for as long a period of time as is necessary to insure proper operation of the equipment items. The start-up technician shall conduct all operating tests as required to insure the equipment is operating in accordance with design parameters. Complete testing of all safety and emergency control devices shall be made. The start-up technician shall submit a written report to the engineer (prior to final punch list inspection) containing all test data recorded as required above and a letter certifying that the equipment is operating properly.
- B. Other specific items of commissioning shall be as follows:
1. Visually inspect insulation system to verify that insulation is continuous and vapor barrier is complete. Verify there is no condensation or hot spots.
  2. Thoroughly test all piping systems to insure no leaks are present. Adjust valves, pressure reducing valves, etc., as required by operating characteristics of the system. Set pressures of domestic water systems.
  3. Check operation of all plumbing fixtures to insure proper water flow (hot & cold) and drainage. Verify that roof drains, floor drains and hub drains are not clogged and drain water. Adjust hot water recirculation balance cocks, pumps and piping to insure hot water flow is present at all fixtures within 10 seconds.
  4. Ductwork shall be tested by the balancing Contractor. See Section 15850.
  5. Vibration isolation shall be tested by running equipment and checking deflection of spring isolators. Make adjustments as required. No isolator shall be fully compressed.
  6. Piping shall be checked and labeled to insure direction of flow.
  7. Provide written reports for all startup and commissioning tests listed above for Engineer review prior to final punch list inspection.

### **3.7 OPERATION OF AIR-HANDLING UNITS DURING CONSTRUCTION**

Contractor shall provide 4"-85% efficient filters for units with 1.0" ESP and greater or (sets of 2) MERV 12, 1" filters for units under 1.0" ESP for air-units operated during construction. In addition roll type filter media shall be provided on all return air grilles and unit openings. Contractor shall be responsible for changing media as required. The Contractor is to protect the air unit coils and keep air-unit and duct interior surfaces clean. If the Contractor fails to comply with the filtration requirements, the Contractor shall clean and/or replace the coils and duct system at his expense.

END OF SECTION 15050

## **SECTION 15250 - PIPING AND EQUIPMENT INSULATION**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. Provide a complete system of insulation, as herein specified, for both inside and outside of building.
- B. The General Provisions of the Contract including General and Supplementary Conditions and General Requirements apply to the work specified in this Section.
- C. Refer to Section BASIC MATERIALS AND METHODS, which is applicable to this Section.
- D. Insulation shall include insulating materials, their applications, finish, bands, tie wire and weather protection for all piping, fittings, valves, and equipment as indicated and specified herein.

#### **1.2 GENERAL**

- A. All insulation shall be applied in a workmanlike manner by skilled workmen regularly engaged in this type of work.
- B. All pipe insulation shall have COMPOSITE flame and smoke hazard ratings as tested in accordance with standard testing methods (NFPA) 255 and UL 723).
- C. Composite ratings shall not exceed: flame spread 25, smoke developed 50.
- D. Accessories such as adhesive, mastic, cement, tapes and cloth shall have the same component ratings as listed above.
- E. THE INSULATION CONTRACTOR SHALL CERTIFY IN WRITING, PRIOR TO INSTALLATION, THAT ALL PRODUCTS TO BE USED WILL MEET THE ABOVE CRITERIA.

### **PART 2 - PRODUCTS**

#### **2.1 AIR CONDITIONING DRAINS AND REFRIGERANT PIPING**

- A. Insulate all air conditioning condensate drains and refrigerant pipe, fittings, flanges and valves with flexible foamed plastic tubing insulation, J-M Aerotube 11, Rubatex, or approved equal. Thickness to be 3/4 inch.
- B. Insulate all horizontal waste piping (new or existing) above ground that receives A/C condensate from drain to vertical stack. Also insulate the "P" trap of those drains. Insulation shall be same as specified for above ground domestic cold water piping, fitting flanges and valves except thickness shall be 1/2 inch for all pipe sizes.

## **2.2 DUCT INSULATION**

- A. DUCT SIZES SHOWN ON DRAWINGS ARE FREE AREA SIZES. See Section 15800 for insulation and duct material and type required for each application. Insulation shall be as per the following:
- B. Lined Duct system - All lined ducts shall be lined with Knauf Duct Liner E-M, Manville Lina-Coustic ductliner, or approved equal. Duct Lining shall be applied in strict accordance with the latest edition of SMACNA's "HVAC Duct Construction Standard Metal & Flexible." Mechanical fasteners shall meet "Standards for Mechanical Fasteners MF-1-1975." Length of mechanical fasteners shall not compress the insulation more than 1/8" and shall be installed perpendicular to the duct surface. Adhesive shall conform to ASTM C 916 and be applied to the sheet metal with a 90% minimum coverage. All exposed edges of the duct liner material shall be coated with the same adhesive. All rips and tears shall also be repaired using adhesive. All internal duct areas shall be covered with duct liner. Transverse joints shall be firmly butted with no gaps, and coated with adhesive. Longitudinal corner joints shall be overlapped and compressed. For velocities from 4001 to 6000 FPM, metal nosing shall be applied to all upstream transverse edges to additionally secure the insulation." Liner shall be 1" thick, 1.5 PCF.
- C. Exterior Duct Wrap - Exterior insulation duct wrap shall be 2" thick .75 PCF fiberglass wrap with F.S.K. jacket.

## **2.3 DOMESTIC HOT AND COLD WATER PIPING ABOVE GROUND**

- A. Insulate all new above ground hot & cold water pipe with glass fiber pipe insulation with factory applied white all service jacket, with self-sealing lap (ASJ-SSL).
- B. Insulate fittings, flanges and valves with performed insulation with PVC premolded one-piece fitting covers, with fiberglass inserts. Premolded or shop fabricated Glass Fiber covers may be used in lieu of above at the Contractor's option. Optional covers to be given a smoothing coat of finishing cement in exposed areas and vapor sealed in all areas with vapor barrier mastic coating reinforced with white glass fabric.

- C. Insulation thickness for all cold water piping to be ½ inch.
- D. All new domestic hot water and hot water circulating piping shall be insulated in accordance with the Schedule below.

| INSULATION<br>THICKNESS                       | PIPE<br>DIAMETER                |      |
|---|---------------------------------|------|
| All mains, branches<br>and other piping<br>1” | 1-1/4” and less<br>1-1/2” to 4” | 1/2” |

- E. Provide an isolating vapor seal between pipe insulation jacket and pipe at butt joints of insulation at fittings, flanges, valves, hangers and at 21 foot intervals on continuous runs.
- F. Adhere longitudinal laps and butt strips of jacket with factory applied pressure sensitive tape system.

### **PART 3 - EXECUTION**

#### **3.1 WORKMANSHIP AND INSTALLATION**

- A. All insulation shall be applied per manufacturer's specifications and installation requirements.
- B. Insulation shall be applied over clean dry surfaces after all test have been performed and approved.
- C. Methods of application and other details not specified herein shall be in accordance with manufacturer's recommendations, which shall constitute minimum standards.
- D. Sheet Metal Saddles - 10" long shall be provided on all hangers supporting insulated lines. They shall be fabricated to conform with the outside diameter of the pipe covering and shall be fabricated from 22 gauge sheet iron for pipe through 2-1/2" 20 gauge sheet iron for pipes through 8" and 16 gauge for all pipes over 8".
- E. A rigid insulation material shall be used at each pipe hanger as an insert and the pipe covering shall pass full thickness through the hangers.

- F. On all outdoor piping insulation above ground (including refrigerant piping), provide aluminum jacket 0.016 inch thick with longitudinal z-joint secured with preformed 2" wide butt strips, as manufactured by KNAUF, MANVILLE or approved equal. Provide preformed aluminum fitting cover on all fittings.

END OF SECTION 15250

## **SECTION 15400 - PLUMBING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The General Provisions of the Contract, including General and Supplementary Conditions and General Requirements apply to the work specified in this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. Furnish and install new fixtures, waste, vent, storm drain, cold water and hot water piping shown on plans.
- B. Connections of all equipment and fixtures with accessory fittings, shut-off valves, trimmings, traps, structural supports, insulation, etc., as herein specified and/or as shown on drawings.
- C. Refer to SECTION 15050 which is applicable to this Section.
- D. Include (but not necessarily limited to) the following items of mechanical equipment, fixtures and materials installed and in a first class operating condition:
  - 1. All labor, materials, equipment, accessories, and miscellaneous items required to provide a complete plumbing system. Provide adequate supervision at all times during the progress of the work.
  - 2. All plumbing piping and hangers for same as specified herein and where shown on the Architectural and/or mechanical drawings.
  - 3. All sewer, waste and vent piping and all cleanouts necessary for a complete operation installation as shown on mechanical drawings, or as required by the State and Local Sanitary Codes.
  - 4. Temporary water, sanitary, etc., facilities during construction period.

#### **1.3 QUALITY ASSURANCE**

- A. Manufacturer: Provide plumbing fixtures and accessories for work in this Section produced, meeting the requirements specified.
- B. Soldering processes shall conform to ASME B31.3 Process Piping and Copper Development Association recommended practices.

### **PART 2 - PRODUCTS**

## **2.1 SANITARY SEWER**

- A. Cleanouts in sanitary lines, both inside and outside at building, cast-iron body caulking ferrules with brass thread flanged plugs.
- B. Cleanout covers located in floors for sewer lines inside of building, with satin brass scoriated tops and covers.
- C. Cleanouts shall be installed in each change of direction of sewer lines where more than a 45 degree angle turn is made. Cleanouts shall be provided within 18" of each sanitary tee.
- D. Cleanouts on underground lines shall be brought to a cast-iron cleanout box, with service marking, 1/2" thick flanged type and loose cover. Provide 12" X 4" thick concrete slab around cover and frame.
- E. Size and distance between cleanouts shall be required by local authorities and/or as indicated on drawings.
- F. All floor drains shall be provided with trap primers and ½" trap primer line.
- G. All soil, waste and vent piping shall be solid core, pressure rated schedule 40 PVC with solvent weld fittings. Pipe and fittings shall conform with ASTM D 2665.

## **2.2 DOMESTIC WATER**

- A. Ball valves shall be provided where indicated on drawings and shall be designed for a minimum water working pressure of not less than one hundred fifty (150) pounds per square inch. Each underground valve shall be protected by a cast-iron valve box with minimum thickness of 3/16 inch. The cover shall have the word "WATER" cast in the metal.
- B. Hot and cold water piping inside the building shall be hard drawn seamless copper tubing, type "L", with wrought copper sweat fittings and lead free solder above grade. No joints shall be allowed under building slab, on piping 1" and smaller, larger pipe sizes shall have joints with lead free solder. Water piping underground shall be Type "K". Piping on exterior of building shall be Type "K".
- C. All piping, fittings, solder and flux used in conjunction with the potable water systems shall be lead free. The term "lead free" shall be as defined in the Safe Drinking Water Act Amendment of 1986 (P.L. 99-339).

## **2.3 FIXTURES**

- A. Furnish, install and/or connect all plumbing fixtures indicated on drawings or as herein specified. Refer to Mechanical as well as Architectural Drawings for location and number of fixtures required. If any fixtures shown on Architectural Plans but not on Mechanical Plans, or vice versa, these fixtures shall be furnished, installed and connected the same as if indicated on all drawings. See Architectural Drawings for specific fixtures required. Where a specific manufacturer's name and catalog number is used to indicate the type and quality required, it shall be assumed that other manufacturer's products may be used, where they are equal and approved by the Architect as stipulated elsewhere herein.
- B. Each plumbing fixture shall be fitted with all necessary and proper fittings, trim and operating devices and shall be left in perfect operating condition. The finish of all traps, wall escutcheons, and exposed metal work in connection with fixtures, trimmings and operating devices shall be chromium plated.
- C. Before setting any fixtures or rough-in for fixtures, obtain the exact mounting height, as desired, from the Architect.
- D. Equipment shown on drawings to be furnished under other sections shall be roughed-in, installed and connected by this Contractor under this Section. This Contractor shall furnish and install all necessary valves, piping, fittings and waste traps, etc., not provided with said equipment but as required for proper operation and installation. Obtain rough-in dimensions before installing any piping.
- E. Plumbing fixtures shall be as indicated on the drawings

## **2.4 VALVES, STRAINERS, UNIONS AND FITTINGS**

- A. General - All material shall be new, of the best quality with same brand or manufacturer for all similar installations. SEE SECTION 15900 for type and manufacturer.

## **2.5 WATER HAMMER ARRESTORS**

- A. Provide arrestors as marked A.C. (air chambers) where shown on the drawings and/or as necessary to prevent water hammer in the cold water and hot water piping based on actual piping arrangement on the job. At a minimum water hammer arrestors shall be provided at each fixture group. Branch lines over 20' shall be provided with 2 water hammer arrestors. Size and install water hammer arrestors as per manufacturer's recommendations for the installed plumbing fixture units on each branch.
- B. Install fluid water hammer arrestors in compliance with ASSE Standard 1010.

- C. Each unit shall be constructed with a single moving part. The barrel shall be fabricated of Type "K" hard drawn copper, with the cap fabricated from standard wrought copper fittings attached to the barrel with lead free solder. The piston shall be machined from brass and equipped with rubber "O" rings.

## **PART 3 - EXECUTION**

### **3.1 WORKMANSHIP**

- A. All piping, waste and stacks shall be run concealed underground, in ceiling spaces, walls or in chases provided. The entire installation must present an appearance truly in keeping with the best practice and indicative of skill and neatness. In areas of exposed ceilings piping shall be grouped together and run on common pipe hangers with piping run parallel to building lines.
- B. All material shall be installed in a neat and workmanlike manner by competent specialists for each sub-trade. The installation of any materials and equipment not meeting these standards may be condemned by the Architect and shall be removed and re-installed at no additional cost to the Owner. Contractor is responsible for the safety and good condition of the materials installed until final acceptance by the Owner.

### **3.2 INSTALLATION**

- A. Pipe shall be laid to the grades and alignment indicated on the drawings. Each pipe shall be laid line to line and grade and in such manner as to form a close concentric joint with the adjoining pipe and to prevent sudden offsets of the flow line. The interior of the pipe shall be cleaned of all dirt and superfluous materials of every description. Trenches shall be kept free from water until the pipe joining material has set and pipe shall not be laid when the conditions of the trench or the weather is unsuitable for such work. At times when the work is not in progress, open ends of pipe and fittings shall be securely closed, so that no trench water, earth or other substance will enter the pipe or fittings. Minimum compacted pipe coverage shall be 2'-0", or as indicated on drawings.
- B. Where the location of the sewer is not clearly defined by dimensions on the drawings, the sewer shall not be run closer horizontally than 6'-0" to water supply main except that the bottom of the water pipe will be at least twelve (12") inches above the top of the sewer pipe, both pipes may be lain in the same trench. Where sewer mains cross above water services the sewer piping for a distance of ten (10') feet each side of the crossing shall be cast-iron without any joint closer horizontally than three (3') feet to the crossing.

### **3.3 SANITARY SEWER PIPING**

- A. New piping shall be a complete system to waste and vent lines from all fixtures.
- B. All waste lines shall be installed on a continuous waste and vent system as required by codes and/or regulations.
- C. All piping shall be installed straight and true and sized as indicated on drawings.
- D. All changes in direction shall be made by the use of 45 degree wyes, double wyes, long sweep quarter bend or 1/8 bends, except that single sanitary tees may be used on vertical stacks. Tees and crosses may be used in vent pipes.
- E. Cleanouts easily accessible shall provide at the foot of each vertical waste or soil stack. Cleanouts shall be of nominal size as the pipes up to four (4") inches and not less than four (4") inches for larger pipes. The distance between cleanouts in horizontal lines shall not exceed those distances required by local authorities, whether indicated or not.
- F. All cleanouts installed so as to be easily accessible, and all outside cleanouts installed flush with finished grade.
- G. Horizontal soil or waste lines shall be run at uniform grade of not less than 1/4" per foot. Horizontal lines shall be supported or anchored at intervals specified in BASIC MATERIALS AND METHODS. All stacks shall be supported at their base and every floor to the roof line and pipes shall be rigidly secured.
- H. Every fixture trap shall be protected against siphonage and back pressure and air circulation assured by means of a soil or waste stack vent, a continuous waste or soil vent, a loop or circuit vent.
- H. No vents shall be less than 2" in diameter and no case shall branch or main vent have a diameter less than half that of the soil or waste pipe served, or as required by local code.

### **3.4 HOT WATER AND COLD WATER SYSTEMS**

- A. This installation comprises a complete and operating system of hot and cold water distribution and connection to each and every fixture and appliance requiring this service and/or as indicated on drawings.
- B. All ends of tubing shall be square cut and burrs removed before assembling. Joints shall be thoroughly cleaned with sandpaper or emery cloth before applying the flux.

- C. All water supply piping, fittings, and fixtures shall be protected against water hammer shock, or surge pressure, by adequate air chambers.
- D. Each riser battery shall be valved in an accessible location.
- E. No hot water piping shall be run closer than six (6") inches from cold water pipes.
- F. Distribution and sizes shall be as indicated on drawings.
- G. Pitch all piping to low points to allow for system drainage.

### **3.5 MISCELLANEOUS ITEMS OF WORK**

- A. Contractor shall be responsible for securing all information and data for connection to all utilities and pay all costs including meter fees and connection fees.
- B. Contractor shall provide temporary water and sewerage on site for use during construction period as required.
- C. All valves shall be installed so as to be easily accessible for cleaning, inspection maintenance, and operation.
- D. Provide access panels at all concealed valves.
- E. All welded piping to be welded by Certified welders skilled in the work to be done.
- F. No piping of dissimilar metals placed in contact or in close proximity with each other. Provide bronze valves wherever piping of dissimilar metals is jointed.
- G. Provide all necessary steel frames supports, anchor bolts, sleeves, etc., required for safe support of equipment and piping installed under this contract. The Mechanical Contractor shall be completely responsible for the accurate position and dimensions of all foundations and support times.

END OF SECTION 15400

## **SECTION 15800 - HEATING, VENTILATION AND AIR CONDITIONING**

### **PART 1 – GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The General Provisions of the Contract, including General and Supplementary Conditions and General Requirements apply to the work specified in this Section.
- B. Refer to Basic Materials and Methods Section 15050 which shall apply to work in this Section.

#### **1.2 DESCRIPTION OF WORK**

- A. The work to be done under this Section includes the furnishing of all labor, tools, materials, equipment and services necessary for and reasonable incidental to the installation of complete air conditioning and heating and ventilation equipment as shown on plans and herein specified, excepting only work and/or materials indicated as being done and/or furnished under other sections.
- B. Contractor shall refer to other Sections of the Specifications which may be applicable to or associated with this Section.

#### **1.3 RELATED WORK SPECIFIED IN OTHER SECTION**

- A. Electrical Section will provide all power wiring including furnishing and installing of disconnect switches where specified. Control wiring for air conditioning equipment shall be provided by Building Automation and Temperature Control Contractor.
- B. Other Sections will provide and install structural supports for equipment. These supports must be checked and coordinated by this Section so that they suit the equipment which is to be supported.
- C. Other Sections will provide all platforms slabs, lintels and curbs, as directed by this Section, to accommodate the mechanical equipment.
- D. Mechanical Contractor shall provide starters for motors furnished under this Section.

#### **1.4 QUALITY ASSURANCE**

- A. These specifications with accompanying drawings, require complete apparatus, fully erected and in successful operating condition. Perform all work in best, most substantial manner.
- B. All equipment furnished and installed under this Section shall be U.L. or E.T.L. approved and labeled where applicable.
- C. All unfired pressure vessels furnished under this Section shall be ASME and National Board stamped.
- D. All manufacturers products shall comply with the requirements of this Section.
- E. Employ qualified sheet metal workers in accordance with SMACNA Duct Construction Standards.
- F. Qualify welding/brazing process and welder/brazer performance in accordance with AWS B2.2, Standard for Brazing Procedure and Performance Qualification, or ASME Boiler and Pressure Vessel Code, Section IX (See 15050). Provide copy of certification for welding and brazing processes.
- G. Soldering processes shall conform to ASME B 31.3, Process Piping and Copper Development Association recommended practices.

## **1.5 SUBMITTALS**

- A. Contractor, before beginning work, shall submit dimensional shop drawings (in accordance with requirements of Division 1), for approval, for all duct systems. Contractor is responsible to coordinate all plumbing, piping, sprinkler, ductwork and electrical to avoid all conflicts. Conflicts encountered after work has started will be corrected at Contractor's expense.
- B. Where the equipment installed is of a different configuration and/or size than that shown on the drawings, Contractor shall assume all responsibility to conform with the intent of the contract documents. The Architect shall be advised of any changes and deviations for his approval. The same shall be true for any field modification required because of "on job" construction conditions.

## **PART 2 - PRODUCTS**

### **2.1 HVAC DUCTWORK**

- A. Provide and install a complete system of ductwork as herein specified to include, but not limit to supply, return, exhaust and fresh air with grilles, registers, diffusers and

appurtenance to provide a complete functional and operational system. Duct sizes shown on drawings are free area dimensions. Design shall be as described in the latest edition of SMACNA manuals and as per the following:

1. Galvanized sheet metal shall be lock form quality per ASTM A653 with a G90 zinc coating.
2. Outside air and exhaust air ducts shall be galvanized sheetmetal with air-tight seams and as per applicable sections of SMACNA manuals for low velocity ducts. Insulate outside air and exhaust air ducts with external wrap as per SECTION 15250.
3. Supply and return ducts for low pressure system and, low velocity systems shall be galvanized sheetmetal with airtight seams and as per applicable section of SMACNA manuals for low velocity ducts. All ducts shall be insulated with 2 layers of 2" exterior wrap as per Section 15250.
4. Rectangular ductwork for medium pressure, high velocity systems shall be galvanized sheetmetal with airtight seams and as per applicable section of SMACNA manuals for high velocity ductwork. Insulate with 2" exterior duct wrap as per Section 15250.
5. Round rigid ductwork shall be all round single wall spiral pipe and fittings, galvanized steel, as per applicable sections of SMACNA manuals for high velocity duct. Insulate with 2" exterior duct wrap as per Section 15250. Seal all seams, joints and wall penetrations with hardcast as herein specified.
6. All ducts shall be sealed per SMACNA Seal Class A. All joints, longitudinal seams and wall penetrations of all supply, return outside air and exhaust ducts shall be sealed with an elastomeric tape which shall consist of a pressure sensitive layer of modified butyl rubber sealer laminated to a foil backing material which shall conform to surface variations and irregular areas and shall not harden crack or peel. The sealant shall be waterproof and shall be a minimum of 15 mils thick. All ductwork shall be cleaned and prepared and sealant shall be applied strictly in accordance with manufacturer's instructions and recommendations. Sealant shall be Hardcast FG-1402, Suretape #653 or approved equal, at Contractor's option flanged gasketed duct system may be used for POSITIVE PRESSURE SYSTEM ONLY.
7. Flexible round duct where indicated on plans shall be listed by Underwriters' Laboratories, Inc., under UL-181 standards as Class I flexible Air Duct Material complying with NFPA Standards 90A. Ducts shall be rated on maximum pressure of 6 inches WG positive and 2 inches WG negative. The duct shall be factory fabricated assembly composed of: an inner duct of woven and coated fiberglass providing an air seal and bonded permanently to corrosion resistant coated steel wire helix: a 2" thick fiberglass insulating blanket and low permeably

outer vapor barrier of fiberglass reinforced metalized film laminate. Pressure drop not to exceed .15" SP at 500 Fpm through 6" or larger duct. Maximum length of flexible duct shall not exceed 8'-0". Connect flexible round duct with ½" wide nylon positive locking nylon straps on inner duct and outer duct.

8. Splitter dampers shall be installed where branches take off of main trunk ductwork, where ducts divide or where shown on the drawings. Splitters shall be fitted with nickel plated damper regulators in finished areas. Splitters shall be factory fabricated in accordance with SMACNA Duct Construction Standards.
- B. Flexible connections shall be provided between each fan unit and ductwork on supply side and also on return side. Material shall be flexible fire-resistive material, minimum 4" wide, UL listed, with no metal to metal contact.
  - C. Duct supports for rectangular ducts shall be a minimum 1" X 18 gauge galvanized steel bands. Hanger bands shall be bent under lower corners and secured with self-tapping screws at corners and six (6") inch intervals up the sides. Distance between hangers shall be as recommended by SMACNA manual for low and medium ductwork. Ductwork shall be rigidly supported to prevent vibration. Duct attachments to structure, lower hanger attachments, ducts traps and rods and trapeze angles shall be in accordance with SMACNA Low Pressure and High Pressure Duct Standards.
  - D. Where the ducts pass through walls, draft stops or partitions, the space shall be packed with non-combustible materials, filling all voids around duct.
  - E. Fire dampers with fusible links shall be installed at all points in ductwork where indicated on drawings, and/or as required by NFPA, 90-A, AND MECHANICAL CODE OF THE IBC.
  - F. Provide radius elbows unless specifically indicated otherwise or space prohibitive. Rectangular radius elbows shall be factory fabricated with a centerline radius of not less than the width of the duct. Round duct elbows shall have a minimum center line radius of 1-1/2 times the diameter of the duct and shall be smooth where possible. Provide square elbows where indicated or space prohibits the use of radius elbows. Square elbows shall be factory fabricated with double thickness airfoil turning vanes pre-assembled and securely attached to runners.
  - G. In general, vertical risers and other duct runs, where the method of support specified above is not applicable, or not specifically detailed on drawings, shall be supported by substantial angle brackets designed to meet field conditions, installed to allow for duct expansion and approved by Architect.
  - H. Provide exposed operators for operation of dampers and splitters in inaccessible ceilings, operators shall be chrome plated.

- I. Maximum duct leakage shall be +/- 5%, SMACNA Seal Class A. Ductwork between VAV box and air-handling unit shall be designed for 4.0" static pressure. Ductwork between VAV box and diffuser shall be designed for 2.0" static pressure. Outside air, return air and exhaust air systems shall be designed for 2.0" static pressure. Construct ductwork in accordance with SMACNA Duct Construction Standards for the specified pressure class.
- J. Install Automatic dampers, airflow stations and other duct mounted devices required by Section 15950.
- K. Flanged gasketed exhaust and return ductwork will not be accepted.
- L. Dimensions of ductwork, shown on plans, are free area dimensions.
- M. Provide opposed blade volume dampers with 2" standoff for all diffuser taps, main outside and return air at AHU's.

### **2.3 DIFFUSERS, GRILLES, REGISTERS AND LOUVERS**

- A. All sizes shall be as indicated on drawings.
- B. All outlets shall be balanced to obtain specific air quantities free of all objectionable draft and noises.
- C. Diffusers, grilles and registers shall be of normal commercial grade as indicated on Schedule on drawings.
- D. Louvers shall be as scheduled and/or detailed on drawings.
- E. Insulate the back of all diffusers, grates and registers with ¾ Armaflex or Rubatex.

### **2.4 FIRE DAMPERS**

Fire dampers shall be solid sheet curtain type, dynamic closure type corrosion resistant galvanized steel construction. Dampers mounted in the horizontal position shall be closed by a stainless steel negate spring. Damper to be easily reset through standard access panel for required periodic maintenance. Access panels are required for access to all fire dampers, minimum size 12 X 12 inches. Dampers shall be 100% out of air stream. Provide fusible links rated at 160 degrees F.

### **2.5 ACCESS DOORS**

Access doors shall be installed in ductwork wherever required for ready access to any operating part. Doors shall not be smaller than 12 X 12 inches, with brass hinge and sash type fasteners. Ducts 30" or larger shall be supplied with minimum 18 X 18 inch access doors. Doors shall be double wall insulated type, hinged with sash locks and gaskets.

## **2.6 PIPING AND FITTINGS**

- A. Furnish and install all piping related to air conditioning systems including make-up water piping, air conditioning condensation drains, and other miscellaneous piping.
- B. All piping shall be installed parallel and square with building lines and shall be sloped to permit drainage, with suitable provision for drainage at all low points.
- C. Piping shall be arranged to maintain headroom and keep passageways clear and where necessary shall be offset to maintain the required clearance and conform with the structural features of the building. Contractor shall determine in advance of construction locations for all piping sleeves, hangers, etc. No allowance will be made for extra due to inaccurate location of sleeves, piping or equipment.
- D. All piping shall have provisions for expansion and contraction with anchorage at each point shown on the plans and/or as required.
- E. Full length pipe shall be used where possible, short lengths and couplings will not be permitted. After cutting, all pipes shall be reamed out to full bore and before erection, all cutting and foreign matter shall be removed from the inside of pipes. Screwed joints shall be made tight without caulking or the use of lead or paint and no lubricant shall be used except flake granite and cylinder oil paste, or approved pipe compound applied to make threaded pipe.
- F. Pipe sleeves shall be provided for the passage of all pipe through walls, floors and partitions.
- G. All condensate drain piping shall be installed using ASTM B88 type "L" hard drawn copper with wrought copper sweat fittings. Changes in direction of piping shall be made with short turn tee pattern or 45 degree wye fittings with brass cleanout plug. Insulate drain piping per Section 15250, minimum drain on fan coil units – 3/4", air handling units – 1-1/4".

Refrigerant piping shall be type "ACR-L" hard drawn copper wrought copper sweat type fittings and silfos solder. Provide a catch-all liquid line strainer and a liquid line moisture indicator sight glass at each condensing unit. Strainer shall be installed in a three valve by-pass. Completely evacuate system before providing refrigerant operating charge as recommended by equipment manufacturer. Pipe sizes shall be as recommended by equipment manufacturer for installation shown. Insulate per Section 15250.

H. See Section 15050 for hangers.

## **2.7 PIPING AND PIPING IDENTIFICATION**

All piping at each piece of equipment shall be stencil to show the service and direction of flow. Stencils shall be black on a white background with letters one (1") inch high spaced at approximately forty-eight (48") inches apart by equipment or 10 foot intervals along piping runs.. Pressure-sensitive pipe markers ANSI Standard A 13.1 may be used in lieu of stenciling.

## **2.8 EXHAUST FANS AND OUTSIDE AIR INTAKES**

- A. Size and quantity shall be provided as indicated on drawings.
- B. All roof exhaust fans and roof outside air intakes shall be provided with factory prefabricated curbs. Curbs shall be pitched as required for the roof slope. Verify with Architectural roof plan.

## **2.9 VIBRATION ISOLATION SYSTEMS**

- A. Work shall include furnishing, installing and testing all material required and hereinafter called for complete execution of the vibration isolation system. Isolation materials shall not be limited to compressors, convertors, air units, pumps, piping, duct work, fans, etc. All motor-connected equipment shall be considered a source of vibration and shall be isolated to prevent vibration and sound transmission. Isolation equipment, as manufactured by Kinetics, Mason Industries or prior approval equal, shall be used. Specific reference to isolation under equipment headings is to provide additional information by which proper selection of the required isolation may be made. Equipment specification data showing physical size, bearing points, weights per point, rotating speeds and sound power levels generated shall be furnished by the respective equipment supplier to the vibration isolation supplier after equipment submittals have been approved.
- B. All mechanical and sound isolation materials specified herein or shown on drawings shall be provided by a single manufacturer to assure singular responsibility for proper selection, application, installation and performance. Substitution for isolation material specified incorporating non-permanent materials, such as cork, rubber, wood pulp, or thermal fiberglass will not be acceptable. Should no specific material be called out for particular use, all mechanical vibration isolation shall be based upon Chapter 46, 1999 A.S.H.R.A.E. Guide-Table 45, "Guide for Selection of Vibration Isolators". Bases, mounts and hangers furnished shall have a nominal deflection equal to the minimum deflection as shown in this guide and shall be furnished on all

motor driven equipment requiring isolation as well as piping and duct connected to same.

- C. To assure stability, the spring element to be a large diameter laterally stable spring with load plate and have a lateral stiffness greater than 0.8 times the rated vertical stiffness and be designed to provide up to 50% overload capacity. Each base mount spring shall have a 1" isolation sound pad of elasomeric material.
- D. Isolation shall be stable during starting and stopping of equipment without any transverse or eccentric movement that could damage or adversely affect the equipment or attachments. Isolation systems for floor or ceiling-mounted equipment shall have a maximum lateral motion under start up and shut down of 3/8". Motion in excess shall be corrected by restrained spring-type mounts. Isolators shall be selected for the lowest operating speed of the equipment isolated and shall be located to produce uniform loading and deflection even when equipment weight is not evenly distributed. Static deflection on grade up to 3/8" shall use nominal 1" deflection springs on isolation pads. Static deflection above grade shall use spring isolators with spring deflection based upon 1999 Guide Deflection data. The static deflection of the isolation system shall be selected to avoid being in resonance with the disturbing frequency. All spring isolators shall have neoprene sound damping pads separating isolator from structure.
- E. Submittals shall contain a complete schedule of all equipment to be isolated along with the type of isolator, loading per isolator, static deflection, spring diameters and maximum deflection. Should isolation installed fail to perform satisfactorily in preventing the transmission of vibration, the isolation shall be replaced without cost to owner and properly selected isolators shall be installed.
- F. Chilled, fire and domestic water pump bases shall consist of a concrete slab cast into a prefabricated inertia base frame assembly designed and supplied by the isolation materials supplier such as CPF inertia base. Frames shall be welded steel channels with a depth greater than 8% of the longest span between isolators, a minimum of 6" thick or as indicated on the drawings, and shall include 1/2" steel re-enforcing rods on maximum 8" centers each way. Prelocated equipment anchor bolts shall be included. Spring isolator support brackets shall be welded at the corners of the perimeter channel frame with 1/2" reinforcing rods welded 1-1/2" above bottom of bracket running continuously in two directions between all isolator brackets. Inertia bases used to support horizontally split case pumps shall be wide enough to support pipe elbows and may be rectangular or "T" shaped at manufacturers option.
- G. Vertically hung air handling units and fans shall be isolated with large diameter laterally stable steel spring in series with a molded neoprene insert, assembled into a stamped or welded hanger bracket with load transfer plates for both the spring and neoprene insert. Hangers to allow a support rod misalignment thru a 30 degree arc. Mason Model 30N or Kinetics Model SFH.

- H. All piping over 1" in diameter and connected to motor-driven equipment shall be spring hung for a minimum of 3 hangers in each direction. The spring deflection for the hanger shall be the same as the spring deflection for the equipment isolated. Mason Model 30N or Kinetics Model SFH.
- I. Duct Work - All supply duct work shall be hung on neoprene or spring hangers for a minimum of 3 hangers from air handling unit to prevent the transmission of duct vibration into the structure. Mason Model 30N or Model HD or Kinetics Model SFH or Model RH.

## **2.10 DX SPLIT SYSTEMS**

- A. Each system shall have the capacities and configuration as listed in the schedule on the drawings.
- B. Fan section enclosure shall be insulated and constructed of galvanized steel, bonderized and finished with baked enamel. The multispeed fan motor shall be factory lubricated, have internal overload protection and be resiliently mounted. Fan-motor assembly shall slide out for service. Reversible filter rack shall have duct connection flanges and be equipped with permanent-type filter that slides out for maintenance.
- C. Cooling coil shall be constructed with aluminum plate fins mechanically bonded to nonferrous tubing with all joints brazed. Coils shall have a factory-installed refrigerant metering device and be equipped with refrigerant line fittings which permit mechanical connections. Coil casing shall be insulated and constructed of galvanized steel, bonderized and finished with baked enamel. Coil shall have a double slope insulated drain pan.
- D. Electric heaters where scheduled shall be insulated and have large front service access door. Heating elements shall be sequenced on and off for multi-stage operation as scheduled on the drawings. Heater shall be equipped with both thermal and current overload devices, and the required heating and cooling system controls, including control circuit 24-volt transformer.
- E. Compressor shall be of the welded-hermetic type 2-stage scroll with internal vibration isolation and be covered with a shield of muffle operating sound. Compressor motor shall have both thermal and current-sensitive overload devices, internal high-pressure protection, high- and low-pressure cutout switches, start capacitor and relay, crankcase heater and relay and a timer to prevent compressor rapid cycle.
- F. Condenser coil shall be of circular construction. Tubes shall be aluminum with mechanically bonded aluminum plate fins. Condenser fan shall be propeller-type, direct-driven, and arranged for vertical air discharge. Fan motor shall be factory

lubricated, inherently protected and resiliently mounted and shall have high and low speeds.

G. In addition the system shall have the following:

1. Louvered coil guard.
2. Liquid line shutoff.
3. Vapor line shutoff.
4. Filter drier.
5. R-410 refrigerant.
6. 5-year compressor warranty.

## **2.11 CONTROLS**

- A. Each air conditioning system shall be controlled by a low voltage wall mounted electronic programmable heating-cooling auto changeover thermostat with fan “on-off-auto” switch. With fan switch in “off” position entire system shall be de-energized. With fan switch in “auto” position fan shall cycle around thermostat setting. “On” position shall allow continuous fan operation. Compressor or heater, shall cycle around thermostat and selector setting. The thermostat shall have a humidity function where it measures room humidity and overrides the cooling setpoint up to 2 degrees to control room humidity.
- B. Furnish and install a 125 degree F. firestat in the return air inlet of all fans and blowers. Firestat and detector shall be manually reset type and shall interrupt fan service if activated.
- C. See drawings for duct detector system on units over 2000 CFM.
- D. Provide 2-position damper in the outside duct. The damper shall be wired to the AC system controls and open when heating or cooling is energized and close when deenergized.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. All equipment and controls shall be installed in accordance with manufacturer's recommendations. Installation, adjustments and starting shall be done under supervision of manufacturer's representative.

- B. All ductwork and equipment shall be installed in a neat and workmanlike manner in accordance with the guidelines of NFPA 90-A, SMACNA and the best practice of the trade.
- C. Provide manual firestats, set at 125 degrees F, in return inlets of all fans and blowers and all exhaust fans of 600 cfm and over.
- D. This Contractor shall furnish and install any and all mechanical items which are required to complete the temperature controls which are to be provided under other sections of the specifications.
- E. All piping as specified under this section shall be tested to the following pressures:
  - Refrigerant piping - As recommended by manufacturer
  - Condensate drain - 10 psi

The method of application of tests and duration shall be as described in SECTION 15050. Maximum of 5% pressure loss during the duration will be acceptable.

- F. Upon completion of the installation of all work and equipment the Contractor shall start all equipment and make all necessary tests and adjustments to place entire heating, ventilating and air conditioning systems in a satisfactory condition for continuous safe operation of facilities.
- G. All filters shall be replaced with specified type after period of test and adjustment.

END OF SECTION 15800

## **SECTION 15850 - TESTING AND BALANCING OF AIR SYSTEMS**

### **PART 1 - GENERAL**

#### **1.1 DESCRIPTION**

- A. The Contractor shall furnish all labor, equipment and services necessary for and incidental to Air Systems Testing and Balancing.
- B. The Contractor shall procure the services of an independent testing and balancing agency. The Testing and Balancing Agency (TBA) specializes in testing and balancing of heating, ventilating, air-moving equipment, air-conditioning system and Hydronic systems. The Mechanical Contractor shall award the test and balance contract to the above agency as soon as possible after receipt of contract.
- C. Testing and Balancing shall not begin until the systems have been completed and are in full working order.
- D. Shop drawings must be provided to the TBA firm no later than 30 days after the final, approved shop drawings have been returned by the Architect to the Contractor.
- E. Duct leakage testing shall be the responsibility of the TBA subcontractor.
- F. Fire and smoke damper testing shall be done by the contractor and witnessed by the TBA firm.
- G. The final and complete Test and Balance Report shall be submitted, for approval, not less than two weeks before a final inspection of the Project is requested by the General Contractor. Failure to provide the Report shall be cause to delay the final inspection until the Report is Approved .
- H. Contractor is cautioned that test and Balance Report shall include both Grille counts, and Supply, Return, Outside Air and Exhaust Duct Traverses so that duct leakage can be calculated.

#### **1.2 REFERENCES**

- A. AABC – National Standards for Total System Balance.
- B. NEBB – Procedural Standards for Testing, Adjusting, and Balancing.

### **1.3 SUBMITTALS**

- A. Field Reports: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
- B. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Architect/Engineer and for inclusion in operating and maintenance manuals.
- C. Provide reports in soft cover, letter size, binder manuals, complete with index page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating, thermostat locations.

### **1.4 QUALITY ASSURANCE**

Perform total system balance in accordance with AABC National Standards for Field Measurement and Instrumentation, Total System Balance or NEBB Standards – Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems or Testing Adjusting and Balancing Bureau (TABB)-National Standards for Environmental Systems Balance.

### **1.5 QUALIFICATIONS**

TBA shall be a Company specializing in the testing, adjusting, and balancing of systems specified in this Section with minimum three years experience..

## **PART 2 - PRODUCTS**

### **2.1 ADJUSTMENT DEVICES**

Replacement of adjustable pulleys, additional balancing dampers, additional fan belts, pressure taps and fitting, hydronic balancing valves and any other devices or equipment required to effect proper testing, adjusting and balancing shall be provided shall be provided by the Contractor at no additional cost to the Owner.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:
  - 1. Systems are started and operating in a safe and normal condition.
  - 2. Temperature control systems are installed complete and operable.
  - 3. Proper thermal overload protection is in place for electrical equipment.
  - 4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
  - 5. Duct systems are clean of debris.
  - 6. Fans are rotating correctly.
  - 7. Fire and volume dampers are in place and open.
  - 8. Air coil fins are cleaned and combed.
  - 9. Access doors are closed and duct end caps are in place.
  - 10. Air outlets are installed and connected.
  - 11. Duct system leakage is minimized.
- B. Beginning of work means acceptance of existing HVAC conditions.

### **3.2 INSTALLATION TOLERANCES**

- A. Air Handling Systems: Adjust to within plus or minus 5 percent of design for supply systems and plus or minus 5 percent of design for return and exhaust systems.
- B. Air Outlets and Inlets; Adjust total to within plus 5 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 5 percent of design.

### **3.3 ADJUSTING – GENERAL**

- A. Ensure recorded data represents actual measured or observed conditions.
- B. Permanently mark setting of valves, dampers, and other adjustment devices allowing setting to be restored. Set and lock memory stops.
- C. After adjustment, take measurement to verify balance has not been disrupted or that such disruption has been rectified.
- D. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

- E. At the time of final inspection the TBA agency may be required to recheck, in the presence of the Owner's Representative, specific and random selections of data, air quantities, and air motion recorded in the certified report. Points and areas for recheck shall be selected by the Architect. Measurements and test procedures shall be the same as approved for the initial work for the certified report. Selections for recheck, specific plus random, shall not exceed 10% of the total number tabulated in the report.

### **3.4 AIR SYSTEMS PROCEDURE (MINIMUM REQUIREMENTS)**

- A. Test and adjust fan RPM to design requirements.
- B. Test and record motor full load nameplate rating and actual ampere draw.
- C. Test and record system static pressures, fan suction and discharge.
- D. Adjust all main supply and return air duct to proper design CFM.
- E. Test and adjust each diffuser, grille and register (new and existing as indicated on drawings). Reading and tests of diffusers, grilles and registers shall include design velocity (FPM) and as adjusted velocity, design CFM and adjusted CFM.
- F. Test and record outside, mixed air and discharge temperatures (D.B. for heating cycle, D.B. and W.B. for cooling cycle).
- G. In coordination with the ATC contractor, set adjustments of automatically operated dampers to operate as specified, indicated and/or noted.
- H. Test and adjust air handling and distribution systems to provide required or design supply, return, outside and exhaust air quantities.
- I. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.
- J. Measure air quantities at air inlets and outlets.
- K. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.
- L. Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.
- M. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.

- N. Provide system schematic with required and actual air quantities recorded at each outlet or inlet
- O. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.
- P. Adjust outside air automatic dampers, outside air, return air and exhaust dampers for design conditions.
- Q. Measure temperature conditions across air, return air, and exhaust dampers to check leakage.
- R. Where modulating dampers are provided, take measurement and balance at extreme conditions.
- S. Measure and record pressure differentials between designated spaces.

### **3.5 REQUIRED REPORTS TO BE SUBMITTED**

The following reports shall be submitted, as a minimum, with a complete Title Page, Summary, and Instrument List. All data and nomenclature shall be provided, as required by AABC and/or NEBB Procedure manuals, for each device tested and balanced.

1. Electric Motors.
2. V-Belt Motors.
3. Air Moving Equipment.
4. Return Air/ Outside Air Data.
5. Duct Traverses.
6. Air Distribution Test Sheets.

### **3.6 COMMISSIONING**

- A. Balancing Agency shall coordinate with the Mechanical Contractor the Commissioning requirements as here-in-before specified.
- B. Contractor is cautioned that the Owner, thru the Architect, reserves the right to check and verify any and all points and readings of the Test and Balance report. If 15% or more of the points do not agree with the report, then the Contractor shall re-test and re-balance the entire project and submit a complete new Report. If 15% or more of this new Data is independently verified and still does not agree with the Contractor's new Report, then the Owner has the right to hire an Independent Test and Balance Contractor and the Original Contractor shall be held responsible to pay these costs.

- C. All TBA deficiencies shall be corrected when found. Any deficiencies that are (for whatever reason) not corrected immediately shall be shown in the TBA report and listed on a summary sheet in the front of the TBA report. The TBA report must be completed and accepted by the Mechanical Engineer before the project is accepted and all items on the summary sheet shall become punch list items with dollar values assigned to them.

END OF SECTION

## **SECTION 15900 - VALVES, STRAINERS, UNIONS AND FITTINGS**

### **PART 1 – GENERAL**

#### **1.1 SUMMARY**

The work under this heading includes the furnishing and installing of all required appurtenances incidental to the piping systems as indicated on the drawings. Refer to BASIC MATERIALS AND METHODS SECTION which shall apply to all work in this Section.

### **PART 2 - PRODUCTS**

#### **2.1 GENERAL**

- A. Provide factory-fabricated valves for use in service indicated. Provide valves of types and pressure ratings indicated; provide proper selection to comply with installation requirements. Provide sizes as indicated, and connections, which properly mate with pipe, tube, and equipment connections. Where more than one type is indicated, selection is installer's option. Valves shall be of same make for all these services.
- B. Valves shall comply with the following:
  - Gate - cast iron - MSS SP-70
  - Gate - bronze - MSS SP-80
  - Globe - cast iron -MSS SP-85
  - Globe - bronze - MSS SP-80
  - Ball - MSS SP-110
  - Butterfly - MSS SP-67
  - Check - cast iron - MSS SP-71
  - Check - bronze - MSS SP-80
- C. Gate valves shall be equipped with packing suitable for intended service. (Under no circumstances is asbestos acceptable.) Valves shall be designed so back seating protects packing and stem threads from media when valve is fully opened, and equipped with gland follower. Guides for disc on rising stem valves shall be machined for accurate fit.
- D. Globe valves shall be equipped with packing suitable for intended service. (Under no circumstances is asbestos acceptable.) Globe valves shall be designed so back seating protects packing and stem threads from media when valve is fully opened, and equipped with gland follower.

- E. Ball valves shall have FULL port opening blow out proof stem: hard chrome plated forged brass ball, rated not less than 600# W.O.G. for sizes 3" or smaller.
- F. Provide gear operators on butterfly valves 8" and larger. Valve bodies shall have extended necks to provide for 2-1/4" insulation.
- G. Provide valves with features indicated and where not otherwise indicated, provide proper valve features as outlined in this specification. Comply with ANSI B31.1.
- H. Valve flanges shall comply to ANSI B16.1 (cast iron), ANSI B16.5(steel), ANSI B16.24 (bronze). Steel flanges shall be Class 150.
- I. Threaded valve ends shall comply with ANSI B2.1.
- J. Butt-Weld valve ends shall comply with ANSI B16.25.
- K. Solder Joint valve ends shall comply with ANSI B16.18.
- L. Flangeless valve bodies shall be manufactured to fit between flanges and shall comply with ANSI B16.1 (cast iron), ANSI B16.5 (steel), or ANSI B16.24 (bronze).
- M. Fabricate pressure-containing components of valves, including stems and seats from brass or bronze materials, of standard alloy recognized in valve manufacturing that resist de-zincification.
- N. Design seat of valve with removable disc, and assemble valve so disc can be replaced when worn.
- O. Butterfly valves shall be designed for flow regulation, and manufactured to be tight in closed position. Test pressures in accordance with MSS SP-67 as follows: Seat 2-12" 220psi. No leakage shall be permitted under test.

## **2.2 GATE VALVE FOR COPPER PIPING**

- A. Flanged Ends 2-1/2" and Larger: Class 125, iron body, bronze mounted, bolted bonnet, rising stem, OS&Y, solid wedge. Provide dielectric gasket and bolt isolators.
- B. Solder Ends 2" and Smaller: Class 125, bronze body, screwed bonnet, rising stem, solid wedge. (Non-rising stem gate valves may be used where headroom prevents full extension of rising stems.)

## **2.3 BALL VALVES**

- A. Threaded Ends 3" and Smaller: 600# W.O.G., forged brass two piece body, hard chrome plated forged brass ball, blow-out proof stem.
- B. Soldered Ends 2" and Smaller: 600# W.O.G., forged brass two piece body, hard chrome plated forged brass ball, true adjustable packing nut ("O"-ring only type stem seal not acceptable), blow-out proof stem.
- C. Flanged Ends 2-1/2" and larger: Class 150, flanged ends, carbon steel body with 316 s.s. trim, uni-body design, full port, blowout proof s.s. stem and ball, telfon seat.

## **2.4 UNIONS IN COPPER LINES**

Cast Bronze Unions.

## **2.5 UNIONS IN BLACK STEEL, WROUGHT IRON OR GALVANIZED STEEL PIPING**

Ground joint malleable iron galvanized Class 300 for 2" nominal pipe sizes or below. For pipe sizes 2-1/2" and larger use forged steel welding flanges (Galvanized for galvanized piping).

## **2.6 UNIONS IN CONNECTION BETWEEN COPPER AND STEEL OR IRON PIPING**

Provide bronze valves or dielectric waterways.

# **PART 3 - EXECUTION**

## **3.1 WORKMANSHIP AND INCIDENTAL ITEMS**

- A. All valves shall be installed so as to be easily accessible for cleaning, inspection, maintenance, and operation.
- B. Install valves with stems pointed up, in vertical position where possible, but in no case with stems pointed downward for horizontal plane unless unavoidable. Provide chain operators on all valves over 6' above floor in mechanical rooms.
- C. Except as otherwise indicated, install valves with the following ends or types of pipe/tube connections:

Tube Size 2" and smaller - Soldered-joint valves

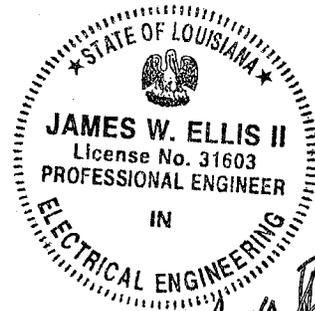
Pipe Size 2" and smaller - Threaded valves  
Pipe Size 2-1/2" and larger - Flanged end valves

- D. Install swing check valves in horizontal position, unless otherwise shown on drawings, with hinge pin horizontally perpendicular to centerline of pipe. Install for proper direction of flow.
- E. Provide access panels at all concealed valves.
- F. Major control and sectionalizing valves throughout building shall be identified by means of a brass valve tag bracketed to valve handle. Contractor shall prepare schedule of such identifying plates and frame under glass for installation in main equipment room.
- G. All welded piping to be welded by certified welders skilled in the work to be done.
- H. No piping of dissimilar metals placed in contact or in close proximity with each other. Provide bronze valves wherever piping of dissimilar metals is joined.
- I. Run all piping concealed unless specifically noted otherwise, making all necessary offsets, turns, etc., necessary to conceal piping from view.
- J. Provide all necessary steel frame supports, anchor bolts, sleeves, etc., required for safe support of equipment and piping installed under this contract. The Mechanical Contractor shall be completely responsible for the accurate position and dimensions of all foundations and support items.

END OF SECTION 15900

DIVISION

16



*James W. Ellis II*  
7/9/20

ELECTRICAL

## **SECTION 16010 – BASIC ELECTRICAL REQUIREMENTS**

### **PART 1 - GENERAL**

#### **RELATED DOCUMENTS**

All drawings and general provisions of the contract, including General Conditions, Supplementary Conditions, and other Division 1 Specifications, apply to this section.

Separation of Specifications into Sections is for convenience only and is not intended to establish limits of work or liability. The following sections apply to this project:

- 16010 – Basic Electrical Requirements
- 16100 – Basic Electrical Materials and Methods
- 16400 – Panelboards
- 16500 – Lighting Fixtures

#### **NOT FOR CONSTRUCTION**

#### **DESCRIPTION OF WORK**

Furnish all labor, tools, materials, fixtures, equipment, accessories, transportation, etc., required for a complete electrical lighting and power systems, complete with necessary auxiliaries as indicated on the drawings and specifications.

Also included in the work is the power wiring for connection of items indicated on the architectural plans, as well as power wiring for the equipment specified in DIVISION 15 – MECHANICAL.

#### **DRAWINGS AND SPECIFICATIONS**

The drawings showing the layout of electrical work indicate the approximate location of transformers, switchboards, panelboards, disconnects, outlets, and conduit routing. The contractor shall refer to architectural, structural, and mechanical drawings as well as equipment manufacturer's shop drawings and rough-in drawings, and adjust work accordingly to provide a coordinated installation. All adjustments and minor deviations necessary shall be made without additional cost to the owner. It shall be the electrical contractor's responsibility to see that all equipment such as pull boxes, junction boxes, panelboards, and other apparatus, that may require maintenance from time to time, is made accessible. Any condition that may occur during construction which conflicts with accessibility to the proposed installation of the electrical equipment, shall be brought to the Architect's attention prior to the point at which a change in location would require additional cost and delays to construction.

All electrical gear shall be mounted at or above the first floor slab or base flood elevation, whichever is higher, unless noted otherwise.

The drawings and specifications are complementary and what is shown and/or called for on one shall be furnished and installed the same as if shown and/or called for on the other.

Where the Contractor is not certain about the method of installation, he shall ask the Architect for further installation details. Lack of details, not requested, will not be an excuse for improper installation.

When a color or other condition for a product is specified to be determined by the architect, the submittal for that item shall be clearly marked with the available options. (Do not select a color or other condition in the submittal) The architect shall be specifically asked by the contractor to provide the required information, and that product shall not be manufactured prior to obtaining such information.

## **LAWS, CODES, AND PERMITS**

The latest accepted edition of the National Electrical Code (NFPA 70), National Fire Alarm Code (NFPA 72), and all State, Parish, City, and local building codes shall be considered a part of these specifications, and pertinent articles will not be repeated herein. These codes establish the minimum acceptable criteria where more stringent requirements have not been defined in these specifications and/or drawings.

The Contractor shall apply for all permits and pay all fees incidental to completing the electrical work. This Contractor shall give notice to the proper authorities in ample time for the work to be inspected and approved as it progresses, and no work shall be concealed until inspected and approved by authorized inspectors. If the plans or these specifications in any way conflict with the Code, State or Local Rules, these latter are to be followed, without expense to the Owner, but the Architect shall be notified of this condition and approval secured before changes are made.

Comply with utility company standards. Coordinate all work for installation of metering and all aspects of the service with the utility company prior to roughin.

Upon completion and before acceptance of work, a certificate of approval from the appropriate regulatory agency shall be furnished to the Architect.

No work shall be concealed until approved by the local inspector. Local regulations shall be adhered to.

The contractor shall assure that he does not install electrical equipment including raceways in or through areas restricted by the international building code and local building codes including elevator shafts and stairs.

## **JOB SITE**

Prior to submitting quotation for electrical work, Contractor shall visit and examine the job site with all authorities concerned in order to become familiar with all existing conditions pertinent to the work to be performed thereon. No additional compensation will be allowed for failure to be so informed.

Where existing equipment including raceways and wiring is in conflict with work of this project, the contractor shall rework/reroute/relocate this equipment as necessary.

## **TEMPORARY POWER**

The Contractor shall be responsible for providing temporary light and power to the construction site as necessary to meet all of the OSHA requirements for construction, and as required by the general contractor and various sub-contractors.

## **SERVICE INTERRUPTIONS**

Services to the buildings shall be kept in operation at all times during construction. If a situation occurs that the service needs to be interrupted, the Contractor shall be responsible for contacting the proper authorities to schedule the outage at a time that is convenient to the occupants. It shall be understood that this outage may have to be scheduled after regular working hours or on the weekends. Allowances shall be added to the Contractors bid to cover the cost of any overtime work. This shall come at no additional cost to the Owner after the bid date.

## **WARRANTY**

The contractor shall guarantee all labor and materials for a period of twelve (12) months from the date of final acceptance. All defective materials and work shall be replaced with new materials or equipment. This shall come at no additional cost to the Owner.

## **PART 2 – PRODUCTS**

### **MATERIALS**

Equipment and materials shall be new and shall be listed by Underwriters Laboratories for the purpose for which they are being used. All material of similar use shall be of the same manufacturer.

Substitutions to materials listed on the drawings and specifications can be made as long as they are approved as acceptable by the Architect. Requests for prior approval shall be submitted no later than seven working days prior to bidding. All requests for prior approval shall be in writing by providing a hard copy of the submittal data to the engineer's office.

All termination lugs shall be rated 75 degree C minimum and shall be compatible with the

number and size of wires to be terminated.

## **SUBSTITUTIONS**

Names of manufacturers or catalog numbers are mentioned herein in order to establish a standard as to design quality. Other products similar in design and of equal quality may be used if submitted to the architect and found acceptable by him. Refer to the general conditions for additional information.

Any substitution to items specified, that are not approved prior to bidding, shall be brought to the attention of the architect and engineer as an alternative product prior to the official submittal of electrical products along with the specific reason for the proposed substitution. Refer to the general conditions for additional information.

When the contractor elects to use an acceptable alternate manufacturer's equipment, the contractor shall be responsible to coordinate the change with all trades affected and pay for any additional work required under this or any other division affected by the substitution.

## **SUBMITTALS**

Within thirty days of the award of the contract, the Contractor shall be responsible for submitting six (6) copies of submittals containing catalog cuts and performance data for all material and equipment proposed for use. These submittals shall be reviewed by the Architect for general compliance to the contract documents. The Architect's review of these submittals in no way modifies the contract or relieves the Contractor from compliance with the contract unless a difference is clearly stated in the submission and specific acceptance is given by the Architect as a change to the contract.

Submittals shall be identified with the project name and the contractor's name and have the contractor's stamp showing that he has reviewed the submittal and found it to be in accordance with the plans and specifications. Submittals shall be bound.

The complete fault current coordination study and an arc flash hazard study shall be included in the gear and panel board submittal.

Items of division 16 shall be submitted in one package.

Submittals that do not comply with the above may be returned, without review, for resubmission.

All shop drawings must be reviewed before the various factories start fabrication. The contractor shall allow a minimum of 30 days for this review.

Developing electronic or CAD files shall be the responsibility of the contractor. Electronic CAD drawings will not be provided to the contractor.

## **PART 3 – EXECUTION**

### **INSTALLATION**

Ask for details whenever uncertain about installation methods. Lack of details requested shall not excuse proper installation and corrections shall be the responsibility of the contractor.

### **AS-BUILT DRAWINGS & OPERATING INSTRUCTIONS**

The Contractor shall be responsible for providing As-Built drawings to the Architect at the completion of the project. The Contractor shall make a reproducible set of the original contract drawings, and in a neat and understandable manner, show any significant changes made during construction. Unless noted otherwise in the contract documents, the Contractor shall provide one additional copy of these drawings to the Architect. The Contractor shall pay for all reproduction costs. Final payment shall be withheld until these drawings are accepted by the Architect.

The Contractor shall furnish two bound sets of any operating instructions and maintenance manuals to the Architect upon completion of the project.

### **CUTTING AND PATCHING**

The Contractor shall be responsible for all cutting and patching that is required to complete the installation of the electrical systems. All work shall be coordinated between trades with strict accordance with the requirements of the General Conditions. Structural members shall not be cut or modified without the approval of the architect.

The Contractor shall be responsible for covering, caulking, or otherwise to make weatherproof all openings left in the structure for electrical work. This includes openings around conduit penetrations.

### **EXCAVATING AND BACKFILLING**

The Contractor shall be responsible for all excavating and backfilling required to complete the installation of the electrical systems. All excess material and debris shall be removed. All backfilling shall be with sand. Backfilling shall be thoroughly tamped and compacted.

It shall be the Contractor's responsibility to locate all underground utilities before trenching and excavating. Care shall be taken to avoid damage to the existing utilities. Any damage shall be repaired or replaced by the Contractor at no expense to the Owner.

### **PAINTING**

No painting shall be required under DIVISION 16, except for factory-finished items. Any damaged surfaces of factory items shall be repaired by the Contractor to an acceptable level

determined by the Architect.

## **EXISTING EQUIPMENT**

The Contractor shall be responsible for the removal and reinstallation of any electrical equipment, such as light fixtures, that shall be reused. Any existing electrical equipment that is removed and not reused shall be returned to the Owner. Any material that the Owner does not wish to keep shall be removed from the site by the Contractor.

When existing electrical items such as outlets are removed from service, care shall be taken to keep the integrity of the remaining electrical systems.

## **SERVICE EQUIPMENT MARKING**

In addition to other marking requirements, all service equipment shall be marked with the available fault current and the date of calculation of the fault current. See other areas of these specifications for additional labeling requirements. Labels shall be engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws.

## **TESTING AND ADJUSTMENTS**

**Provide a complete fault current coordination study and an arc flash hazard study and tag all gear accordingly. Provide labeling on all switchgear and switch boards. Adjust all trip and parameter settings in accordance with the calculations.**

END OF SECTION 16010

## **SECTION 16100 - BASIC ELECTRICAL MATERIALS AND METHODS**

### **PART 1 - GENERAL**

#### **SUMMARY**

This Section includes the following:

1. Raceways
2. Wires, cables, and connections
3. Wiring devices
4. Grounding
5. Safety Switches and fuses
6. Supporting devices for electrical components
7. Equipment for utility company's electricity metering

#### **QUALITY ASSURANCE**

Electrical Components, Devices, and Accessories shall be listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

Devices for Utility Company Electricity Metering shall comply with utility company published standards.

Comply with NFPA 70.

#### **COORDINATION**

Coordinate chases, slots, inserts, sleeves, and openings for electrical supports, raceways, and cable with general construction work.

Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment that requires positioning before closing in the building.

Coordinate electrical service connections to components furnished by utility companies.

Coordinate installation and connection of exterior underground and overhead utilities and services, including provision for service entrances and electricity-metering components.

Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces.

Where electrical identification devices are applied to field-finished surfaces, coordinate installation of identification devices with completion of finished surface.

## **PART 2 – PRODUCTS**

### **RACEWAYS**

EMT: Electrical metallic tubing; ANSI C80.3, zinc-coated steel.

FMC: Flexible metal conduit; zinc-coated steel.

IMC: Intermediate metal conduit; ANSI C80.6, zinc-coated steel, with threaded fittings.

LFMC: Liquidtight flexible metal conduit; zinc-coated steel with sunlight-resistant and mineral-oil-resistant plastic jacket.

RMC: Rigid metal conduit; galvanized rigid steel; ANSI C80.1.

RNC: Rigid nonmetallic conduit; NEMA TC 2, Schedule 40 or 80 PVC, with NEMA TC3 fittings.

Raceway Fittings: Specifically designed for raceway type with which used.

### **WIRES, CABLES, AND CONNECTIONS**

All conductors shall have 600V insulation type THHN/THWN

Conductors in outdoor underground raceways shall be type THWN

Conductors, No. 10 AWG and Smaller: Solid or stranded copper.

Conductors, Larger Than No. 10 AWG: Stranded copper.

No wire shall be smaller than #12 awg unless noted otherwise.

All conductors shall be copper.

Insulation: Thermoplastic, rated 600 V, 90 deg C minimum, Type THHN-THWN, or USE depending on application.

Wire Connectors and Splices: Units of size, ampacity rating, material, type, and class suitable for service indicated.

### **WIRING DEVICES**

Wall Switches shall be 20A, 277V, AC type designed for quiet operation.

Duplex receptacles shall be 20A/2 pole, 3-wire, 125V, grounding type.

All devices shall be specification grade Hubbell, Leviton, or equal.

All device plates shall be brushed stainless steel with matching counter sunk screws unless noted otherwise. All boxes shall have a cover plate.

Consult with the Architect for color selections before ordering devices.

Use multigang plates where devices are grouped together.

Boxes and fittings shall comply with article 314 of the NEC. Particular attention shall be paid to the number of conductors allowed in an outlet box or junction box. Contractor shall make provisions to prevent overcrowding outlet and junction boxes regardless of the number of conductors shown on the plans at the outlets.

In locations where power, combination, and tele/data outlets are mounted together, care shall be taken to minimize the overall spacing along the wall. Consult with the Architect for specific details.

## **GROUNDING**

The grounding system shall be in accordance with N.E.C. Article 250.

A grounding conductor shall be provided in all conduit.

## **SAFETY SWITCHES AND FUSES**

Safety switches shall be of the quick-make, quick-break, heavy-duty, fusible or non-fusible type with cover interlock to prevent opening of the door when the switch is in the "ON" position. Use NEMA 3R enclosures outdoors and NEMA 1 enclosures indoors, unless otherwise noted.

Provide a complete set of dual-element, class RK-1 or class J fuses of ampere rating shown on the drawings. Furnish the owner with 20% spare fuses with at least one set for every rating.

All fuses shall have a minimum interrupting rating of 200,000 A.

Do not mount disconnect switches to equipment. Provide supports as necessary.

Transformers are assumed to have a minimum impedance of 4% for available fault current calculations. Provide actual transformer impedance in submittals. If transformers to be supplied have an impedance below 4%, all panels and equipment shall be adjusted to the higher AIC value at no additional cost to the owner.

## **SUPPORTING DEVICES**

Material: Cold-formed steel, with corrosion-resistant coating.

Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel.

Slotted-Steel Channel: Flange edges turned toward web, and 9/16-inch- diameter slotted holes at a maximum of 2 inches o.c., in webs. Strength rating to suit structural loading.

Slotted Channel Fittings and Accessories: Recommended by the manufacturer for use with the type and size of channel with which used.

Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.

Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.

Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for non-armored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable-iron casting with hot-dip galvanized finish.

Expansion Anchors: Carbon-steel wedge or sleeve type.

Toggle Bolts: All-steel springhead type.

Provide galvanized c channel framing as necessary to mount outdoor equipment.

## **EQUIPMENT FOR UTILITY COMPANY'S ELECTRICITY METERING**

Comply with requirements of electrical power utility company for current transformer cabinets, meter sockets, and modular meter centers.

### **PART 3 - EXECUTION**

#### **ELECTRICAL EQUIPMENT INSTALLATION**

Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom.

Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

Right of Way: Give to raceways and piping systems installed at a required slope.

## **RACEWAY APPLICATION**

### Outdoor Installations:

1. Exposed: RMC.
2. Concealed: RNC.
3. Underground, Single Run: RNC.
4. Underground, Grouped: RNC.
5. Connection to Vibrating Equipment: LFMC.
6. Boxes and Enclosures: NEMA 250, Type 3R or Type 4, unless otherwise indicated.

### Indoor Installations:

1. Exposed: EMT except in wet or damp locations, use IMC.
2. Concealed in Walls or Ceilings: EMT.
3. In Concrete Slab: RNC.
4. Below Slab on Grade or in Crawlspace: RNC.
5. Connection to Vibrating Equipment: FMC; except in wet or damp locations: LFMC.
6. Boxes and Enclosures: NEMA 250, Type 1, unless otherwise indicated.

## **RACEWAY AND CABLE INSTALLATION**

Conceal raceways and cables, unless otherwise indicated, within finished walls, ceilings, and floors.

Exposed conduits shall be installed with runs arranged perpendicular to walls and ceilings.

Keep legs of raceway bends in the same plane and keep straight legs of offsets parallel.

Install pull wires in empty raceways. Leave at least 12 inches of slack at each end of pull wires.

Connect motors and equipment subject to vibration, noise transmission, or movement with a maximum of 72-inches flexible metallic conduit. Install LFMC in wet or damp locations. Install separate ground conductor across flexible connections.

Set floor boxes level and trim after installation to fit flush to finished floor surface.

Unless a larger size is indicated, raceways, troughs, and junction boxes shall be sized in accordance with the fill requirements of the NEC.

Provide color-coding of wires and mark panels in accordance with NEC article 210.5 (C) and NEC article 215.12 (C) when more than one voltage is present for branch circuits.

## **WIRING METHODS FOR POWER, LIGHTING, AND CONTROL CIRCUITS**

Application: Use wiring methods specified below to the extent permitted by applicable codes as interpreted by authorities having jurisdiction.

Exposed Feeders: Insulated single conductors in raceway

Concealed Feeders in Ceilings, Walls, and Gypsum Board Partitions: Insulated single conductors in raceway.

Concealed Feeders in Concrete: Insulated single conductors in raceway.

Exposed Branch Circuits: Insulated single conductors in raceway.

Concealed Branch Circuits in Ceilings, Walls, and Gypsum Board Partitions: Insulated single conductors in raceway.

Concealed Branch Circuits: Insulated single conductors in raceway.

Underground Feeders and Branch Circuits: Insulated single conductors in raceway.

Remote-Control Signaling and Power-Limited Circuits, Classes 1, 2, and 3: Insulated conductors in raceway unless otherwise indicated.

**Type NM and MC cable may be used as allowed by NFPA 70 and the local authority having jurisdiction. Do not use NM cable above lay in ceilings.**

## **WIRING INSTALLATION**

Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

No wires shall be pulled in until the conduit system is complete. Ideal "Yellow 77" or other approved pulling lubricant shall be used.

**Each circuit/homerun shown shall have a separate neutral for each phase conductor. 3 or 4 wire homeruns for multiple circuits are not acceptable. This does not apply to multi-phase circuits. Do not route more than 1 multi-phase circuit in a raceway.**

## **ELECTRICAL SUPPORTING DEVICE APPLICATION**

Damp Locations and Outdoors: Hot-dip galvanized materials or nonmetallic, slotted channel system components.

Dry Locations: Steel materials.

Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four with, 200-lb minimum design load for each support element.

## **SUPPORT INSTALLATION**

Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.

Size supports for multiple raceways or cable runs so capacity can be increased by a 25 percent minimum in the future.

Support individual horizontal single raceways with separate, malleable-iron pipe hangers or clamps except use spring-steel fasteners for 1-1/2-inch and smaller single raceways above suspended ceilings and for fastening raceways to slotted channel and angle supports.

Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core-drilled holes are used. Install sleeves for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.

Secure electrical items and their supports to building structure, using the following methods unless other fastening methods are indicated:

1. Wood: Wood screws or screw-type nails.
2. Gypsum Board: Toggle bolts. Seal around sleeves with joint compound, both sides of wall.
3. Masonry: Toggle bolts on hollow block and expansion bolts on solid block. Seal around sleeves with mortar, both sides of wall.
4. New Concrete: Concrete inserts with machine screws and bolts.
5. Existing Concrete: Expansion bolts.
6. Structural Steel: Spring-tension clamps.
7. Light Steel Framing: Sheet metal screws.
8. Fasteners for Damp, Wet, or Weather-Exposed Locations: Stainless steel.
9. Light Steel: Sheet-metal screws.
10. Fasteners: Select so load applied to each fastener does not exceed 25 percent of its proof-test load.

## **IDENTIFICATION MATERIALS AND DEVICES**

Install at locations for most convenient viewing without interference with operation and maintenance of equipment.

Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Contract Documents or required by codes and standards. Use consistent designations throughout Project.

Install continuous underground plastic markers during trench backfilling, for exterior underground power, control, signal, and communication lines.

## **ELECTRICITY-METERING EQUIPMENT**

Install utility company metering equipment according to utility company's written requirements. Provide grounding and empty conduits as required by utility company.

## **FIRESTOPPING**

Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

- a) Notify the Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that would conceal construction and prevent a proper inspection. Access to random selected areas may be required by the Architect at the time of final inspection if this notification is not given.
- b) Provide detailed instructive cut sheets of the fire penetration sealing system used to the Architect at the time of inspection. Random selective sampling by the Contractor will be observed by the Architect and the Fire Marshall's inspector.

## **MOUNTING HEIGHTS**

Unless otherwise noted on the drawings or required by the Architect, the following mounting heights shall apply. Unless noted otherwise, mounting heights are to the centerline of the device:

1. Receptacles            18" above floor
2. Toggle Switches      48" above floor
3. Panelboards           72" to top
4. Telephone Outlets    18" above floor
5. Data Outlets          18" above floor
6. Meter Can             60"-72" to centerline

Mounting heights may be adjusted in masonry applications to simplify installation where approved by the Architect.

Coordinate counter top outlets with the height of the back splash.

END OF SECTION 16100

## **SECTION 16400 - PANELBOARDS**

### **PART 1 - GENERAL**

#### **SUMMARY**

This Section includes distribution and branch-circuit panelboards.

#### **SUBMITTALS**

**Product Data:** For each type of panelboard, overcurrent protective device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

**Shop Drawings:** For each panelboard, including the following:

1. Dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings. Include the following data:
  - a. Enclosure types and details for types other than NEMA 250, Type 1.
  - b. Bus configuration, and current, and voltage ratings.
  - c. Short-circuit current rating of panelboards and overcurrent protective devices.
  - d. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices.
2. Wiring Diagrams: Power, signal, and control wiring.
3. The complete fault current coordination study and an arc flash hazard study.

**Panelboard Schedules:** For installation in panelboards. Submit final versions after load balancing.

Operation and maintenance data.

#### **QUALITY ASSURANCE**

**Electrical Components, Devices, and Accessories:** Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

Comply with NEMA PB 1.

Comply with NFPA 70.

## **PART 2 - PRODUCTS**

### **MANUFACTURERS**

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Siemens Energy & Automation, Inc.
2. Square D Co.
3. General Electric

### **FABRICATION AND FEATURES**

Enclosures: Flush- and surface-mounted cabinets. NEMA PB 1, Type 1, suitable for environmental conditions at installed location.

1. Outdoor Locations: NEMA 250, Type 3R.
2. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
3. Hazardous Areas Indicated on Drawings: NEMA 250, Type 7C.

Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.

Finish: Manufacturer's standard enamel finish over corrosion-resistant treatment or primer coat.

Directory Card: A clear plastic directory holder shall be mounted inside panelboard door.

Provide arc flash hazard warning labels on all sections.

Bus: Hard-drawn copper, 98 percent conductivity.

Equipment Ground Bus: Adequate for feeder and branch-circuit equipment ground conductors; bonded to box.

Panelboard Short-Circuit Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

Panelboards with Main Service Disconnect: Listed for use as service equipment.

Spaces for Future Devices: Mounting brackets, bus connections, and necessary appurtenances required for future installation of devices.

Feed-through Lugs: Locate at opposite end of bus from incoming lugs or main device.

## **LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS**

Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

Doors: Front mounted with concealed hinges; secured with flush latch with tumbler lock; keyed alike.

## **DISTRIBUTION PANELBOARDS**

Doors: Front mounted, and secured with vault-type latch with tumbler lock; keyed alike.

Branch overcurrent protective devices shall be one of the following:

1. Bolt-on circuit breakers.
2. Fused switches.

## **INTEGRATED TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICES**

Surge Protective Device (SPD)

1. SPD shall be Listed and Component Recognized in accordance with UL 1449 Second Edition to include Section 37.3 highest fault current category. SPD shall be UL 1283 listed.
2. SPD shall be installed by and shipped from the electrical distribution equipment manufacturer's factory.
3. The TVSS devices in lighting and appliance panelboards shall be bus mounted between the main and branch devices. TVSS devices bussed off the end of the panelboard are not allowed. Panelboards with TVSS will accommodate thru-feed lugs and sub-feed circuit breakers in single section and multi-section panelboards.
4. The TVSS devices in power distribution panelboards shall be cable connected.
5. SPD shall provide surge current diversion paths for all modes of protection; L-N, L-G, N-G in WYE systems.
6. SPD shall be modular in design. Each mode including N-G shall be fused with a 200kAIR UL recognized surge rated fuse and incorporate a thermal cutout device. TVSS shall safely reach an end-of-life condition when subjected to fault current levels between 0 and 200 kA, including low level fault currents from 5 to 5000 amperes.
7. Audible diagnostic monitoring shall be by way of audible alarm. This alarm shall activate upon a fault condition. An alarm on/off switch shall be provided to silence the alarm. An alarm push to test switch shall be provided.
8. SPD shall meet or exceed the following criteria:
  - a. Minimum surge current capability (single pulse rated) per phase shall be:
    - 1) Service Entrance Panelboard locations: 240kA per phase
    - 2) Distribution and lighting and Appliance Panelboard locations: 160kA per phase
  - b. UL 1449 Suppression Voltage Ratings:

| <u>VOLTAGE</u> | <u>LOCATION</u> | <u>L-N</u> | <u>L-G</u> | <u>N-G</u> |
|----------------|-----------------|------------|------------|------------|
| 208Y/120V      | Distribution:   | 400V       | 400V       | 400V       |
| 480Y/277V      | Distribution:   | 800V       | 800V       | 800V       |

9. SPD shall have a minimum EMI/RFI filtering of up to -30 dB over the range of 100 kHz to 100 MHz.
10. SPD shall be provided with one set of NO/NC dry contacts.
11. The manufacturer of the electrical equipment in which the TVSS is installed shall warrant the integrated TVSS device to be free from defects in material and workmanship for a period of ten (10) years from the date of invoice the manufacturer or its authorized sales channel.

## **OVERCURRENT PROTECTIVE DEVICES**

Molded-Case Circuit Breaker: NEMA AB 1, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. GFCI Circuit Breakers: Single- and two-pole configurations with 5mA trip sensitivity.
3. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.
4. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage. Verify exact voltage of shunt trip with fire alarm vendor.

Fused Switch: NEMA KS 1, Type HD; clips to accommodate indicated fuses; lockable handle.

## **PART 2 - EXECUTION**

### **INSTALLATION**

Install panelboards and accessories according to NEMA PB 1.1.

Mounting Heights: Top of trim 86 inches above finished floor, unless otherwise indicated. Highest switch or breaker at 72" max above finished floor.

Mounting: Plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish.

Install filler plates in unused protective device spaces.

Wiring in Panelboard Gutters: Arrange conductors into groups and bundle and wrap with wire ties after completing load balancing.

Locate panelboards so that ratings are not reduced by heat from external sources.

## **IDENTIFICATION**

Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 16 Section "Basic Electrical Materials and Methods."

Panelboard Nameplates: Label each panelboard with engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws.

Circuit Directory: Create a directory to indicate installed circuit loads after balancing panelboard loads. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

## **FIELD QUALITY CONTROL**

Testing and Inspection: After installing panelboards and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

Balancing Loads: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes as follows:

1. Measure as directed during period of normal system loading.
2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data-processing, computing, transmitting, and receiving equipment.
3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

## **TESTING AND ADJUSTMENTS**

Provide a complete fault current coordination study and an arc flash hazard study and tag all gear accordingly. Provide labeling on all switchgear and switch boards. Adjust all trip and parameter settings in accordance with the calculations.

END OF SECTION 16400

## **SECTION 16500 – LIGHTING FIXTURES**

### **PART 1 - GENERAL**

#### **SUMMARY**

This Section includes the following:

1. Lighting fixtures with lamps and ballasts.
2. Emergency lighting units.
3. Exit signs.
4. Accessories, including fluorescent fixture dimmers, occupancy sensors, etc.

#### **SUBMITTALS**

Product Data: For each type of lighting fixture scheduled, arranged in order of fixture designation. Include data on features, photometric data, accessories, and finishes.

Product Certificates: For each type of ballast for dimmer-controlled fixtures, signed by product manufacturer.

Operation and maintenance data.

#### **QUALITY ASSURANCE**

Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

Comply with NFPA 70.

Fixtures for hazardous locations shall be listed by Underwriters' Laboratory and labeled for indicated class and division of hazard.

NFPA 101 Compliance: Comply with visibility and luminance requirements for exit signs.

## **PART 2 - PRODUCTS**

### **LIGHT FIXTURES**

All light fixtures shall be as specified on the drawings. Requests for prior approval shall be submitted no later than seven working days prior to bidding.

Fixtures to be installed in damp or wet locations shall be listed by Underwriters' Laboratory for that purpose.

Recessed incandescent fixtures shall be provided with thermal protectors to automatically deactivate the fixtures due to overheating (fixtures shall be labeled by Underwriters' Laboratory for that purpose).

Lamps shall be furnished and installed for all fixtures including fixtures furnished by others. Provide lamps of the proper type, wattage and voltage rating as specified in the contract documents.

Fluorescent dimmers and fluorescent dimming ballasts shall be manufactured by the same manufacturer.

Fixtures specified to have emergency ballasts shall have an integral test switch.

Ballasts for operation of all fluorescent lamps shall be HPF Electronic with Class A Sound Rating.

Fluorescent ballasts for operation of F32 T8 rapid start lamps shall be electronic high-efficiency type with the following characteristics:

1. Lamps shall be 800 series and 3500 degree color temperature.
2. Lamps may operate in instant start mode.
3. Operate multiple lamps as parallel circuit, operating remaining lamps at full light output upon failure of other lamps connected to the same ballast.
4. Individual ballasts specifically designed and UL Listed are to operate one, two, three, or four lamps as scheduled on the drawings.
5. Operate lamps at a frequency higher than 20 kHz.
6. Operate a rated circuit voltage (120 OR 277 VAC) at an input frequency of 60 Hz, and tolerate +/- 10% sustained voltage variation without damage to the ballast, and maintain light output at +/- 10% voltage variation.
7. Comply with EMI and RFI limits set by the FCC (CRF 47 Part 18) for non-consumer applications and not interfere with normal electrical equipment.
8. Power Factor shall be not less than 0.95.
9. Total Harmonic Distortion shall be less than 10%.
10. Lamp Crest Factor shall be 1.7 or less.
11. Ballast Factor shall be greater than 0.85 and less than 1.00.
12. Sound rating shall be "A".
13. Withstand transients shall be as specified by ANSI C.62.41 for location category A.

14. Shall comply with applicable ANSI standards.
15. Shall be provided with a three (3) year warranty.

General: Comply with UL 924; for sign colors and lettering size, comply with authorities having jurisdiction.

## **PART 2 – EXECUTION**

### **INSTALLATION**

Light fixtures shall be set level, plumb, and square with ceilings and walls.

Support for light fixtures in or on Grid-Type Suspended Ceilings shall be supported independently of the ceiling.

Fixtures to be installed in or on painted ceilings and/or walls shall not be installed until painting is completed. Fixtures installed with paint applied over factory finishes will be rejected.

Recessed fixtures shall be installed so that the trim flanges fit tightly and evenly against the surface of the ceiling.

All locations of fixtures are approximate. The contractor shall refer to architectural plans for exact locations.

In acoustical tile ceilings, recessed 2x2 and 2x4 fluorescent fixtures shall be installed so as to alleviate the necessity for cutting the tile.

For acoustical tile ceilings, surface fixtures shall be centered on a tile or a tile joint, unless noted otherwise.

All incandescent lamps shall be furnished inside frosted except where noted otherwise.

T8 fluorescent lamps shall be four (4') feet long, bi-pin, rapid or instant start, 3500 K, 85 CRI, except where noted otherwise.

All H.I.D. lamps shall be phosphor coated, wattage as specified in the drawings.

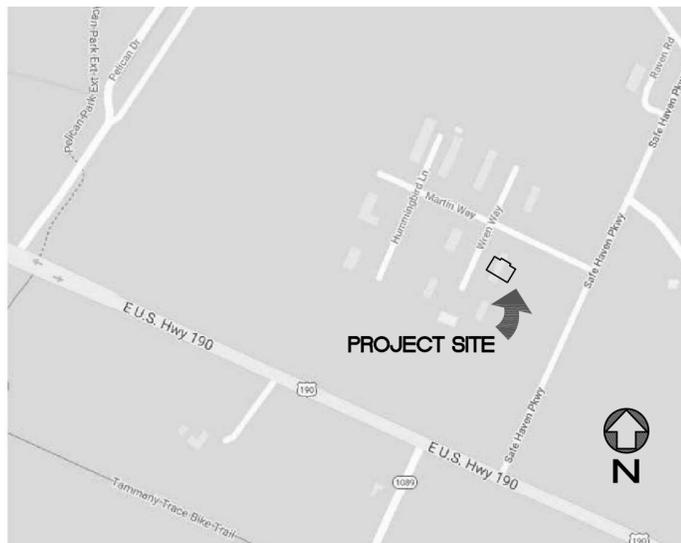
END OF SECTION 16500

# NEW SAFE HAVEN TRAINING AND EDUCATION CENTER FOR ST. TAMMANY PARISH

23577 MARTIN WAY

MANDEVILLE, LA

## VICINITY MAP



NOT TO SCALE

## ST. TAMMANY PARISH

MIKE COOPER  
PARISH PRESIDENT

## COUNCIL MEMBERS

|  |            |                      |             |
|--|------------|----------------------|-------------|
| MARTY DEAN                               | DISTRICT 1 | CHRIS CANULETTE      | DISTRICT 8  |
| DAVID R. FITZGERALD                      | DISTRICT 2 | MIKE M. SMITH        | DISTRICT 9  |
| MARTHA J. CAZAUBON                       | DISTRICT 3 | MAUREEN O'BRIEN      | DISTRICT 10 |
| MICHAEL R. LORINO, JR.<br>CHAIRMAN       | DISTRICT 4 | STEVE STEFANCIK      | DISTRICT 11 |
| RYKERT O. TOLEDANO, JR.<br>VICE-CHAIRMAN | DISTRICT 5 | JERRY BINDER         | DISTRICT 12 |
| CHERYL TANNER                            | DISTRICT 6 | JAKE A. AIREY        | DISTRICT 13 |
| JAMES J. DAVIS                           | DISTRICT 7 | THOMAS J. SMITH, JR. | DISTRICT 14 |

## INDEX TO DRAWINGS

| SHT. | DESCRIPTION                           | DWG. |
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| C101 | SITE PLAN                             | 3    |
| A101 | FLOOR PLAN                            | 4    |
| A201 | EXTERIOR ELEVATIONS AND SECTIONS      | 5    |
| A401 | FINISH PLAN AND INTERIOR ELEVATIONS   | 6    |
| A402 | REFLECTED CEILING PLAN                | 7    |
| A601 | OPENING SCHEDULES AND ELEVATIONS      | 8    |
| A602 | OPENING DETAILS                       | 9    |
| S100 | FOUNDATION PLAN                       | 10   |
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## ALTERNATES

### ADD ALTERNATE NO. 1: INTERIOR FINISHES

- VCT TO LVT - DRAWINGS (BASE BID) CALLS FOR VCT (VINYL COMPOSITION TILE) ON FLOORS IN ROOMS WHERE SCHEDULED PER FINISH PLAN. IN LIEU OF VCT FLOORING AS SCHEDULED, CHANGE FLOORING AND INSTALL LVT (LUXURY VINYL TILE) IN THOSE SCHEDULED ROOMS.
- CERAMIC TILE WAINSCOT ON REMAINING WALLS - DRAWINGS (BASE BID) CALLS FOR CERAMIC TILE WAINSCOT OVER 5/8" CEMENT BOARD ON RESTROOM WET WALLS ONLY. ADD THE CERAMIC TILE WAINSCOT OVER 5/8" CEMENT BOARD (WITH ACCENT BAND PATTERN) ON THE REMAINING RESTROOM WALLS.

### ADD ALTERNATE NO. 2: PARKING LOT SURFACING

- CRUSHED CONCRETE TO POURED CONCRETE - DRAWINGS (BASE BID) CALLS FOR CRUSHED CONCRETE PAVING. IN LIEU OF CRUSHED CONCRETE SURFACED PAVING AS SHOWN, CHANGE TO REINFORCED CONCRETE PAVING AS FOLLOWS:
  - PROVIDE 6" THK. 4,000 PSI CONCRETE PAVING REINFORCED WITH 4x4-4/4 WWF MESH ON A 6" MINIMUM SAND BASE COMPACTED TO 95% AS NEEDED TO ACHIEVE FINISHED LOT ELEVATIONS AS SHOWN ON SITE PLAN. PROVIDE DOWELED AND SEALED EXPANSION JOINTS SPACED AT APPROX. 24 FEET O.C. EACH WAY WITH 24" LONG #5 SMOOTH DOWELS AT 12" O.C. CONFIRM JOINT LAYOUT WITH ARCHITECT.
  - PROVIDE PRE-FORMED METAL KEY WAY CONTROL JOINTS SPACED AT APPROX. 12 FEET O.C. EACH WAY WITH 24" LONG #5 SMOOTH DOWELS AT 24" O.C.
  - WHERE PARKING LOT CONCRETE MEETS NEW SIDEWALK CURB AND AT EXIST. STREET PAVING, PROVIDE SEALED EXPANSION JOINTS WITH 24" LONG #5 SMOOTH DOWELS AT 12" O.C.
  - PROVIDE 4" WIDE PAINTED PARKING STRIPING (9'-0" WIDE x 18'-0" LONG SPACES, PAINTED TRAFFIC YELLOW) IN LAYOUT AS SHOWN ON SITE PLAN.
  - DOWEL THE CONCRETE WHEEL STOPS AS SHOWN ON SITE PLAN WITH #5 REBAR, 12" LONG INTO NEW CONCRETE PAVING.

## ARCHITECT



## Burgdahl & Graves Architects

2550 Belle Chasse Hwy., Suite 130-Gretna, LA 70053  
PH:504-366-4433 FAX: 504-366-0102

## CONSULTING ENGINEERS

ROBERT A. BOUCHON CONSULTING ENGINEER  
STRUCTURAL ENGINEER

CRUMB ENGINEERING LLC  
MECHANICAL ENGINEERING

ELLIS ENGINEERING, LLC  
ELECTRICAL ENGINEERING

## CODE SUMMARY

|                          | NFPA 101 2015                   | IBC 2015 |
|--------------------------|---------------------------------|----------|
| OCCUPANCY CLASSIFICATION | BUSINESS                        | BUSINESS |
| CONSTRUCTION TYPE        | TYPE 5                          | TYPE VB  |
| TOTAL BUILDING STORIES   | ONE STORY                       |          |
| TOTAL SQUARE FOOTAGE     | 4,009 SQ. FT.                   |          |
| FIRE PROTECTION          | NON-SPRINKLERED                 |          |
| FIRE EXTINGUISHERS       | 3 PROVIDED (TYPE ABC)           |          |
| ATTIC DRAFTSTOPPING      | NO AREA EXCEEDING 3,000 SQ. FT. |          |



BURGDahl & GRAVES  
A.I.A. ARCHITECTS

A PROFESSIONAL CORPORATION · PHONE (504) 366-4433



NEW SAFE HAVEN TRAINING AND EDUCATION CENTER FOR ST. TAMMANY PARISH

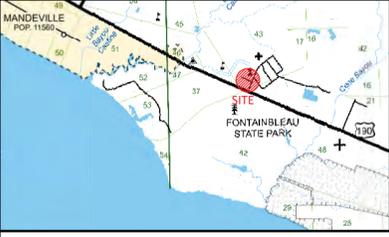
MANDEVILLE, LA

MARTIN WAY AT WREN

DATE: 7-3-2020  
DRAWN BY:  
REVISIONS:

CS

SHEET 1 OF 27



VICINITY MAP  
N.T.S.

LEGEND

- = CORNER FOUND AS NOTED
- = 1/2" IRON ROD SET
- △ = MAG NAIL SET
- ⊙ = SEWER MANHOLE
- ⊕ = WATER VALVE
- ⊖ = POWER POLE
- +15.00' = SPOT ELEVATION
- ⊕ = FIRE HYDRANT

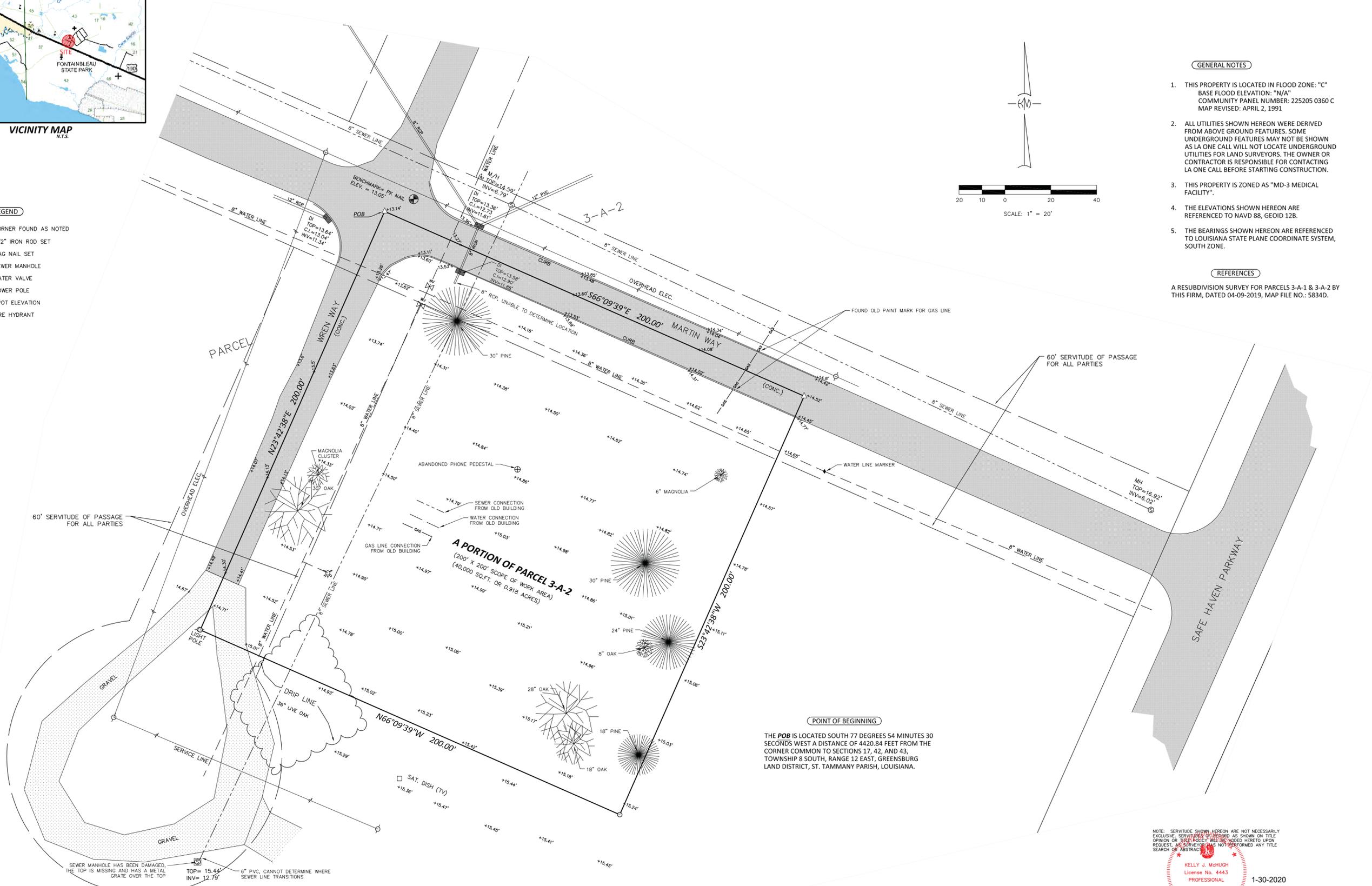


GENERAL NOTES

1. THIS PROPERTY IS LOCATED IN FLOOD ZONE: "C"  
BASE FLOOD ELEVATION: "N/A"  
COMMUNITY PANEL NUMBER: 225205 0360 C  
MAP REVISED: APRIL 2, 1991
2. ALL UTILITIES SHOWN HEREON WERE DERIVED FROM ABOVE GROUND FEATURES. SOME UNDERGROUND FEATURES MAY NOT BE SHOWN AS LA ONE CALL WILL NOT LOCATE UNDERGROUND UTILITIES FOR LAND SURVEYORS. THE OWNER OR CONTRACTOR IS RESPONSIBLE FOR CONTACTING LA ONE CALL BEFORE STARTING CONSTRUCTION.
3. THIS PROPERTY IS ZONED AS "MD-3 MEDICAL FACILITY".
4. THE ELEVATIONS SHOWN HEREON ARE REFERENCED TO NAVD 88, GEOID 12B.
5. THE BEARINGS SHOWN HEREON ARE REFERENCED TO LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE.

REFERENCES

A RESUBDIVISION SURVEY FOR PARCELS 3-A-1 & 3-A-2 BY THIS FIRM, DATED 04-09-2019, MAP FILE NO.: 5834D.



**A PORTION OF PARCEL 3-A-2**  
(200' X 200' SCOPE OF WORK AREA)  
(40,000 SQ.FT. OR 0.918 ACRES)

**POINT OF BEGINNING**  
THE POB IS LOCATED SOUTH 77 DEGREES 54 MINUTES 30 SECONDS WEST A DISTANCE OF 4420.84 FEET FROM THE CORNER COMMON TO SECTIONS 17, 42, AND 43, TOWNSHIP 8 SOUTH, RANGE 12 EAST, GREENSBURG LAND DISTRICT, ST. TAMMANY PARISH, LOUISIANA.

NOTE: SERVITUDE SHOWN HEREON ARE NOT NECESSARILY EXCLUSIVE. SERVITUDE RECORDS AS SHOWN ON TITLE OPINION OR TITLE POLICY WILL BE ADDED HERETO UPON REQUEST, AS SURVEYOR HAS NOT PERFORMED ANY TITLE SEARCH OR ABSTRACT.

KELLY J. MCHUGH  
License No. 4443  
PROFESSIONAL  
1-30-2020

KELLY J. MCHUGH REG. NO. 4443  
CERTIFIED TO BE IN ACCORDANCE WITH A PHYSICAL SURVEY MADE ON THE GROUND AND COMPLYING WITH THE CURRENT APPLICABLE STANDARDS OF PRACTICE FOR A CLASS "C" SURVEY. RED STAMP SIGNIFIES CORRECT PLAT.

PREPARED FOR: **BURGDahl & GRAVES ARCHITECTS**

DATE: 12/02/2019  
SCALE: 1" = 20'  
DRAWN BY: A.T.B.  
CHECKED BY: K.L.M.  
DWG. NO.: 19-388

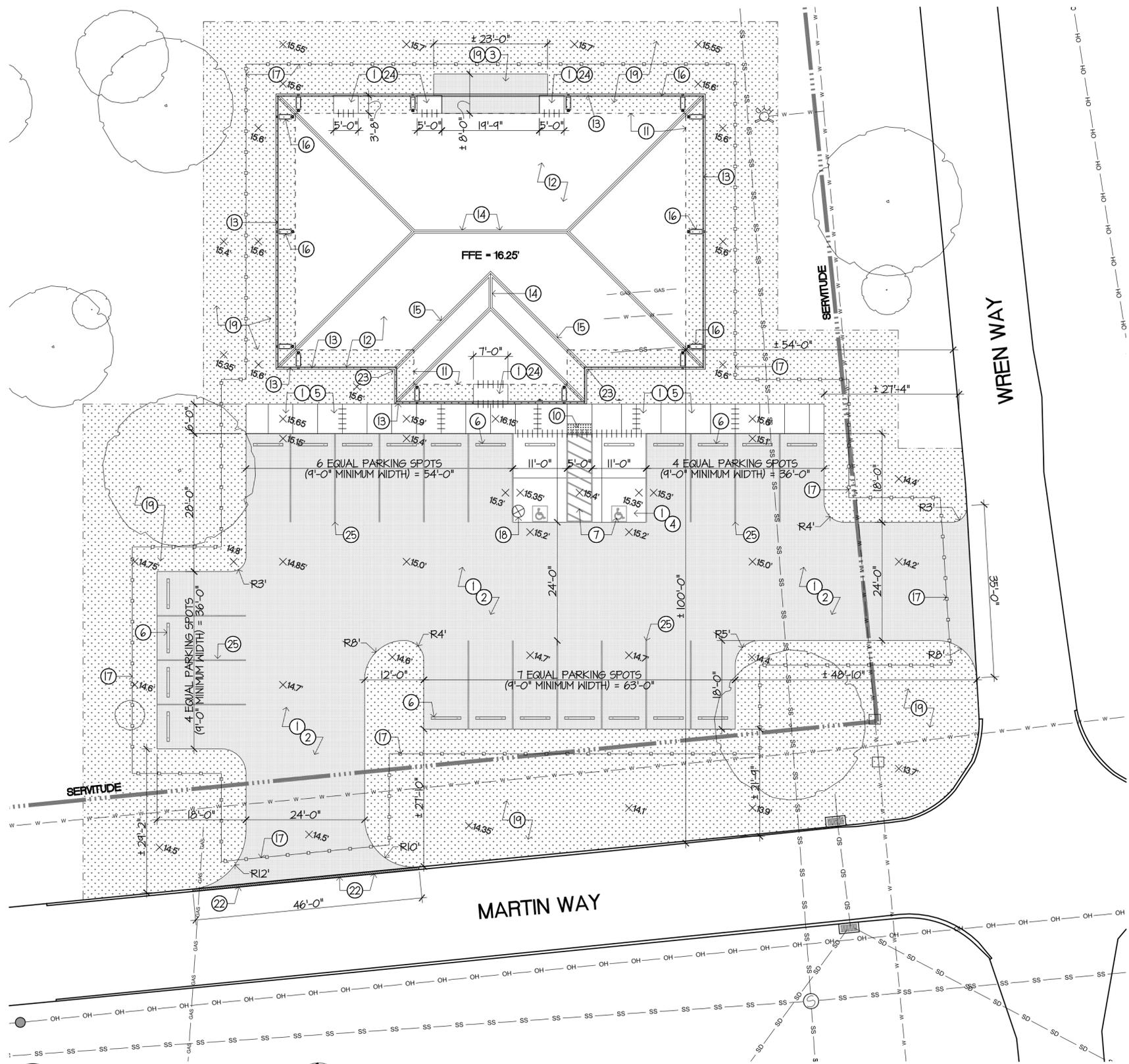
**A PORTION OF LOT 3-A-2, LOCATED IN SECTION 43, T-8-S, R-12-E, G.L.D., ST. TAMMANY PARISH, LOUISIANA**

| REVISION NUMBER | DESCRIPTION | DATE | BY | DB |
|-----------------|-------------|------|----|----|
| 01/03/2020      |             |      |    |    |

**KELLY J. MCHUGH AND ASSOC., INC.**  
CIVIL ENGINEERS & LAND SURVEYORS  
845 GALVEZ STREET  
MANDEVILLE, LOUISIANA  
(985) 626-5611



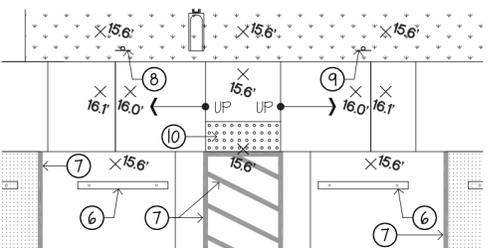
**LA One Call**  
Call before you dig.  
1-800-272-3020



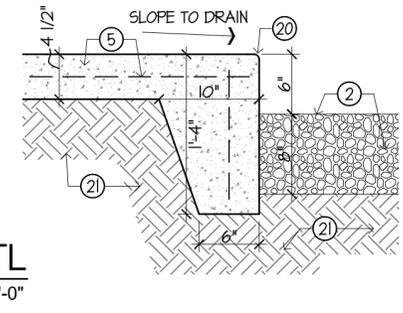
**1 SITE / ROOF PLAN**  
C101 scale 1/16" = 1'-0"

GENERAL CONTRACTOR SHALL COORDINATE LAYOUT OF MECH/ELEC EQUIPMENT TO MEET ALL APPLICABLE CODES, INCLUDING (BUT NOT LIMITED TO) CLEARANCES IN FRONT OF ELECTRICAL PANELS (NO OBSTRUCTIONS BENEATH AT GROUND LEVEL, ETC.). CONDENSING UNIT LINES SETS, MISC. CONDUIT, ETC. SHALL BE ROUTED ACCORDINGLY.

**2 ENTRY RAMP**  
C101 scale 1/8" = 1'-0"



**3 SIDEWALK DTL**  
C101 scale 1" = 1'-0"



**GENERAL NOTES:**

- A. DRAWINGS ARE NOT MEANT TO BE ALL INCLUSIVE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS OF BUILDING AND SITE. INCLUDE ALL ASSOCIATED COSTS TO PERFORM CONTRACT WORK WHETHER OR NOT SPECIFICALLY STATED OR SHOWN, TAKING ALL ACTUAL QUANTITIES, CONDITIONS, RESTRICTIONS, ETC. INTO ACCOUNT.
- B. UPON COMPLETION OF PROJECT, EXISTING SITE TO BE RETURNED TO PRE-CONSTRUCTION CONDITIONS, INCLUDING COMPLETE GRASS CLEANUP, FILLING AND REPLANTING, REPAIR OF RUTS AND DAMAGED GRASS AREAS, REPLACEMENT OF DAMAGED LANDSCAPING, REPAIRS OF BROKEN SIDEWALKS AND DRIVEWAY PAVING, ETC.
- C. EXISTING BUILDINGS ON MEDICAL COMPLEX SITE WILL BE OCCUPIED DURING ALL PHASES OF CONSTRUCTION. DO NOT RESTRICT OWNER'S USE OF PROPERTY, OR IMPACT DAILY OPERATIONS, WITHOUT PRIOR APPROVAL. DO NOT BLOCK ANY ROADS WITH VEHICLES, EQUIPMENT, MATERIALS, ETC.
- D. TAKE ALL MEASURES TO PROTECT BUILDINGS (ONSITE AND OFFSITE), GROUNDS, VEHICLES, ETC. ANY DAMAGE CAUSED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED/REPLACED, MATCHING EXISTING CONDITIONS IN ALL RESPECTS, AT NO COST TO THE OWNER.
- E. CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF STAGING AREAS WITH ST. TAMMANY PARISH DEPARTMENT OF FACILITIES MANAGEMENT AND THE SAFE HAVEN DEPARTMENT.
- F. STAGING AREAS AND ACTIVE WORK AREAS MUST BE FULLY ENCLOSED BEHIND CHAIN LINK CONSTRUCTION FENCE PER NOTES THIS SHEET. BARRIERS MAY BE MOVED/REVISED AS WORK PROGRESSES. COORDINATE WITH OWNER.
- G. CONTRACTOR SHALL REMOVE ALL DEBRIS FROM THE SITE PROMPTLY AND DISPOSE OF IT IN A LEGAL, APPROVED MANNER. CONTRACTOR SHALL PAY ALL ASSOCIATED FEES WITH DISPOSING OF THESE MATERIALS.
- H. CONTRACTOR SHALL FULLY EXECUTE ALL PROVISIONS OF SECTION 01401 - ST. TAMMANY PARISH STORMWATER PLAN.

**CONSTRUCTION & TREE PROTECTION FENCING:**

- A. PROVIDE AND MAINTAIN 6'-0" HIGH CONSTRUCTION FENCE AROUND ENTIRE PERIMETER OF CONSTRUCTION AREA TO PREVENT PUBLIC ACCESS. COORDINATE LOCATION OF FENCE WITH OWNER SO AS NOT TO INHIBIT OWNER'S USE OF ADJACENT BUILDINGS OR PROPERTY. LAYOUT OF FENCE AND GATES MAY BE REVISED AND RELOCATED AS NECESSARY TO ACCOMPLISH WORK AND PREVENT UNAUTHORIZED ACCESS TO CONSTRUCTION AREA.
- B. ALL STAGING AREAS SHALL BE LOCATED WITHIN BOUNDARIES OF CONSTRUCTION FENCE.
- C. PROVIDE 1-3/4" DIA. GALVANIZED LINE POSTS AND 2-1/2" GALVANIZED END, CORNER, AND GATE POSTS.
- D. GALVANIZED DIAMOND FENCE FABRIC (11.5 GA.) TO BE TAUTLY STRETCHED BETWEEN POSTS SET AT 8' O.C. MAX.
- E. PROVIDE TOP AND BOTTOM HORIZONTAL GALVANIZED SUPPORTS (PIPE RAIL, WIRE, ETC.) AS REQ'D TO ANCHOR FABRIC SECURELY.
- F. GALVANIZED POSTS TO BE SET 36" DEEP IN COMPACTED SOIL (NO GROUND STANDS EXCEPT AT PAVEMENT).
- G. ZIP TIE 24" HIGH SILT FENCING MESH (BURIED 6" INTO THE GROUND) AT BOTTOM OF CONSTRUCTION FENCE ALONG WREN WAY & MARTIN WAY.
- H. PROVIDE ALL OTHER MATERIALS AND LABOR AS REQ'D TO ERECT AND MAINTAIN A SECURE, PLUMB, STABLE, AND STORM RESISTANT BARRIER.
- I. PROTECT EXISTING TREES AND ROOT SYSTEMS WITH 4'-0" HIGH SNOW FENCING AT TREE DRIP LINES. COORDINATE LOCATIONS IN FIELD WITH OWNER.

**KEY NOTES: #**

- 1. FULLY CLEAR EXISTING GRADE TO NATIVE SOIL AND GRUB TOP SOIL, VEGETATION, ROOTS, ETC. FIRMLY PROOF ROLL WITH 10 TON TANDEM DUMP TRUCK (2 PASSES). CLEAN OUT WEAK AND/OR SOFT MATERIALS AND BACKFILL. FILL AS REQ'D TO ACHIEVE NEW ELEVATIONS AND COMPACT TO 95% MAX DRY DENSITY.
- 2. PLACE 22A - CRUSHED CONCRETE ON 1 LAYER OF GEOTECH FABRIC FOR PARKING AND DRIVE (SHOWN SHADED IN PLAN) OVER PREPARED SUBSTRATE AND BOUND BY COMMERCIAL GRADE STEEL LANDSCAPING EDGING (MODEL 1012-6 BY COLMET OR PRIOR APPROVED EQUAL) STAKED ALONG PERIMETER PER MFR'S STANDARD INSTALLATION. FINAL COMPACTED THICKNESS TO BE 8" DEEP. SLOPED TO DRAIN PER ELEVATIONS SHOWN. SUBMIT SAMPLES OF CRUSHED CONCRETE TO ARCHITECT FOR APPROVAL PRIOR TO PLACEMENT.
- 3. PLACE 22A - CRUSHED CONCRETE ON 1 LAYER OF GEOTECH FABRIC FOR MECHANICAL YARD OVER PREPARED SUBSTRATE BOUND BY STEEL LANDSCAPING EDGING MATERIAL (RYERSON OR PRIOR APPROVED EQUAL) STAKED ALONG PERIMETER. FINAL COMPACTED THICKNESS TO BE 5" DEEP. EQUIPMENT YARD TO EXTEND FROM BUILDING EDGE TO 12' BEYOND FACE OF UNITS. EXACT FOOTPRINT SHALL BE COORDINATED WITH MECHANICAL.
- 4. PLACE 6" FILL COMPACTED TO 95% STANDARD PROCTOR & POUR NEW 6" THICK 4,000 PSI CONCRETE PAVING REINFORCED WITH 6x6-W4xW4 WWF AND THICKENED TURNDOWN AT ALL EDGES.
- 5. PLACE 6" FILL COMPACTED TO 95% STANDARD PROCTOR & POUR NEW 4-1/2" THICK 4,000 PSI CONCRETE SIDEWALK REINFORCED WITH 6x6-6/6 WWF AND THICKENED REINFORCED TURNDOWN AT ALL EDGES. SCORE JOINTS AT 5'-0" O.C. AND DOWELED EXPANSION JOINTS WHERE SHOWN (SEE EXPANSION JOINT DETAIL ON 5300).
- 6. NEW CONCRETE WHEELSTOP, TYP. DOWEL EACH END WITH #5 REBAR, 12" LONG INTO POURED CONCRETE AND 30" LONG INTO CRUSHED CONCRETE. GROUT TOPS AFTER INSTALLATION.
- 7. NEW PAINTED HANDICAPPED PARKING STRIPING AND SYMBOL (4" WIDE BLUE STRIPING AND WHITE SYMBOL ON BLUE BACKGROUND), TYP. SEE SPEC SECTION 09400 FOR ADD'L INFO.
- 8. NEW HANDICAPPED PARKING SIGN (WITH VAN ACCESSIBLE PLACARD) MOUNTED ON 10'-0" LONG 3" DIA. SCHEDULE 40 HOT DIPPED GALVANIZED STEEL POST WITH TOP CAP SET 30" DEEP INTO 36" DEEP x 12" DIA. CONCRETE FOOTING. INSTALLATION SHALL MEET ADAAG IN ALL RESPECTS.
- 9. NEW HANDICAPPED PARKING SIGN MOUNTED ON 10'-0" LONG 3" DIA. SCHEDULE 40 HOT DIPPED GALVANIZED STEEL POST WITH TOP CAP SET 30" DEEP INTO 36" DEEP x 12" DIA. CONCRETE FOOTING. INSTALLATION SHALL MEET ADAAG IN ALL RESPECTS.
- 10. INSTALL 24" x 60" WIDE SURFACE APPLIED SERIES DETECTABLE WARNING SURFACE AS MANUFACTURED BY ARMOR-TILE OR PRIOR APPROVED EQUAL. SET IN FULL BED OF SEALANT & SECURE WITH STAINLESS STEEL MECHANICAL FASTENERS FOR A PERMANENT ADAAG COMPLIANT UNDER.
- 11. EDGE OF BUILDING BELOW (SHOWN DASHED). PAVING & SOD SHALL CONTINUE UNDER ROOF OVERHANG UP TO BUILDING EDGE, TYP.
- 12. INSTALL DIMENSIONAL ARCHITECTURAL SHINGLE ROOF FOR COMPLETE, WEATHERTIGHT INSTALLATION. SEE SPEC SECTION 07311 FOR ADD'L INFO. FLASH ALL ROOF PENETRATIONS PER MFR'S STANDARD DETAILS. COORDINATE WITH MECH & ELEC DRAWINGS AND SPECS.
- 13. INSTALL NEW 22 GAUGE PRE-FINISHED METAL FLASHING AT EAVES (HEMMED EDGE) FLASHED WITH 4x4 22 GAUGE PREFINISHED METAL GUTTERS WITH 4" END LAPS WITH 2 BEADS CONT. CAULK AT LAPS SLOPED TO 3x4 22 GAUGE DOWNSPOUTS, TYP. SEE BALANCE OF DIMS AND SPEC SECTION 07600 FOR ADD'L INFO.
- 14. INSTALL RIDGE CAP PER MFR'S STANDARD INSTALLATION DTLs, TYP. SEE SPEC SECTION 07311 FOR ADD'L INFO.
- 15. INSTALL MFR'S STANDARD CLOSED VALLEY DETAIL, TYP. SEE SPEC SECTION 07311 FOR ADD'L INFO.
- 16. NEW 12" WIDE 30" LONG 3" HIGH CONCRETE FLASH BLOCK BY MODERN PREGAST INC. (MODERNPREGAST.COM (866)466-1374) OR PRIOR APPROVED EQUAL. COLOR AS SELECTED BY ARCHITECT FROM FULL LINE OF COLOR MIXED IN GRAY CEMENT.
- 17. CONSTRUCTION FENCING PER NOTES THIS SHEET. PROVIDE SWING GATES WITH LOCKS FOR SITE ACCESS.
- 18. REMOVE ABANDONED PHONE PEDESTAL. COORDINATE WITH OWNER.
- 19. UPON COMPLETION OF SITE WORK, LAY SOD (SHOWN HATCHED) 18" WIDE AROUND ENTIRE FOOTPRINT OF BUILDING, 15' BEYOND PARKING AREA, & FROM PARKING AREA TO STREET. SEE SPEC SECTIONS 02430 FOR ADD'L INFO.
- 20. RADIUS AT ALL EDGES, TYP.
- 21. COMPACTED SOIL, TYP.
- 22. SAWCUT AND REMOVE EXISTING CONCRETE CURB ALONG STREET (SHOWN HATCHED) AND PREPARE FOR NEW DRIVEWAY.
- 23. GUTTER SPLASH GUARD.
- 24. PLACE 6" FILL COMPACTED TO 95% STANDARD PROCTOR & POUR NEW 4-1/2" THICK 4,000 PSI CONCRETE PAD SLOPED TO DRAIN AND REINFORCED WITH 6x6-6/6 WWF WITH DOWELED EXPANSION JOINTS WHERE SHOWN (SEE EXPANSION JOINT DETAIL ON 5300).
- 25. IF ALT. NO. 2 ACCEPTED, PAINT NEW 4" WIDE PARKING STRIPING, TYP. SEE SPEC SECT 09400 FOR ADD'L INFO.

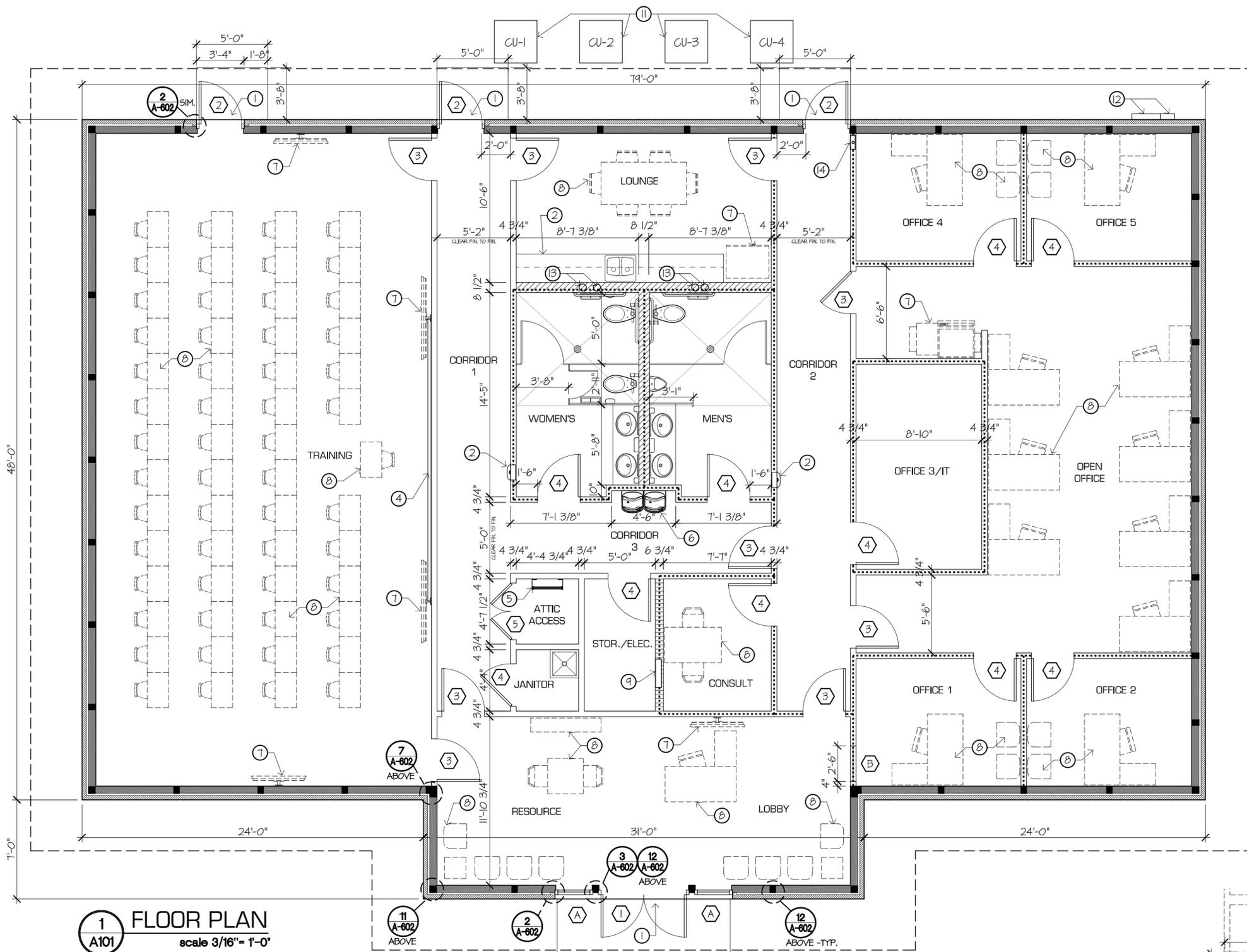


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**NEW SAFE HAVEN TRAINING AND EDUCATION CENTER FOR ST. TAMMANY PARISH**  
MARTIN WAY AT WREN  
MANVILLE, LA

DATE: 7-3-2020  
DRAWN BY:  
REVISIONS:

C101  
SHEET 3 OF 27



**1 FLOOR PLAN**  
A101 scale 3/16" = 1'-0"

**WALL LEGEND:**  
 NOTE: AT ALL STUD WALLS, INSTALL 5/8" GYP. BOARD BOTH SIDES - PAINTED (UNLESS OTHERWISE NOTED, ALSO SEE SHEET A-401)

- EXTERIOR STUD WALL - 2x6'S AT 16" O.C. B/T VERTICAL COLUMNS WITH FULL HEIGHT THERMAL INSULATION (SEE STRUCTURAL)
- VERTICAL STUD COLUMNS - GROUPED 2x6'S (SEE STRUCTURAL)
- INTERIOR STUD WALL - 2x4'S AT 16" O.C. WITH FULL HEIGHT SOUND INSULATION
- INTERIOR STUD WALL - 2x4'S AT 16" O.C.
- INTERIOR PLUMBING WALL - 2x8'S AT 16" O.C. WITH FULL HEIGHT SOUND INSULATION
- INTERIOR STUD WALL - 2x6'S AT 16" O.C. WITH FULL HEIGHT SOUND INSULATION
- BRICK VENEER WITH 1-1/2"x5-1/2" BLOCK-OUT AT LEDGE (SEE STRUCTURAL)

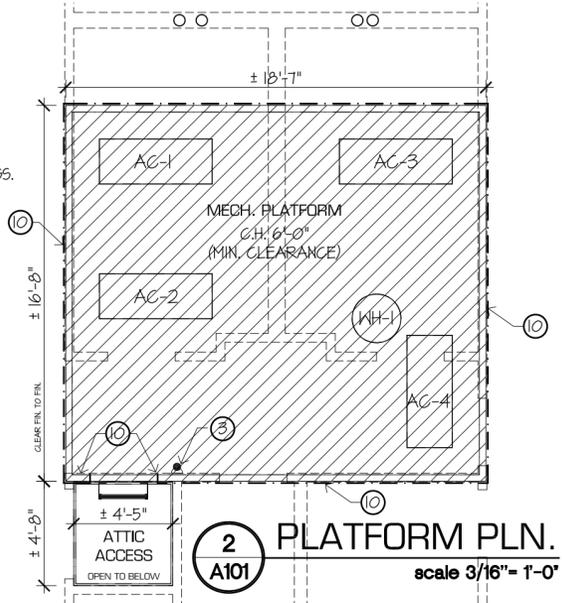
- ALSO SEE GENERAL NOTE E, THIS SHEET  
 - PROVIDE FULL COVERAGE THERMAL INSULATION AT ROOF DECK IN ATTIC AREA DOWN TO EXTERIOR WALLS. SEE NOTES AND SECTIONS ON SHEET A201.

**GENERAL NOTES:**

- A. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, DETAILS & REQUIREMENTS OF THESE PLANS & SPECIFICATIONS PRIOR TO THE START OF WORK.
- B. ALL CONSTRUCTION SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. NO WORK SHALL BE CONCEALED UNTIL APPROVED BY LOCAL INSPECTORS.
- C. ALL WORK NOTED "BY OTHERS" OR "N.I.C." SHALL BE PROVIDED BY OWNER OR UNDER SEPARATE CONTRACT. INCLUDE SCHEDULED REQUIREMENTS FOR THIS WORK IN CONSTRUCTION SCHEDULE AND COORDINATED AS REQUIRED TO ASSURE ORDERLY SEQUENCE OF INSTALLATION.
- D. ROOM INTERIOR DIMENSIONS ARE FROM FACE OF WALLBOARD TO FACE OF WALLBOARD. BUILDING EXTERIOR DIMENSION ARE FROM FACE OF MASONRY TO FACE OF MASONRY, UNLESS OTHERWISE NOTED IN PLAN. STUD COLUMN FRAMING DIMENSIONS ARE TO CENTER OF FRAMING MEMBER TO CENTER OF FRAMING MEMBER (SEE A402).
- E. ALL STUD WALLS (EXTERIOR AND INTERIOR) SHALL BE CONTINUOUS TO UNDERSIDE OF ROOF TRUSS WITH DOUBLE TOP PLATES AT 11'-0" ABOVE SLAB. ALSO SEE ARCHITECTURAL AND STRUCTURAL SECTIONS AND DETAILS.
- F. SEE SITE PLAN AND MECH./ELEC. DRAWINGS FOR DETAILED SITE INFORMATION (ALL WORK OUTSIDE OF BUILDING LINE).
- G. ARCHITECTURAL DRAWINGS MAY NOT SHOW ALL SLAB CONDITIONS INDICATED ON STRUCTURAL DRAWINGS (SLOPE, LEDGES, ETC.). FULLY REVIEW ALL DRAWINGS AND COORDINATE ALL TRADES.
- H. INSTALL SOLID BLOCKING IN WALLS TO SUPPORT AL MOUNTED ITEMS (CABINETS, MONITORS, HANDRAILS, LADDER, ACCESSORIES, ETC.) VERIFY HEIGHTS WITH ARCHITECT IF NOT SHOWN.

**FLOOR PLAN KEY NOTES (SHOWN #):**

1. LANDING TO BE FLUSH WITH INTERIOR SLAB AT EXIT DOOR THRESHOLD, AND DOWELED IN. SLOPE AWAY TO DRAIN AT 1/4" FT. MAXIMUM. COORDINATE W/ STRUCTURAL DWGS.
2. FIRE EXTINGUISHER, CABINET MOUNTED
3. FIRE EXTINGUISHER, BRACKET MOUNTED, AT MECHANICAL PLATFORM. WALL MOUNT ON PERIMETER FRAMING
4. 20" x 4" MAGNETIC MARKERBOARD, SET TOP OF BOARD TO ALIGN WITH TOP OF DOOR FRAME
5. INSTALL 26" WIDE ALUMINUM FIXED VERTICAL LADDER WITH 42" WALK-THRU SIDE RAILS, PRECISION LADDERS, MORRISTOWN, TN - MODEL FL-140" OR PRIOR APPROVED EQUAL. PROVIDE ALUM. STRINGERS, EXTRUDED TREADS AND ALL MOUNTING BRACKETS/FASTENERS NECESSARY TO MOUNT TO FLOOR, WALL AND PLATFORM DECK PER MANUFACTURER'S RECOMMENDATIONS. MILL FINISH ON ALL LADDER COMPONENTS. INSTALL IN ACCORDANCE WITH MANUFACTURER'S APPROVED SUBMITTALS
6. DUAL WATER COOLERS, MOUNTED TO MEET ADA REQUIREMENTS. SEE MECHANICAL AND ELECTRICAL DRAWINGS
7. N.I.C. EQUIPMENT (SHOWN DASHED), VERIFY ALL MECH. AND ELEC. CONNECTIONS AND CONTACT ARCHITECT FOR ROUGH-IN HEIGHTS
8. N.I.C. FURNITURE (SHOWN DASHED) FOR REFERENCE
9. RECESSED ELECTRICAL PANEL. SEE ELECTRICAL DRAWINGS
10. PROVIDE PERIMETER GUARDRAIL WITH BOTTOM 2x4 EDGE GUARD AND 42" HIGH 2x4 TOP RAIL AT MECH. EQUIP. PLATFORM. SECURE TO PLATFORM DECK AND 2x4 VERTICALS AT 24" O.C. AND/OR ROOF FRAMING MEMBERS. COORDINATE WITH EQUIP. AND DUCTWORK RUNS
11. PROVIDE CONDENSING UNITS LAYOUT FOR PRIOR APPROVAL BEFORE INSTALLATION. ALL MECH. ROUTING TO UNITS SHALL BE FROM SLAB BELOW TO INTERIOR WALL. SEE MECHANICAL DRAWINGS
12. SURFACE MOUNTED ELECTRICAL PANEL AND METER. ALL ELEC. ROUTING TO PANEL/METER SHALL BE FROM SLAB BELOW. SEE ELECTRICAL DRAWINGS
13. MECH. PIPING IN INTERIOR CHASE WALL FROM EXTERIOR UNITS TO MECH. EQUIP ON PLATFORM. SEE MECHANICAL DRAWINGS AND COORDINATE AS REQUIRED
14. MECH. PLUMBING SHUT-OFF IN WALL. SEE MECHANICAL DRAWINGS. PROVIDE AND INSTALL ACCESS PANEL WITH PAINTED GYP. BOARD INFILL. SEE SPEC. SECTION 08310



**2 PLATFORM PLN.**  
A101 scale 3/16" = 1'-0"

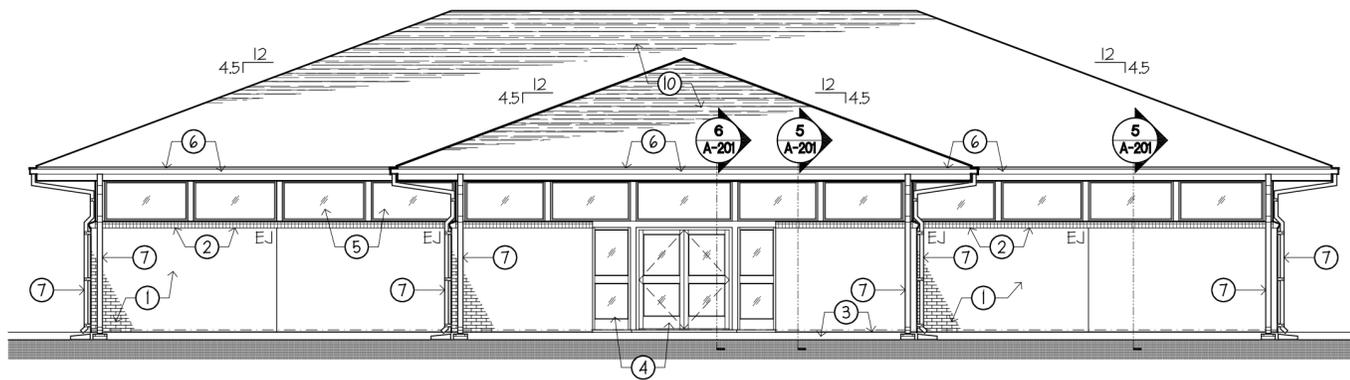


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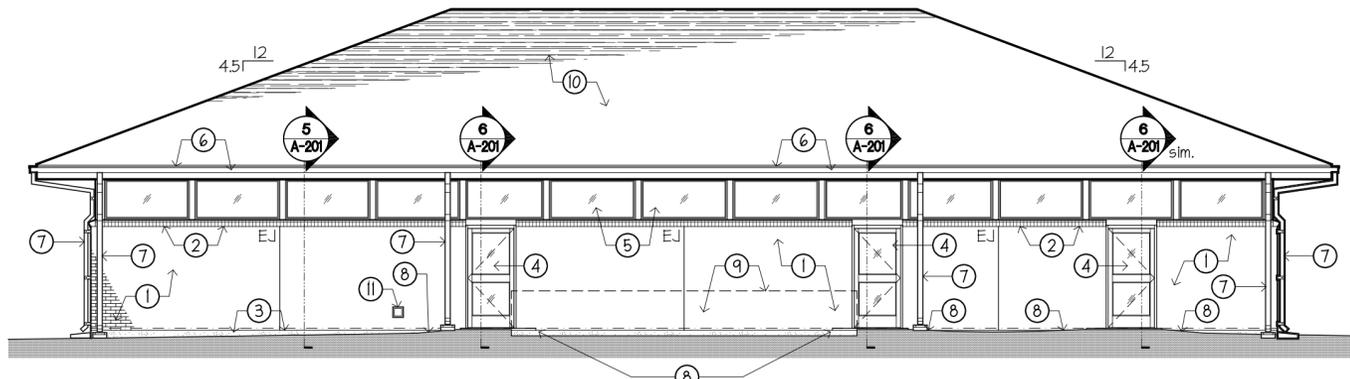
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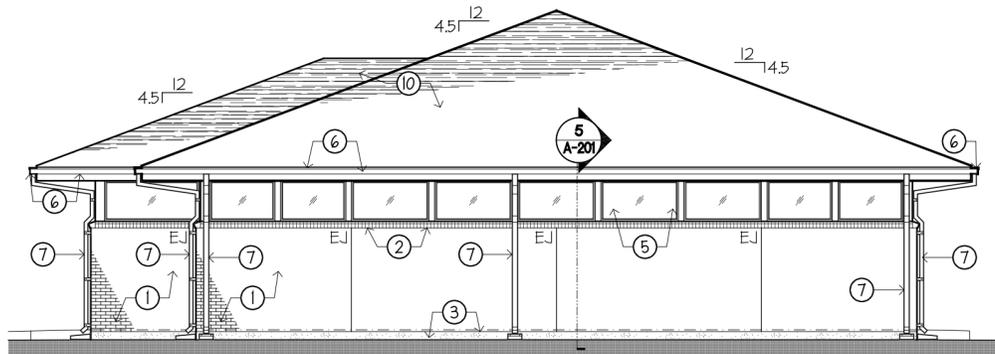
**A101**  
SHEET 4 OF 27



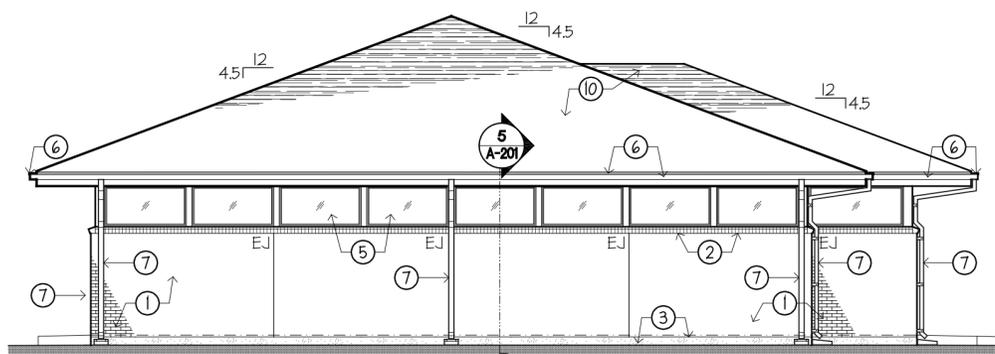
**1 NORTH ELEVATION**  
A201 scale 1/8" = 1'-0"



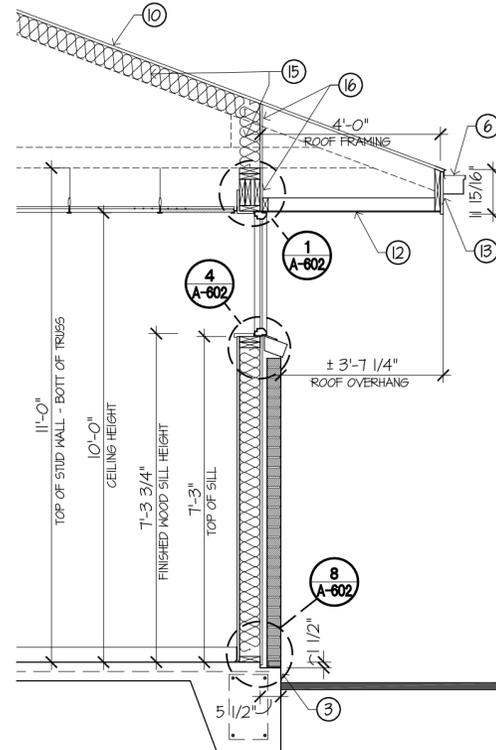
**2 SOUTH ELEVATION**  
A201 scale 1/8" = 1'-0"



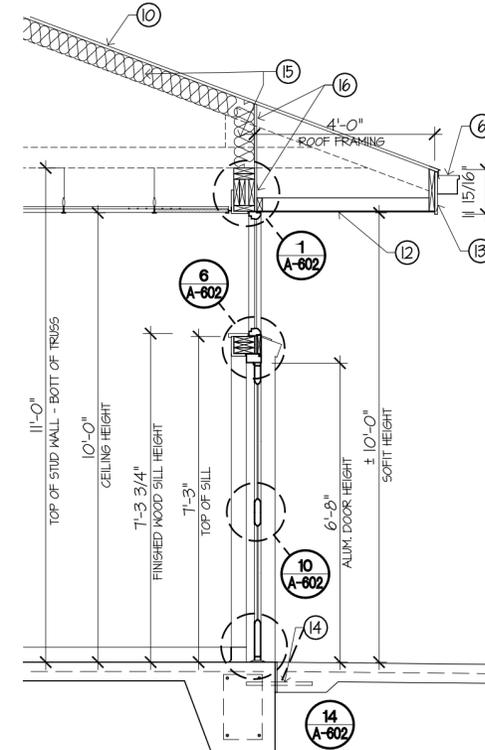
**3 WEST ELEVATION**  
A201 scale 1/8" = 1'-0"



**4 EAST ELEVATION**  
A201 scale 1/8" = 1'-0"



**5 SECT. AT WINDOW**  
A201 scale 3/8" = 1'-0"



**6 SECT. AT DOOR**  
A201 scale 3/8" = 1'-0"

**GENERAL NOTES:**

- A. FLASH AND SEAL ALL PENETRATIONS THROUGH EXTERIOR WALLS, FULLY WATERTIGHT.
- B. PROVIDE LINTEL SUPPORTS (VENEER AND BACK-UP WALL) AS REQUIRED AT ALL WALL OPENINGS & PENETRATIONS THROUGH MASONRY.
- C. SEE MECH & ELEC FOR EXTERIOR FIXTURES, CONDUIT, OUTLETS, ETC. ITEMS SHOWN ON ARCHITECTURAL EXTERIOR ELEVATIONS MAY NOT BE ALL INCLUSIVE. CONTRACTOR TO VERIFY (QUANTITY, LOCATION, DIMENSIONS, ETC.) AND COORDINATE WITH ELECTRICAL AND MECHANICAL DRAWINGS. CONTACT ARCHITECT/ENGINEER IF CONFLICTS ARISE, AND BEFORE FINAL PLACEMENTS ARE MADE.
- D. FOR OPENINGS IN EXTERIOR WALLS NOT SPECIFICALLY DETAILED, BUILD HEAD, JAMB, AND SILL WATERTIGHT AND SIMILAR TO DETAILS ON SHEET A-602.
- E. PROVIDE AND INSTALL THERMAL BATT INSULATION IN ATTIC AREA SECURED IN PLACE AT UNDERSIDE OF ROOF DECK BETWEEN ROOF TRUSSES CONTINUE DOWN TO EXTERIOR WALLS FOR FULL COVERAGE. SEE SECTIONS THIS SHEET.

**JOINTS LEGEND**

EJ - BRICK VENEER EXPANSION JOINT

**KEY NOTES:** #

- 1. BRICK VENEER, TYP.
- 2. BRICK VENEER ROWLOCK SILL, TYP. SEE DETAILS & SECTIONS. MITER BRICK AT CORNERS.
- 3. RUBBED CONCRETE, TYP.
- 4. ALUMINUM STOREFRONT SYSTEM PER SCHEDULE.
- 5. VINYL FIXED WINDOW PER SCHEDULE.
- 6. PRE-FINISHED METAL GUTTER. SEE ROOF PLAN NOTES ON SHEET G101.
- 7. PRE-FINISHED METAL DOWNSPOUT. SEE ROOF PLAN NOTES ON SHEET G101.
- 8. SLOPE GRADE UP TO PLATEAU LEVEL AT LANDING.
- 9. HVAC EQUIPMENT YARD (SHOWN DASHED FOR CLARITY). SEE MECHANICAL.
- 10. ARCHITECTURAL SHINGLE ROOF SYSTEM PER SPEC SECTION 07311.
- 11. HOSE BIB PER MECHANICAL.
- 12. PAINTED CEMENTITIOUS SOFFIT PANEL ON SOLID BLOCKING (ALL SIDES). CAULK ALL JOINTS.
- 13. PAINTED CEMENTITIOUS FASCIA BOARD OVER SHEET WEATHER BARRIER ON 2X12 TREATED RIBBON BOARD PER STRUCTURAL. CAULK ALL FASCIA BOARD JOINTS.
- 14. SEALED AND DOWELED EXPANSION JOINT PER STRUCTURAL DRAWINGS.
- 15. INSTALL FULL COVERAGE THERMAL INSULATION BATTS AT ROOF DECK CONTINUOUS TO TOP OF EXTERIOR WALLS.
- 16. CONTINUE EXTERIOR SHEATHING TO UNDERSIDE OF ROOF DECK FOR ATTIC CLOSURE.

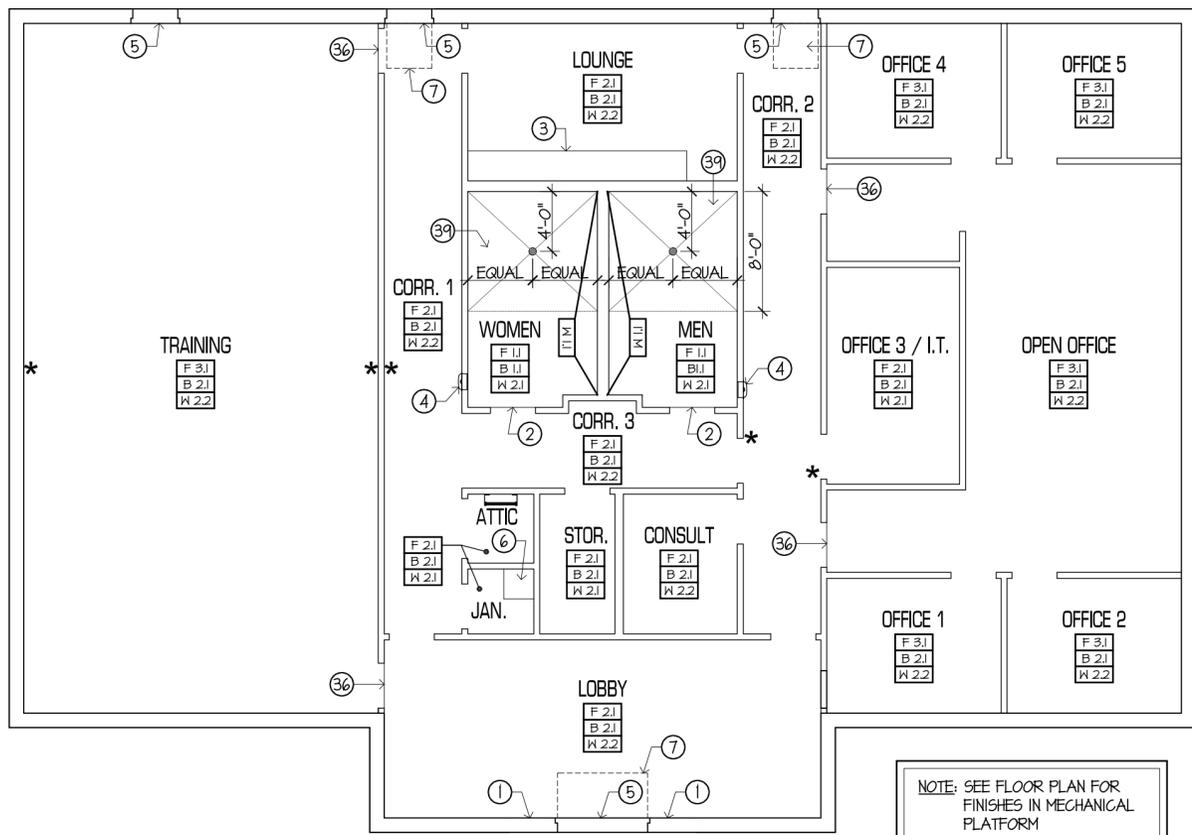


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A201  
SHEET 5 OF 27



**GENERAL NOTES:**

- A. SEE BUILDING SPECIFICATIONS FOR FURTHER INFORMATION REGARDING FINISH MANUFACTURER, COLOR, STYLE, PATTERN, SIZE, PERFORMANCE AND INSTALLATION.
- B. SEE INTERIOR ELEVATIONS FOR ADD'L INFO ON SPECIFIC MATERIAL APPLICATIONS AND SPECIFIC LOCATIONS.
- C. REFER TO BALANCE OF PLANS AND SPECIFICATIONS FOR FINISH MATERIALS AND REQUIREMENTS NOT INDICATED HEREIN.
- H. IF FINISHES ARE NOT INDICATED WITHIN ANY AREA, PROVIDE FINISHES TO MATCH THOSE IN NEAREST ADJACENT AREA.
- I. EXPOSED METAL TRIMS IN WALLS SHALL BE PRIMED AND PAINT FINISHED TO MATCH ADJACENT SURFACES.
- J. IN ALL SPACES WITHOUT CEILINGS, PAINT FINISH WALLS UP TO DECK AND LEAVE DECK AND ROOF STRUCTURE UNPAINTED.
- K. WALL BOARD SHALL BE FINISHED NEATLY TO EXPOSED STRUCTURAL MEMBERS WITH JOINT CAULKED PRIOR TO PAINTING. CAULK AT DRAFTSTOP WALLS.
- L. PROVIDE TRANSITION STRIP BETWEEN DIFFERENT FLOOR TYPES, TYP. COORDINATE TRADES TO A NEAT FLUSH TRANSITION BETWEEN FLOORING MATERIALS.
- M. UNLESS OTHERWISE NOTED, WHENEVER FLOORING TRANSITION OCCURS AT A DOOR OPENING, LOCATE TRANSITION STRIP WITHIN PANEL FOOTPRINT OF CLOSED DOOR.
- N. MAINSCOT AND FLOOR BASE SHALL NOT BE PROVIDED BEHIND FIXED FURNITURE INSTALLATIONS, CABINETS, ETC. UNLESS OTHERWISE NOTED. SEE FLOOR PLAN AND ELEVATIONS FOR LOCATIONS.
- O. PROVIDE APPROPRIATE SOLID BLOCKING IN WALLS FOR ALL CASEWORK, COUNTERTOPS, TOILET ACCESSORIES, LADDER, ETC. COORDINATE PROPER LOCATIONS WITH ARCHITECTURAL DRAWINGS.
- P. SEE REFLECTED CEILING PLANS FOR CEILING HEIGHTS & LIGHTING DESIGNATIONS.
- Q. CAULK ALL COUNTERTOPS, BACKSPLASHES, CABINETS, FIXTURES, ETC. TO ADJACENT WALLS, TYP.
- R. SEVERAL PAINT COLORS WILL BE USED FOR GYPSUM BOARD FINISHES.

**KEY NOTES:** #

- 1. ABUT FLOOR FINISH AGAINST SILL FOR A TIGHT NEAT FINISHED CONDITION.
- 2. ALUMINUM DIFFERENT-HEIGHT TRANSITION MODEL RENO-AEJ BY SCHLUTER AT ALL VCT TO TILE TRANSITIONS, TYP. COORDINATE WITH SPEC SECTIONS 04300 & 04650.
- 3. FOOTPRINT OF CASEWORK. ROOM FLOORING SHALL EXTEND UNDER CASEWORK, TYP.
- 4. NEW ADA COMPLIANT SEMI-RECESSED FIRE EXTINGUISHER IN CABINET. COORDINATE WITH ADJACENT FINISHES AND/OR COMPONENTS IN ALL RESPECTS.
- 5. ADAAG COMPLIANT EXTERIOR ALUMINUM THRESHOLD PER SPEC SECTION 08710.
- 6. MOP SINK FOOT PRINT, NO FLOORING REQUIRED.
- 7. FLOOR MAT-N.I.C.
- 8. 3/4" x 1-1/4" PAINTED MILLED WOOD TRIM PER FINISH DESIGNATIONS.
- 9. SECURE 2x TREATED BLOCKING AT BACK, SIDES, & FRONT WITH 3/8" x 3" LAG BOLTS INTO SOLID 2x BLOCKING IN WALL FOR SUPPORT.
- 10. PAINTED GYPSUM BOARD PER FINISH SCHEDULE.
- 11. 1/2" SOLID SURFACE COUNTERTOP, EDGING, NOSING, ETC., TYP. PROVIDE 1/8" ROUND OVER ALL EDGES.
- 12. TOE KICK WITH PLASTIC LAMINATE BASE, TYP.
- 13. 4" HIGH SOLID SURFACE BACKSPLASH, TYP.
- 14. DROP-IN SINK, FAUCET, FITTINGS, ETC. PER MECHANICAL.
- 15. WALL BASE PER FINISH PLANS.
- 16. 24" DEEP PLASTIC LAMINATE BASE CABINET WITH DRAWER, DOORS AND ADJUSTABLE SHELVES.
- 17. 12" DEEP PLASTIC LAMINATE WALL CABINET WITH DOORS AND ADJUSTABLE SHELVES TO BE FINISHED AT BOTTOM. ABUT WOOD TRIM ABOVE.
- 18. 24" DEEP PLASTIC LAMINATE SINK BASE CABINET WITH DOORS AND FRONT PANEL.
- 19. TILE MAINSCOT WITH ACCENT BAND UP TO 6'-0".
- 20. CEMENTITIOUS BOARD (BEHIND CERAMIC TILE) SHALL ABUT GYPSUM BOARD 2" BELOW TOP OF CERAMIC TILE BULLNOSE FOR NEAT FINISH OF GYPSUM BOARD (LINE SHOWN DASHED).
- 21. TOILET PARTITION COMPARTMENT SYSTEM PER SPEC SECTION 10160.
- 22. URINAL SCREEN PER SPEC SECTION 10160.
- 23. STANDARD TOILET. SEE MECHANICAL.
- 24. ADAAG COMPLIANT TOILET. SEE MECHANICAL.
- 25. STANDARD URINAL. SEE MECHANICAL.
- 26. SINK, FAUCET, FITTINGS, ETC. PER MECHANICAL. EXPOSED HOT WATER AND DRAIN PIPES TO BE INSULATED. PROVIDE EXTENSION RING AND KIT FOR UNDERMOUNT INSTALLATION.
- 27. PROVIDE (2) 3/8" DIAMETER STAINLESS STEEL CARRIAGE BOLTS TO SECURE COUNTER BLOCKING TO PARTITION.
- 28. NOT USED.
- 29. NOT USED.
- 30. NOT USED.
- 31. NOT USED.
- 32. NOT USED.
- 33. SOLID SURFACE NOSING WITH 1/8" ROUND TO CONTINUE AT SIDE.
- 34. 1/2" SOLID SURFACE COUNTERTOP, EDGING, APRON, ETC. WITH 1/8" ROUND OVER ALL EDGES SET ON 3/4" PLYWOOD. SEE SECTION THIS SHEET FOR ADD'L INFO.
- 35. 1" FILLER, TYP.
- 36. ALUMINUM SAME-HEIGHT TRANSITION MODEL VPT ACGB BY SCHLUTER AT ALL VCT TO CARPET TRANSITIONS, TYP. COORDINATE WITH SPEC SECTIONS 04650 & 04680.
- 37. EQUIPMENT NOT IN CONTRACT, TYP.
- 38. FINISHED END, TYP.
- 39. FLOOR DRAIN PER MECHANICAL. SET 1" BELOW F.F.E. AND PROVIDE CONTINUOUS POSITIVE SLOPE IN CONCRETE SLAB AT POURING. COORDINATE TRADES AS REQ'D.
- 40. CONVENIENCE OUTLET, TYP. SEE ELECTRICAL FOR ADD'L INFO.
- 41. COORDINATE WALL BLOCKING WITH SHELVING, TYP.

**READING FINISH PLANS**



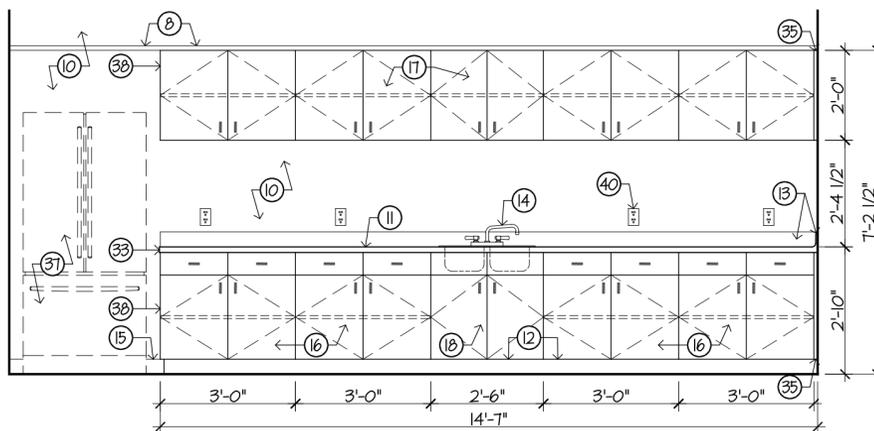
**FINISH DESIGNATIONS**

- FLOOR**
- F 1.1 TILE
  - F 2.1 VINYL COMPOSITION TILE (VCT)
  - F 3.1 CARPET
- BASE**
- B 1.1 TILE BASE
  - B 2.1 RESILIENT BASE
- WALL**
- W 1.1 6'-0" HIGH TILE MAINSCOT WITH ACCENT BAND OVER CEMENTITIOUS BOARD W/ PAINTED GYPSUM BOARD ABOVE
  - W 2.1 PAINTED GYPSUM BOARD
  - W 2.2 PAINTED GYPSUM BOARD WITH PAINTED WOOD TRIM BAND AT ± 7'-3" A.F.F. TO MATCH AND ALIGN WITH WINDOW SILL TRIM (SEE DETAIL 4/A602 AND RELATED DETAILS ON A/602)

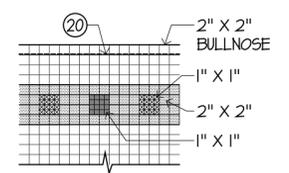
**NOTES:**

- 1. WHEN ROOM CALLS FOR MORE THAN ONE WALL FINISH, SEE INTERIOR ELEVATIONS FOR SPECIFIC LOCATIONS OF MATERIALS.
- 2. SYMBOL INDICATES SPECIFIC LOCATION OF FINISH:

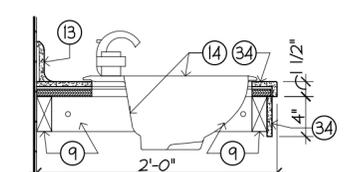
**1 FINISH PLAN**  
A401 scale 1/8" = 1'-0"



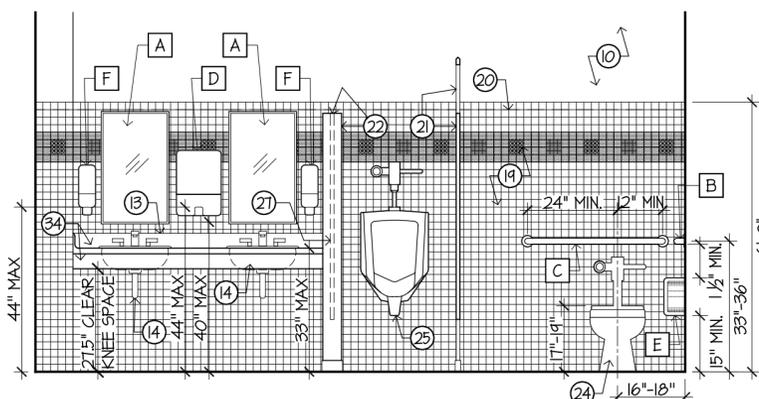
**2 LOUNGE ELEVATION**  
A401 scale 3/8" = 1'-0"



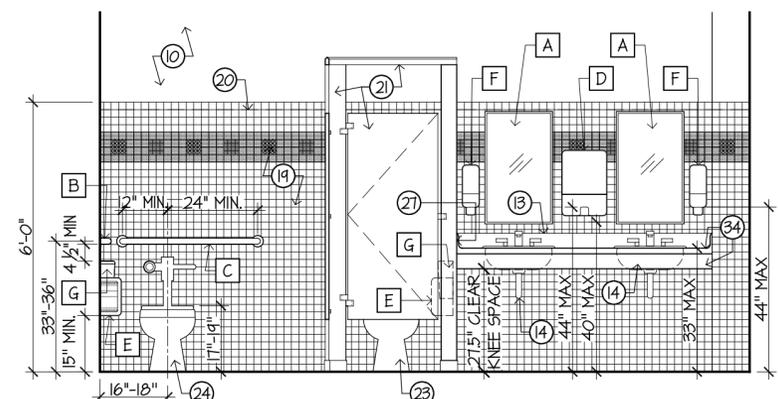
**5 TILE DTL.**  
A401 scale 1/2" = 1'-0"



**6 SINK SECT.**  
A401 scale 1" = 1'-0"



**3 MENS RESTROOM ELEVATION**  
A401 scale 3/8" = 1'-0"



**4 WOMENS RESTROOM ELEVATION**  
A401 scale 3/8" = 1'-0"

**ACCESSORY SCHEDULE:** AB LETTER TAGS

| TAG | EQUIPMENT/ACCESSORIES          | MFR./ MODEL NUMBERS           |
|-----|--------------------------------|-------------------------------|
| A   | 18" x 30" FRAMED MIRROR        | BRADLEY/ MODEL T80-1830       |
| B   | 42" GRAB BAR - 1 1/2" DIAMETER | BRADLEY/ MODEL 812            |
| C   | 36" GRAB BAR - 1 1/2" DIAMETER | BRADLEY/ MODEL 812            |
| D   | HAND TOWEL DISPENSER           | OWNER PROVIDED & GC INSTALLED |
| E   | TISSUE DISPENSER               | OWNER PROVIDED & GC INSTALLED |
| F   | FOAM SOAP DISPENSER            | OWNER PROVIDED & GC INSTALLED |
| G   | NAPKIN DISPOSAL                | OWNER PROVIDED & GC INSTALLED |

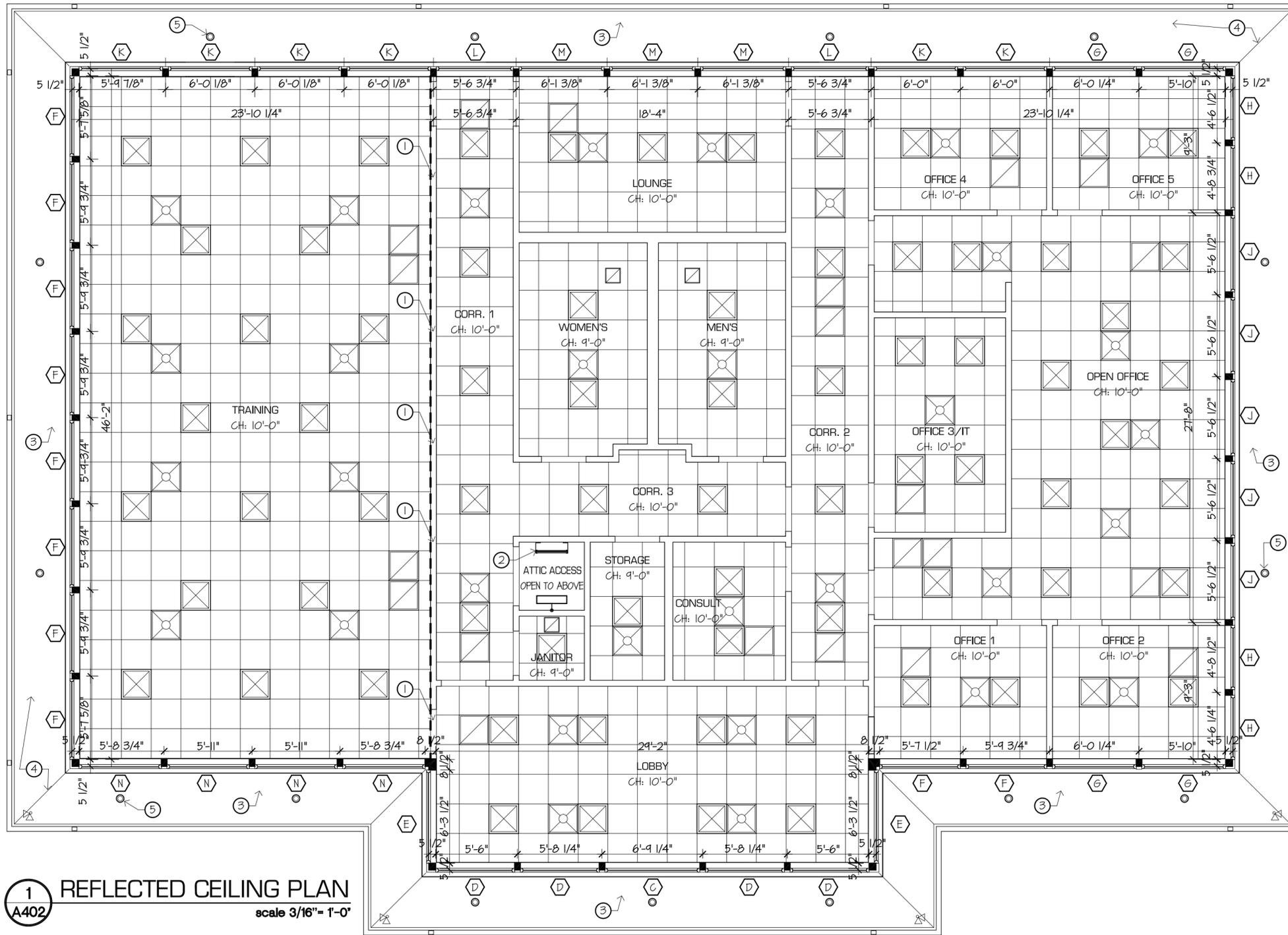


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MANVILLE, LA

DATE: 7-3-2020  
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A401  
SHEET 6 OF 27



**1 REFLECTED CEILING PLAN**  
 A402 scale 3/16" = 1'-0"

| CEILING LEGEND |   |
|----------------|---|
|                | 2" X 2" LAY-IN SUSPENDED CEILING GRID                       |
|                | 2" X 2" LAY-IN LIGHT FIXTURE (SEE ELECTRICAL)               |
|                | 2" X 2" LAY-IN DIFFUSER (SEE MECHANICAL)                    |
|                | 2" X 2" LAY-IN RETURN AIR (SEE MECHANICAL)                  |
|                | EXHAUST LOUVER (SEE MECHANICAL)                             |
|                | WALL MOUNTED LIGHT FIXTURE (SEE ELECTRICAL)                 |
|                | RECESSED SOFFIT LIGHT FIXTURE (SEE ELECTRICAL)              |
|                | SURFACE MOUNTED SOFFIT FLOOD LIGHT FIXTURE (SEE ELECTRICAL) |

**GENERAL NOTES:**

- A. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL TRADES TO INSURE THAT CEILINGS WILL BE INSTALLED AT DESIGNED HEIGHTS AND LAYOUT. IF THERE IS A CONFLICT, CONTRACTOR SHALL CONTACT ARCHITECT / ENGINEER PRIOR TO ANY INSTALLATION WORK. NO CEILING WILL BE LOWERED OR REWORKED DUE TO LACK OF COORDINATION BETWEEN TRADES.
- B. ALL LIGHT FIXTURES ARE SHOWN FOR LOCATION AND COORDINATION ONLY. REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC REQUIREMENTS AND FIXTURE DESIGNATIONS. FOR EMERGENCY LIGHTING, EXIT SIGNS AND ANY OTHER ITEMS OR SYSTEMS IN THE CEILING, REFER TO ELECTRICAL DWGS FOR COMPLETE LAYOUT.
- C. ALL HVAC DIFFUSERS & RETURN AIR GRILLES ARE SHOWN FOR LOCATION AND COORDINATION ONLY. REFER TO MECHANICAL DRAWINGS FOR COMPLETE LAYOUT. NOTIFY ARCHITECT OF ANY CONFLICTS BETWEEN REFLECTED CEILING PLAN LIGHTING LOCATIONS AND MECHANICAL ITEMS.
- D. CENTER LIGHTING FIXTURES, EXIT LIGHTS, SPEAKERS, AND OTHER LAY-IN CEILING MOUNTED FIXTURES IN ACOUSTICAL CEILING PANELS (WHERE APPLICABLE). COORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS
- E. AT PERIMETER OF ROOM, INSTALL 3/4" x 3/4" SHADOW EDGE CEILING WALL MOLDING FOR CEILING GRID SYSTEM (TYPICAL ALL WALLS) AS DETAILED ON 1/A602.

**REFLECTED CEILING KEY NOTES (SHOWN #):**

1. INSTALL ATTIC DRAFTSTOP CONTINUOUS FROM ROOF SHEATHING ABOVE TO WALL TOP PLATE BELOW TO PROVIDE A CONTINUOUS MEMBRANE RESISTING PASSAGE OF SMOKE AND HEAT PER NFPA 101 8.6.1.1. MEMBRANE TO BE A MINIMUM 1/2" GYPSUM BOARD OR 15/32" PLYWOOD, SUPPORTED BY ROOF FRAMING INFILLED WITH 2X FRAMING AS REQ'D TO MINIMIZE SPANS TO 24" O.C. (SHOWN DASHED). SEAL ALL DRAFTSTOP JOINTS
2. ALUMINUM FIXED VERTICAL LADDER TO ACCESS ATTIC MECH. EQUIP. PLATFORM. SEE FLOOR PLAN FOR SPECIFIC INFORMATION
3. CEMENTITIOUS SOFFIT PANELS AND TRIM (PAINT ALL SURFACES) SECURED TO SOFFIT FRAMING. CAULK ALL JOINTS
4. SOLID BLOCK AT ALL PANEL JOINTS
5. PROVIDE SUPPORT AS REQUIRED AT LIGHT FIXTURES



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**A402**  
 SHEET 7 OF 27

### DOOR SCHEDULE

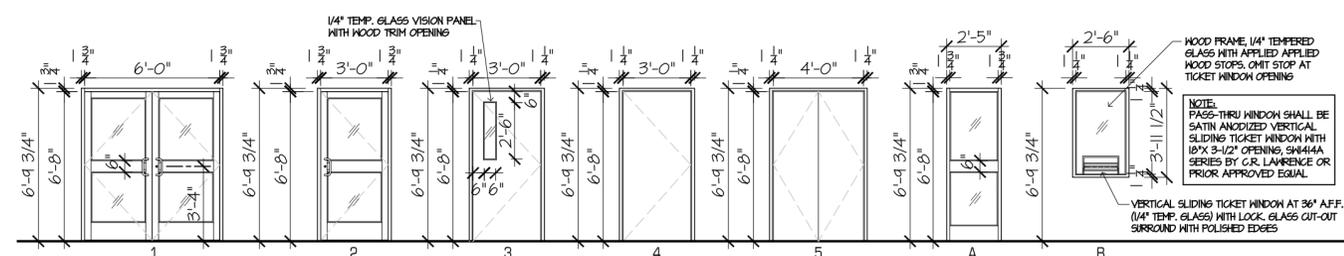
| MARK | DOOR SIZE                  | DOOR DESCRIPTION  | GLASS TYPE | FRAME SIZE    | FRAME DESCRIPTION  | DETAIL    |               |                     | REMARKS  |
|------|----------------------------|---|------------|---------------|--|-----------|---------------|---------------------|--|
|      |                            |   |            |               |  | HEAD      | JAMB          | THOLD.              |  |
| ①    | FR. 3'-0" x 6'-8" x 1 3/4" | PAINTED ALUMINUM STOREFRONT DOOR                                | 1/4" TEMP. | 4"x1 3/4"     | PAINTED ALUM. STOREFRONT FRAME SYSTEM W/ BRAKE METAL ADAPTOR | 6<br>A602 | 3<br>A602     | ALUM. ADA COMPLAINT | PAINTED ALUM. BRAKE METAL TO MATCH ALUM. STOREFRONT SYSTEM |
| ②    | 3'-0" x 6'-8" x 1 3/4"     | PAINTED ALUMINUM STOREFRONT DOOR                                | 1/4" TEMP. | 4"x1 3/4"     | PAINTED ALUM. STOREFRONT FRAME SYSTEM W/ BRAKE METAL ADAPTOR | 6<br>A602 | 3<br>A602     | ALUM. ADA COMPLAINT | PAINTED ALUM. BRAKE METAL TO MATCH ALUM. STOREFRONT SYSTEM |
| ③    | 3'-0" x 6'-8" x 1 3/4"     | FLUSH PLASTIC LAMINATE PARTICLE BOARD CORE DOOR W/ VISION PANEL | 1/4" TEMP. | 4 3/4"x1 1/4" | PAINTED WOOD FRAME WITH MILLED WOOD TRIM                     | 3<br>A601 | 3 SIM<br>A601 | -                   | 6" x 30" VISION PANEL W/ 1/4" CLEAR TEMPERED GLASS         |
| ④    | 3'-0" x 6'-8" x 1 3/4"     | FLUSH PLASTIC LAMINATE PARTICLE BOARD CORE DOOR                 | -          | 4 3/4"x1 1/4" | PAINTED WOOD FRAME WITH MILLED WOOD TRIM                     | 3<br>A601 | 3 SIM<br>A601 | -                   |  |
| ⑤    | FR. 2'-0" x 6'-8" x 1 3/4" | FLUSH PLASTIC LAMINATE PARTICLE BOARD CORE DOOR                 | -          | 4 3/4"x1 1/4" | PAINTED WOOD FRAME WITH MILLED WOOD TRIM                     | 3<br>A601 | 3 SIM<br>A601 | -                   |  |

### WINDOW SCHEDULE

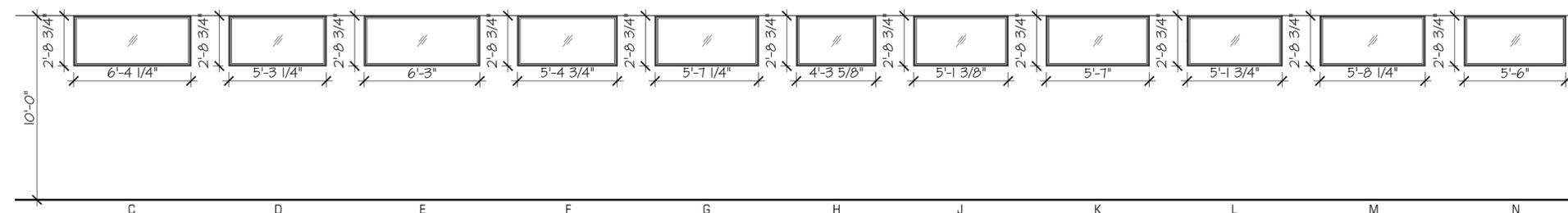
| MARK | WINDOW SIZE               | WINDOW DESCRIPTION   | GLASS TYPE  | FRAME SIZE    | FRAME DESCRIPTION                        | DETAIL        |                |               | REMARKS   |
|------|---------------------------|--|-------------|---------------|--|---------------|----------------|---------------|---|
|      |                           |  |             |               |  | HEAD          | JAMB           | SILL          |   |
| A    | 2'-5" x 6'-1 3/4"         | PAINTED ALUMINUM STOREFRONT WINDOW                             | 1/4" TEMP.  | 4"x1 3/4"     | PAINTED ALUMINUM STOREFRONT FRAME SYSTEM | 5<br>A602     | 3<br>A602      | 13<br>A602    | PAINTED ALUM. BRAKE METAL W/ FINISH COLOR SELECTED BY ARCHITECT |
| B    | 2'-6" x 3'-11 1/2"        | PAINTED FRAMED WOOD WINDOW WITH VERTICAL SLIDING TICKET WINDOW | 1/4" TEMP.  | 4 3/4"x1 1/4" | PAINTED WOOD FRAME W/ MILLED WOOD TRIM   | 3 SIM<br>A601 | 3 SIM<br>A601  | 3 SIM<br>A601 | GLAZING WITH MILLED WOOD STOPS                                  |
| C    | ± 6'-4 1/4" x ± 2'-8 3/4" | VINYL FIXED WINDOW SYSTEM W/ DOUBLE GLAZED INSULATED GLASS     | 3/8" INSUL. | 3 1/4"x1 3/4" | EXTRUDED VINYL FRAME SYSTEM              | 1<br>A602     | 12<br>A602     | 6<br>A602     | PAINTED ALUM. BRAKE METAL W/ FINISH COLOR SELECTED BY ARCHITECT |
| D    | ± 5'-3 1/4" x ± 2'-8 3/4" | VINYL FIXED WINDOW SYSTEM W/ DOUBLE GLAZED INSULATED GLASS     | 3/8" INSUL. | 3 1/4"x1 3/4" | EXTRUDED VINYL FRAME SYSTEM              | 1<br>A602     | 11, 12<br>A602 | 4, 5<br>A602  | PAINTED ALUM. BRAKE METAL W/ FINISH COLOR SELECTED BY ARCHITECT |
| E    | ± 6'-3" x ± 2'-8 3/4"     | VINYL FIXED WINDOW SYSTEM W/ DOUBLE GLAZED INSULATED GLASS     | 3/8" INSUL. | 3 1/4"x1 3/4" | EXTRUDED VINYL FRAME SYSTEM              | 1<br>A602     | 7, 11<br>A602  | 4<br>A602     | PAINTED ALUM. BRAKE METAL W/ FINISH COLOR SELECTED BY ARCHITECT |
| F    | ± 5'-4 3/4" x ± 2'-8 3/4" | VINYL FIXED WINDOW SYSTEM W/ DOUBLE GLAZED INSULATED GLASS     | 3/8" INSUL. | 3 1/4"x1 3/4" | EXTRUDED VINYL FRAME SYSTEM              | 1<br>A602     | 7, 12<br>A602  | 4<br>A602     | PAINTED ALUM. BRAKE METAL W/ FINISH COLOR SELECTED BY ARCHITECT |
| G    | ± 5'-7 1/4" x ± 2'-8 3/4" | VINYL FIXED WINDOW SYSTEM W/ DOUBLE GLAZED INSULATED GLASS     | 3/8" INSUL. | 3 1/4"x1 3/4" | EXTRUDED VINYL FRAME SYSTEM              | 1<br>A602     | 11, 12<br>A602 | 4<br>A602     | PAINTED ALUM. BRAKE METAL W/ FINISH COLOR SELECTED BY ARCHITECT |
| H    | ± 4'-3 3/8" x ± 2'-8 3/4" | VINYL FIXED WINDOW SYSTEM W/ DOUBLE GLAZED INSULATED GLASS     | 3/8" INSUL. | 3 1/4"x1 3/4" | EXTRUDED VINYL FRAME SYSTEM              | 1<br>A602     | 11, 12<br>A602 | 4<br>A602     | PAINTED ALUM. BRAKE METAL W/ FINISH COLOR SELECTED BY ARCHITECT |
| J    | ± 5'-1 3/8" x ± 2'-8 3/4" | VINYL FIXED WINDOW SYSTEM W/ DOUBLE GLAZED INSULATED GLASS     | 3/8" INSUL. | 3 1/4"x1 3/4" | EXTRUDED VINYL FRAME SYSTEM              | 1<br>A602     | 12<br>A602     | 4<br>A602     | PAINTED ALUM. BRAKE METAL W/ FINISH COLOR SELECTED BY ARCHITECT |
| K    | ± 5'-7" x ± 2'-8 3/4"     | VINYL FIXED WINDOW SYSTEM W/ DOUBLE GLAZED INSULATED GLASS     | 3/8" INSUL. | 3 1/4"x1 3/4" | EXTRUDED VINYL FRAME SYSTEM              | 1<br>A602     | 12<br>A602     | 4<br>A602     | PAINTED ALUM. BRAKE METAL W/ FINISH COLOR SELECTED BY ARCHITECT |
| L    | ± 5'-1 3/4" x ± 2'-8 3/4" | VINYL FIXED WINDOW SYSTEM W/ DOUBLE GLAZED INSULATED GLASS     | 3/8" INSUL. | 3 1/4"x1 3/4" | EXTRUDED VINYL FRAME SYSTEM              | 1<br>A602     | 12<br>A602     | 4, 6<br>A602  | PAINTED ALUM. BRAKE METAL W/ FINISH COLOR SELECTED BY ARCHITECT |
| M    | ± 5'-8 1/4" x ± 2'-8 3/4" | VINYL FIXED WINDOW SYSTEM W/ DOUBLE GLAZED INSULATED GLASS     | 3/8" INSUL. | 3 1/4"x1 3/4" | EXTRUDED VINYL FRAME SYSTEM              | 1<br>A602     | 12<br>A602     | 4<br>A602     | PAINTED ALUM. BRAKE METAL W/ FINISH COLOR SELECTED BY ARCHITECT |
| N    | ± 5'-6" x ± 2'-8 3/4"     | VINYL FIXED WINDOW SYSTEM W/ DOUBLE GLAZED INSULATED GLASS     | 3/8" INSUL. | 3 1/4"x1 3/4" | EXTRUDED VINYL FRAME SYSTEM              | 1<br>A602     | 11, 12<br>A602 | 4<br>A602     | PAINTED ALUM. BRAKE METAL W/ FINISH COLOR SELECTED BY ARCHITECT |

#### NOTES FOR SCHEDULES:

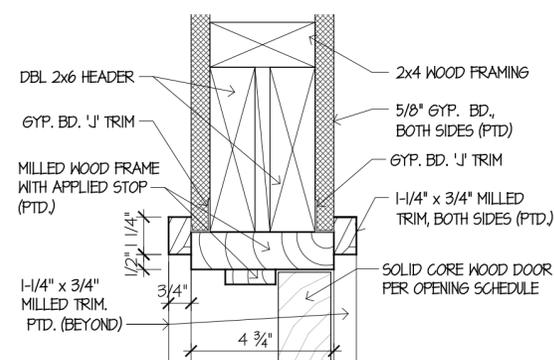
- ALL EXTERIOR GLASS SHALL BE TINTED, ALL INTERIOR GLASS SHALL BE CLEAR.
- WOOD FRAMES WITH TRIMS AND STOP SHALL BE MILLED FOR SHARP CORNERS AND EDGES.
- JOB VERIFY ALL ROUGH OPENING DIMENSIONS BEFORE DOOR AND WINDOW FABRICATION. WINDOWS SIZES ARE SHOWN FOR PRICING PURPOSES.



**1** OPENING ELEVATIONS  
A601 scale 1/4" = 1'-0"



**2** OPENING ELEVATIONS  
A601 scale 1/4" = 1'-0"



**3** HEAD DETAIL  
A601 (JAMB SIMILAR) scale 3" = 1'-0"



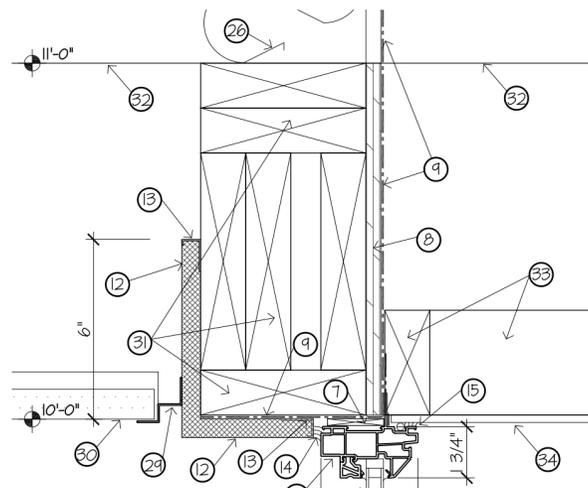
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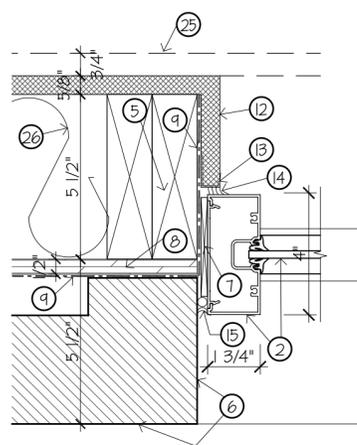
DATE: 7-3-2020  
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REVISIONS:

A601

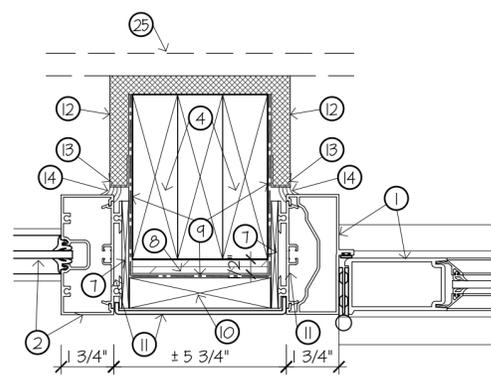
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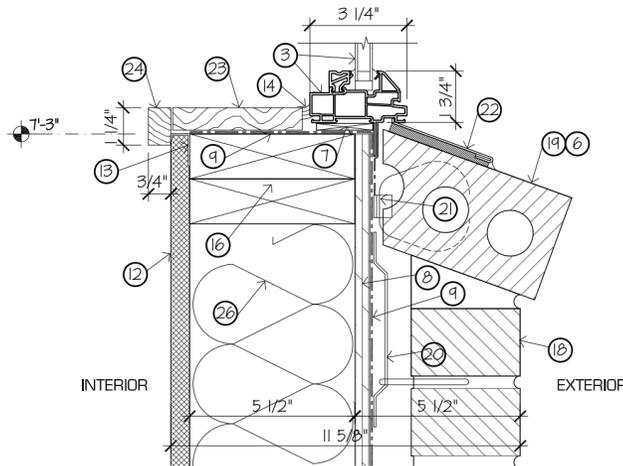
**1 HEAD DTL.**  
A602 scale 3"-1'-0"



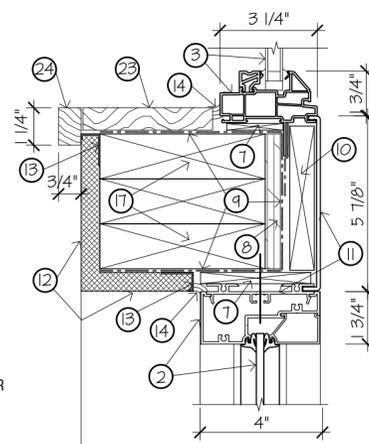
**2 JAMB DETAIL**  
A602 (WIN. DTL.) scale 3"-1'-0"



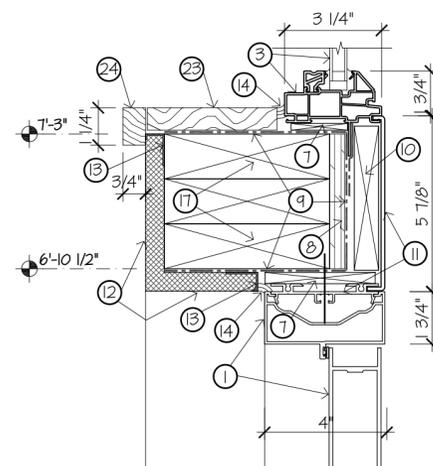
**3 JAMB DETAIL**  
A602 (DOOR DTL.) scale 3"-1'-0"



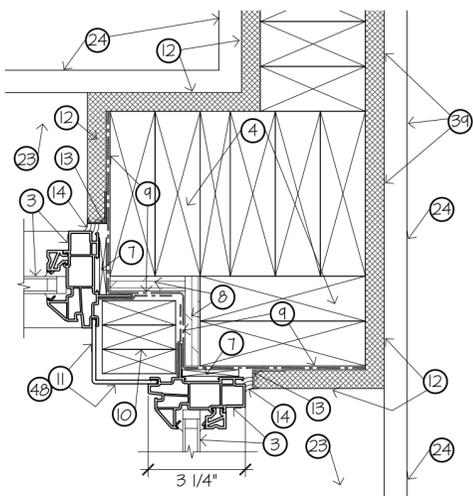
**4 SILL DTL.**  
A602 scale 3"-1'-0"



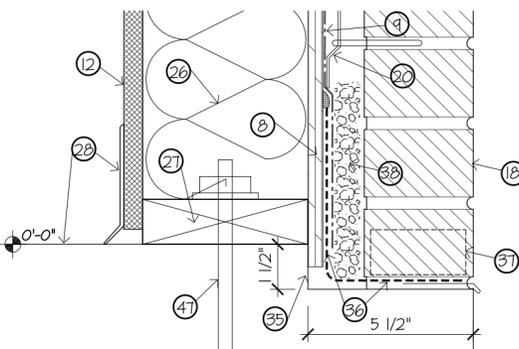
**5 SILL/HEAD DTL.**  
A602 (WINDOW TO WINDOW) scale 3"-1'-0"



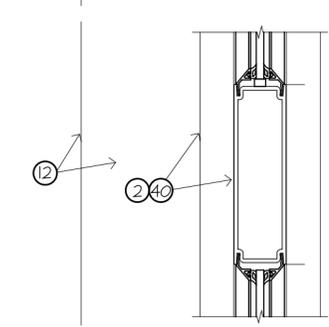
**6 SILL/HD. DTL.**  
A602 (WINDOW TO DOOR) scale 3"-1'-0"



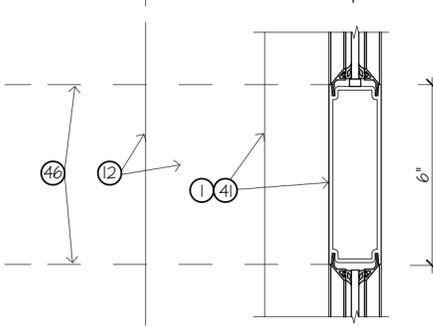
**7 JAMB DETAIL**  
A602 (CORNER DTL.) scale 3"-1'-0"



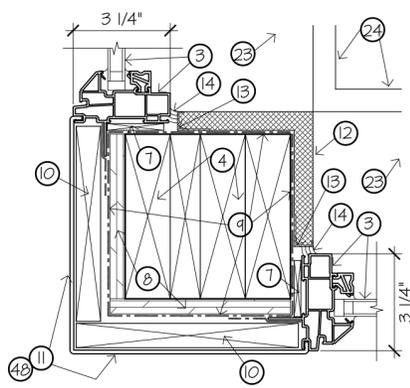
**8 BRK. LEDGE**  
A602 scale 3"-1'-0"



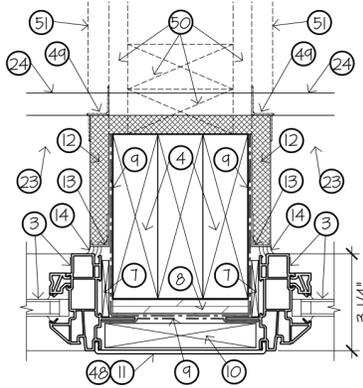
**9 MULL. DTL.**  
A602 (WIN. MULL.) scale 3"-1'-0"



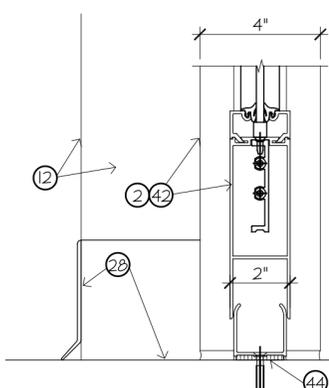
**10 MULL. DTL.**  
A602 (DOOR MULL.) scale 3"-1'-0"



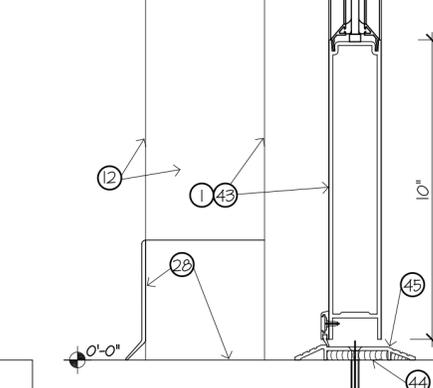
**11 JAMB DETAIL**  
A602 (CORNER DTL.) scale 3"-1'-0"



**12 JAMB DETAIL**  
A602 (COLUMN DTL.) scale 3"-1'-0"



**13 SILL DTL.**  
A602 (WIN. DTL.) scale 3"-1'-0"



**14 THRESHOLD DTL.**  
A602 (DOOR DTL.) scale 3"-1'-0"

**KEY NOTES** (SHOWN #):

1. ALUM. STOREFRONT DOOR SYSTEM PER DOOR SCHEDULE
2. ALUM. STOREFRONT WINDOW SYSTEM PER WINDOW SCHEDULE
3. VINYL FIXED WINDOW SYSTEM WITH NAILING FIN PER WINDOW SCHEDULE (CORNER WELD ALL SIDES)
4. 2x6 STUD COLUMN PER STRUCTURAL DWGS
5. DBL. 2x6 JAMB STUDS TO DBL. SILL PLATE ABOVE
6. RETURN BRICK TO WALL TO CLOSE CAVITY, INSTALL SOLID ROWLOCK BRICK WHERE BRICK TERMINATES
7. TREATED WOOD BLOCKING, SHIM AS REQUIRED
8. 1/2" EXTER. GRADE PLYWOOD SHEATHING (SLAB TO UNDERSIDE OF ROOF DECK, CLOSE BETWEEN TRUSS MEMBERS). SEE STRUCTURAL DWGS
9. SHEET WEATHER BARRIER SYSTEM, FULL COVERAGE (SLAB TO ROOF DECK AND BETWEEN TRUSS MEMBERS), SEAL ALL JOINTS AND WRAP INTO ALL OPENINGS
10. TREATED BLOCKING AS REQUIRED
11. BRAKE METAL CLOSURE SET INTO BRAKE METAL ADAPTOR AND SEALED IN PLACE (SET BETWEEN ALUM. STOREFRONT FRAMES AND VINYL FRAMES) COLORS AS SELECTED BY ARCHITECT. NO EXPOSED FASTENERS
12. PAINTED 5/8" GYPSUM BOARD
13. 5/8" GYPSUM BOARD "J" TRIM (PTD.)
14. CAULK JOINT
15. BACKER ROD AND CONTINUOUS SEALANT
16. DBL. 2x6 SILL PLATE (TOP OF SILL AT 7'-3" ABOVE SLAB)
17. TRIPLE 2x6 SILL PLATE (TOP OF SILL AT 7'-3" ABOVE SLAB) (BOTT. OF PLATES AT 6'-10 1/2" ABOVE SLAB)
18. BRICK VENEER
19. BRICK VENEER ROWLOCK AT SILL. MITER AT ALL CORNERS
20. BRICK TIE, TYPICAL (16" x 16" PATTERN -TYP.)
21. BRICK TIE AT WINDOW SILL ROWLOCK (32" O.C.)
22. PREFINISHED METAL SUBSILL FLASHING WITH END DAMS AND HEMMED EDGES, FULLY SET IN BED OF SEALANT, FINISH TO BE SELECTED BY ARCHITECT
23. 3/4" THK. PAINTED WOOD SILL, CAULK AT WINDOW
24. 3/4" x 1-1/4" PAINTED MILLED WOOD TRIM, CONTINUOUS ON ALL WALLS AND ALONG WINDOW OPENINGS. ALL JOINTS SHALL BE MITER CUT. CAULK PRIOR TO PAINTING
25. 3/4" x 1-1/4" PTD. MILLED WOOD TRIM ABOVE, SHOWN DASHED
26. BUILDING INSULATION, FULL HEIGHT AND WIDTH (5 1/2" THK.)
27. TREATED 2x6 BOTTOM SILL PLATE
28. FLOORING AND WALL BASE, SEE FINISH PLAN FOR EACH SPACE
29. 3/4" x 3/4" SHADOW EDGE CEILING MOLDING RUN CONTINUOUS AROUND ALL WALLS - TYPICAL
30. 2'x2" SUSPENDED CEILING SYSTEM (CEIL. AT 10'-0")
31. BUILT-UP BEAM TYPICAL, SEE STRUCTURAL DWGS (TOP OF BEAM AT 11'-0" ABOVE SLAB)
32. WOOD TRUSS BOTTOM CHORD, SEE STRUCTURAL DWGS (BOTT. OF WOOD TRUSSES AT 11'-0" ABOVE SLAB)
33. 2x4 SOFFIT FRAMING, SEE STRUCTURAL DWGS
34. 1/4" CEMENTITIOUS SOFFIT PANEL AND TRIM ON 2x4 SOFFIT FRAMING. CAULK JOINTS AND PAINT (BOTT. OF SOFFIT PANEL AT ± 10'-0" ABOVE SLAB)
35. 1-1/2"x5-1/2" BLOCK-OUT AT BRICK LEDGE, SEE STRUCTURAL
36. THROUGH-WALL MEMBRANE FLASHING, SEAL AT TOP
37. PVC KEEPS AT 32" O.C.
38. MORTAR COLLECTION DEVICE
39. WALL FINISH SHALL ALIGN FROM EXTERIOR WALL TO INTERIOR WALL. SET INTERIOR STUD WALL FOR FLUSH FINISH
40. ALUM. STOREFRONT WINDOW MID MULLION
41. ALUM. STOREFRONT DOOR MID MULLION
42. ALUM. STOREFRONT WINDOW TALL SIDELITE BASE
43. ALUM. STOREFRONT 10" DOOR BOTTOM
44. FULL BEAD OF SEALANT
45. ADA COMPLIANT THRESHOLD
46. MULLIONS MUST ALIGN (COORDINATE OPENING ELEVATIONS)
47. ANCHOR BOLT PER STRUCTURAL DRAWINGS
48. FULLY SEAL TOP AND BOTTOM
49. WHERE INTERIOR WALL INTERSECTS EXTERIOR WALL, INSTALL AND PAINT ALUM. EDGE TRIM MOLDING AT WINDOW JAMBS ON EDGE OF GYP. BOARD OFFSET, FRY REGLET TYPE DRME-625 OR PRIOR APPROVED EQUAL (SHOWN DASHED)
50. AT INTERSECTING WALL, CENTER WALL FRAMING ON STUD COLUMN AND RUN GYPSUM BOARD TO STUD COLUMN (SHOWN DASHED)
51. AT INTERSECTING WALL (AND ALL WALLS THIS ROOM), CONTINUE PAINTED MILLED WOOD TRIM (SHOWN DASHED) ON INTERIOR WALLS

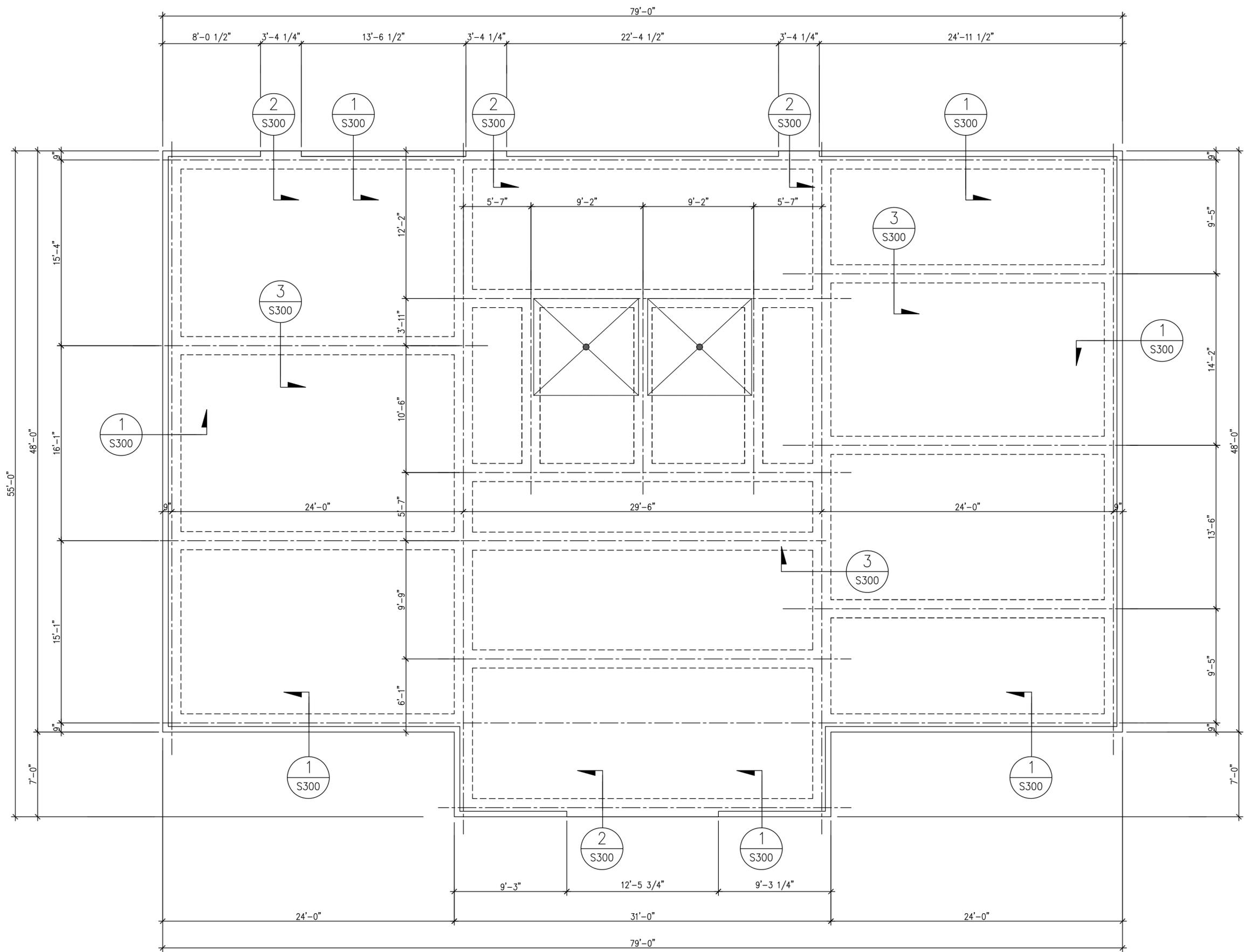


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DRAWN BY:  
REVISIONS:

**A602**  
SHEET 9 OF 27



**FOUNDATION NOTES:**

1. THE FOUNDATION HAS BEEN DESIGNED FOR AN ALLOWABLE SOIL BEARING CAPACITY OF 1500 PSF IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT BY BUILDING & EARTH SCIENCES DATED 5/30/17.

**1** FOUNDATION PLAN  
S100 SCALE: 1/4"=1'-0"



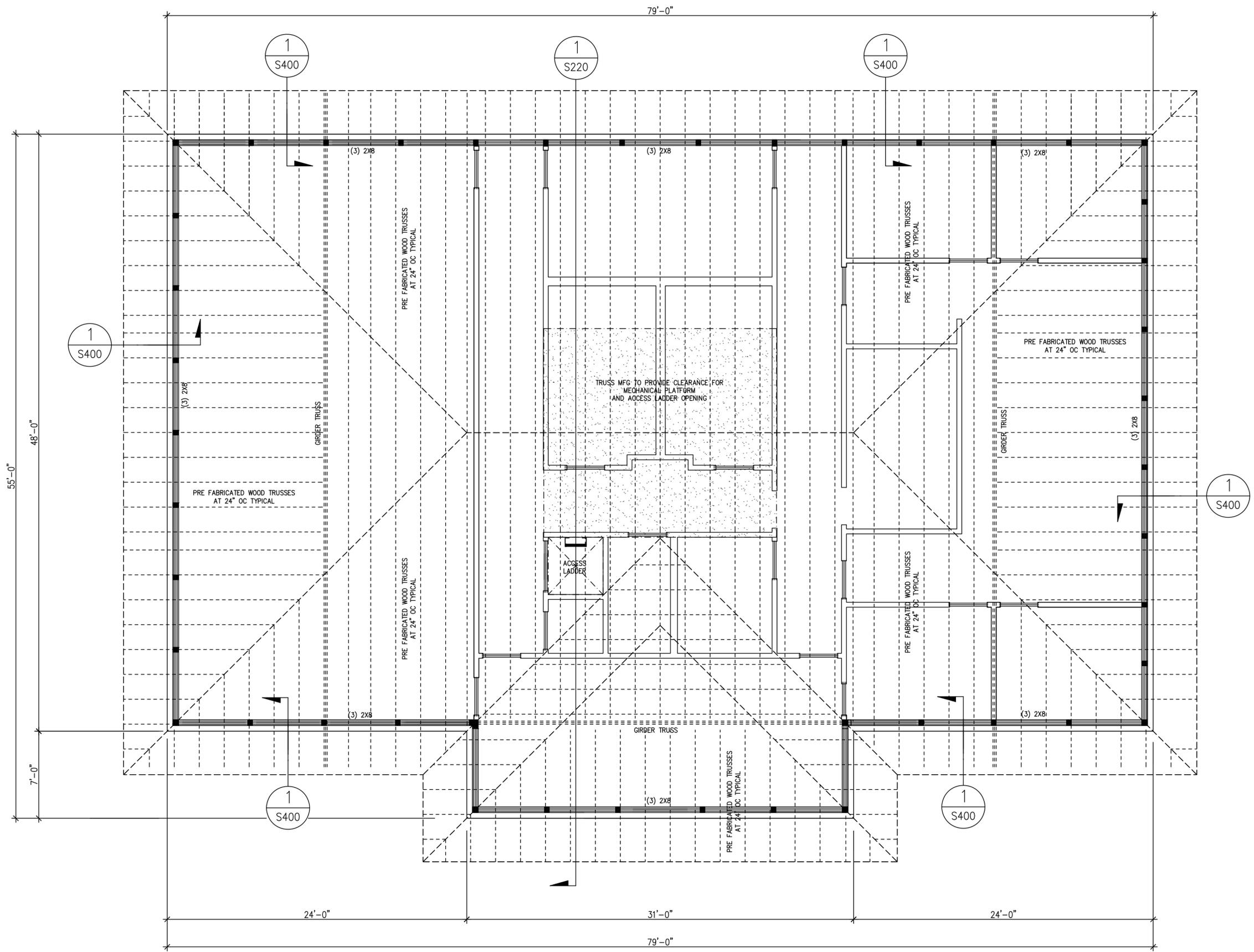
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A.I.A. ARCHITECTS  
A PROFESSIONAL CORPORATION · PHONE (504) 366-4433

NEW SAFE HAVEN TRAINING AND EDUCATION CENTER FOR ST. TAMMANY PARISH  
MARTIN WAY AT WREN MANEVILLE, LA

DATE: 07-03-2020  
DRAWN BY: RAB  
REVISIONS:

**S100**





**ROOF FRAMING NOTES:**

1. THE ROOF OF THE BUILDING SHALL BE FRAMED WITH PREFABRICATED WOOD TRUSSES. SHOP DRAWINGS AND CALCULATIONS BEARING THE SEAL OF A LA ENGINEER SHALL BE SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION. THE SHOP DRAWINGS SHALL INCLUDE UPLIFT REACTIONS, ANCHORAGE DETAILS, TEMPORARY AND PERMANENT BRACING.
2. THE TRUSSES SHALL PROVIDE THE CLEARANCES REQUIRED FOR THE MECHANICAL PLATFORM AND ASSOCIATED DUCT WORK IN THE ATTIC.

**1** ROOF FRAMING PLAN  
 S210 SCALE: 1/4"=1'-0"

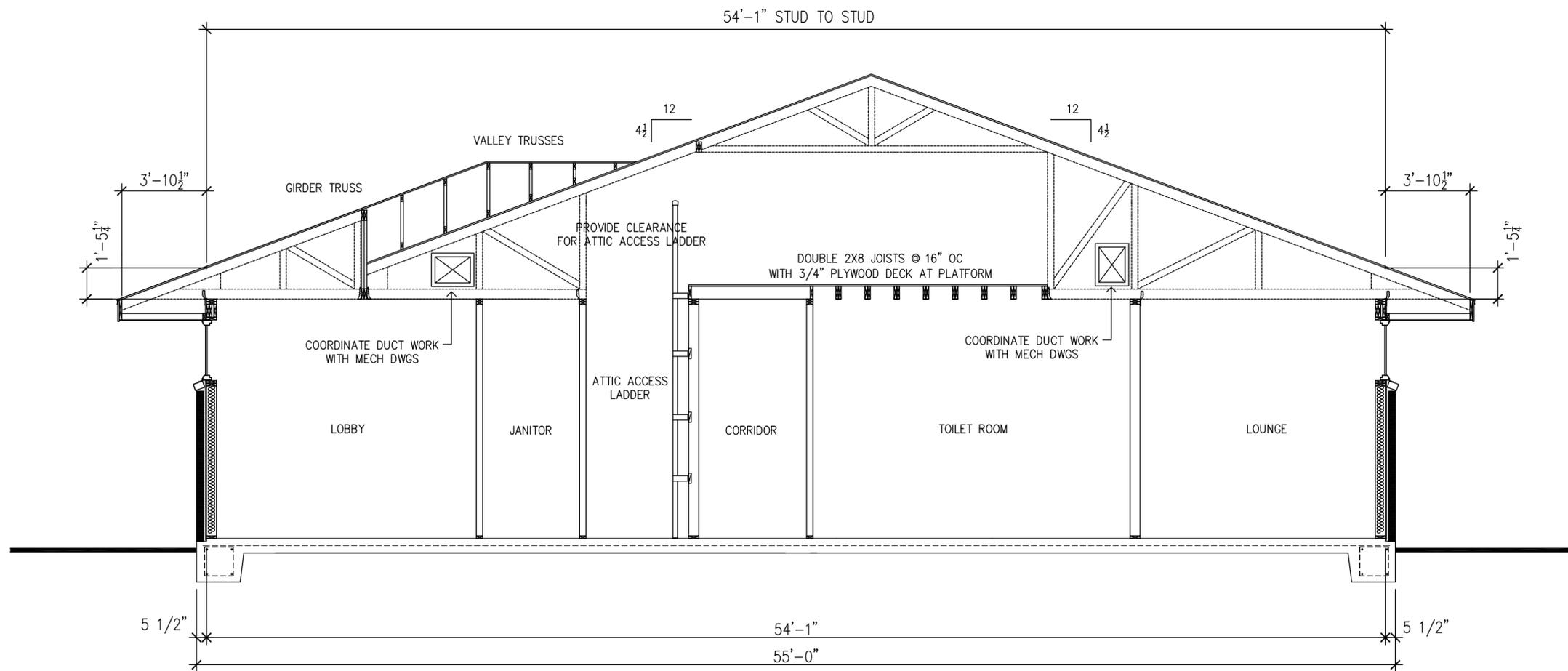


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DATE: 07-03-2020  
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 REVISIONS:

**S210**



1 BLDG SECTION AT MECH PLATFORM  
 S400 SCALE: 1/4"=1'-0"

ROOF FRAMING NOTES:

1. THE ROOF OF THE BUILDING SHALL BE FRAMED WITH PREFABRICATED WOOD TRUSSES. SHOP DRAWINGS AND CALCULATIONS BEARING THE SEAL OF A LA ENGINEER SHALL BE SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION. THE SHOP DRAWINGS SHALL INCLUDE UPLIFT REACTIONS, ANCHORAGE DETAILS, TEMPORARY AND PERMANENT BRACING.
2. THE TRUSSES SHALL PROVIDE THE CLEARANCES REQUIRED FOR THE MECHANICAL PLATFORM AND ASSOCIATED DUCT WORK IN THE ATTIC.

GENERAL NOTES:

1. ALL WORK SHALL BE CLOSELY COORDINATED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS
2. ALL CONCRETE SHALL BE STANDARD WEIGHT ANF SHALL TEST AT 3000 PSI AT 28 DAYS. IT SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF ACI 301 AND 318. SUBMIT DETAILED MIX DESIGNS FOR REVIEW.
3. REINFORCING STEEL SHALL BE NEW BILLET ASTM A-615 GRADE 60. DETAIL REINFORCING AND PROVIDE ACCESSORIES IN ACCORDANCE WITH THE LATEST ACI MANUAL OF STANDARD PRACTICE. ALL WELDED WIRE FABRIC SHALL BE ASTM A-497 AND SHALL BE PROVIDED IN SHEETS. LAP THE MESH TWO WIRE SPACES IN EACH DIRECTION. SUBMIT SHOP DRAWINGS FOR REVIEW.

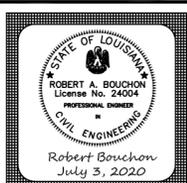
4. WIND LOADS IN ACCORDANCE WITH ASCE 7 (IBC 2015)  
 DESIGN WIND SPEED 135 MPH (ULTIMATE) / 105 MPH NOMINAL  
 BUILDING RISK CATEGORY 2  
 EXPOSURE C  
 ENCLOSED STRUCTURE

COMPONENTS & CLADDING PRESSURES (PSF)  
 THESE ARE ULTIMATE PRESSURES BASED ON 135 MPH.

| ZONE        | (POSITIVE) | (NEGATIVE) |
|-------------|------------|------------|
| ROOF        | 23         | 37         |
| ROOF EDGE   | 23         | 65         |
| ROOF CORNER | 23         | 92         |
| WALL        | 41         | 44         |
| WALL CORNER | 41         | 54         |

5. DESIGN LOADS (PSF)

|                | DEAD | LIVE |
|----------------|------|------|
| CLASSROOMS     | 63   | 40   |
| CORRIDOR       | 63   | 80   |
| PUBLIC AREAS   | 63   | 100  |
| ROOF TRUSSES   |      |      |
| TOP CHORD DEAD | 10   | --   |
| BOT CHORD DEAD | 10   | --   |
| TOP CHORD LIVE | --   | 20   |

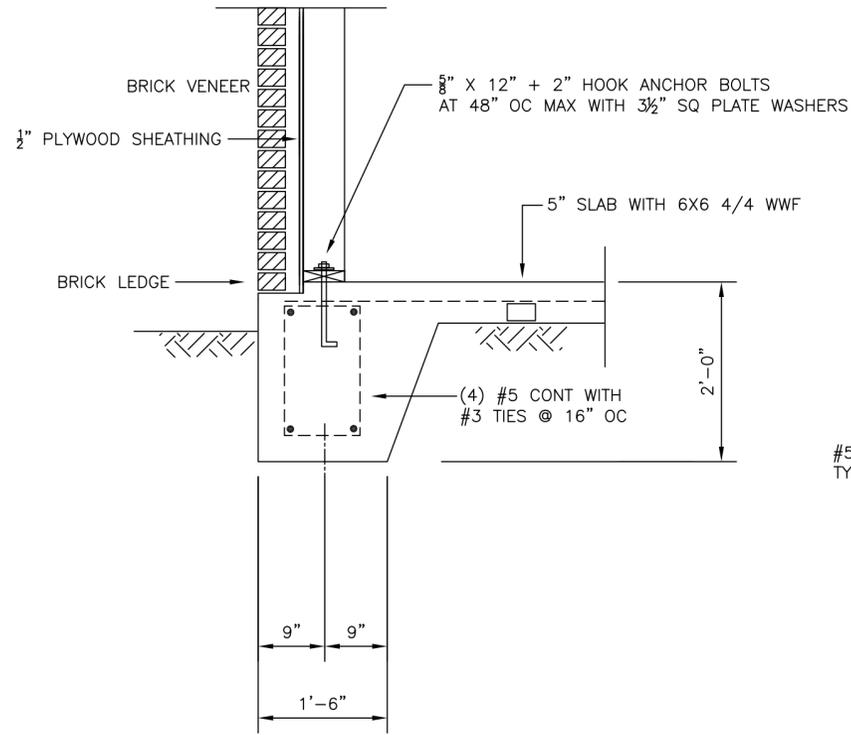


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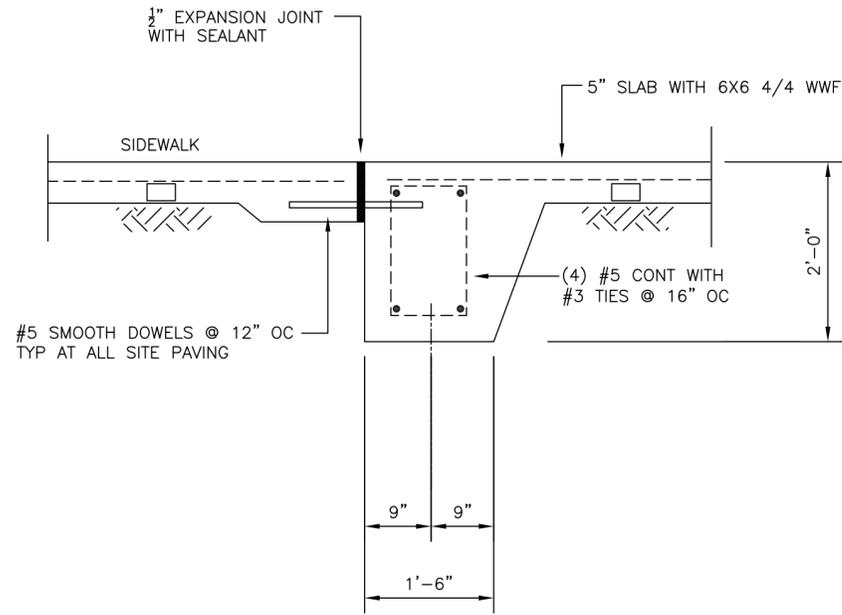
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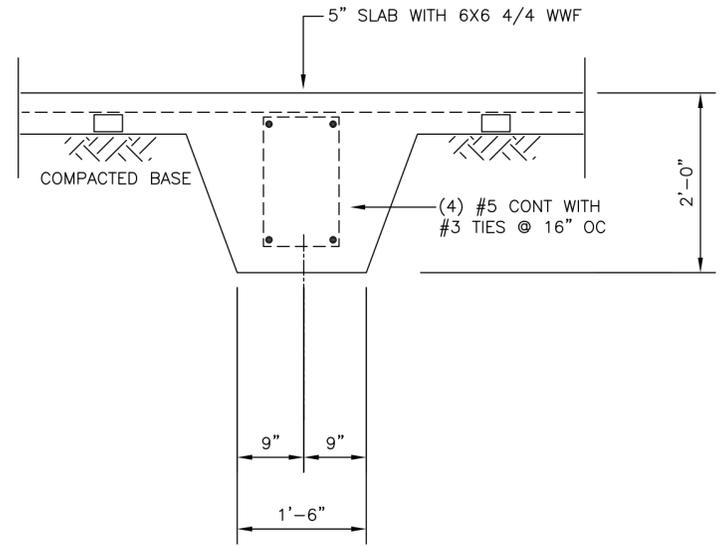
S220  
 SHEET 13 OF 27



1 SECTION AT EXTERIOR GRADE BEAM  
S300 SCALE: 3/4"=1'-0"



2 SECTION AT EXTERIOR GRADE BEAM  
S300 SCALE: 3/4"=1'-0"



3 SECTION AT INTERIOR GRADE BEAM  
S300 SCALE: 3/4"=1'-0"

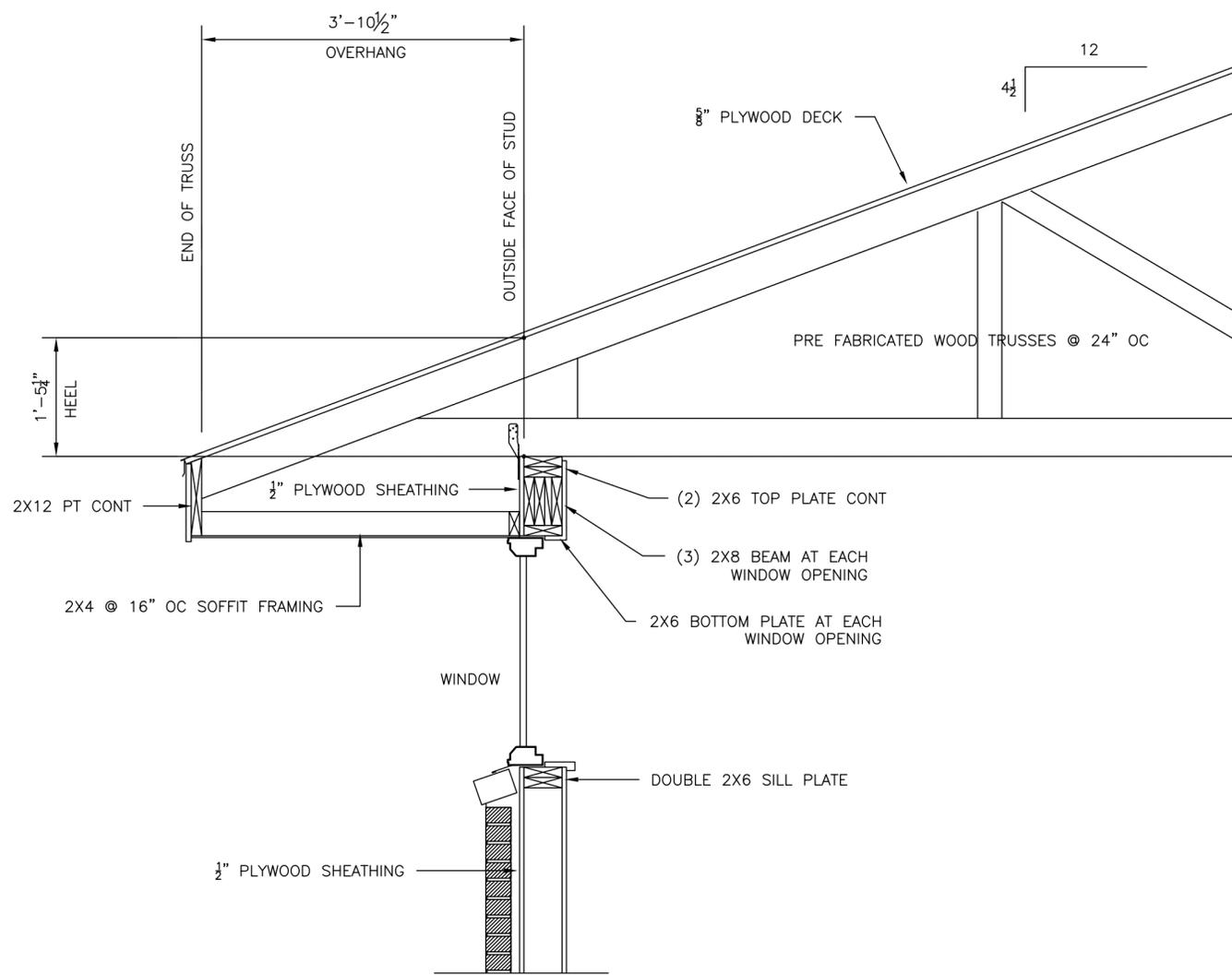


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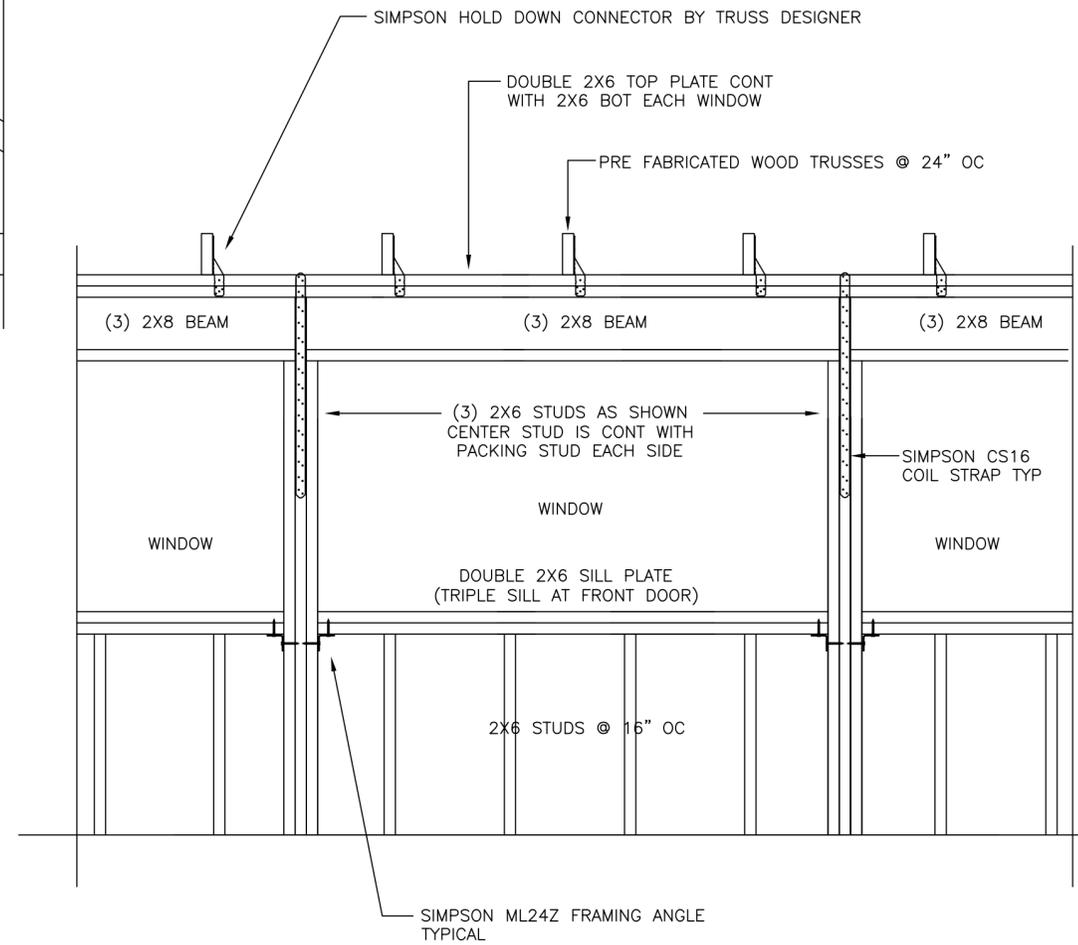
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DATE: 07-03-2020  
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REVISIONS:

S300



1 FRAMING SECTION AT EXTERIOR WALL  
S400 SCALE: 3/4"=1'-0"



2 FRAMING ELEVATION AT EXTERIOR WALL  
S400 SCALE: 3/4"=1'-0"

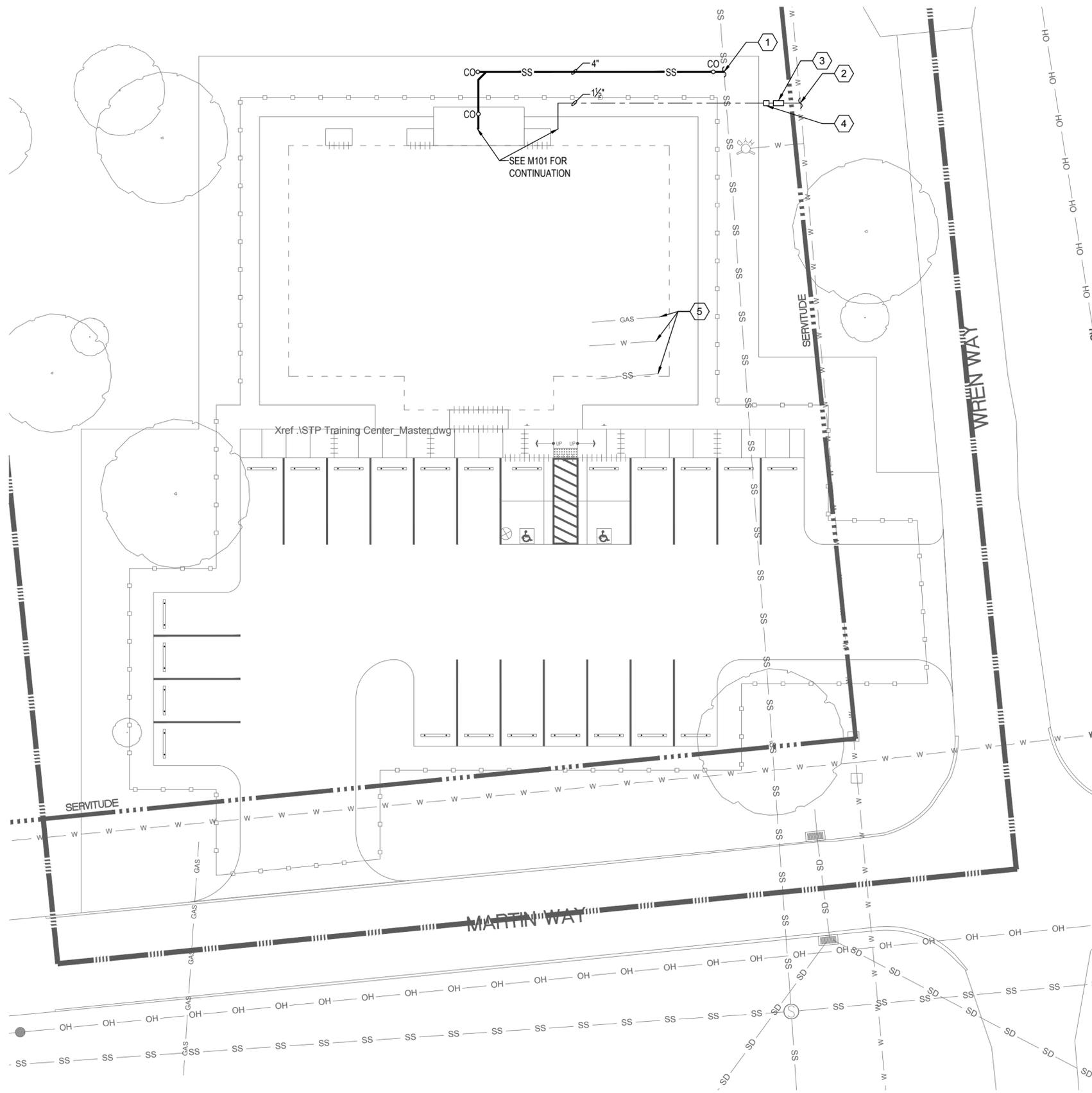


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DATE: 07-03-2020  
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REVISIONS:

S400  
SHEET 15 OF 27



**GENERAL NOTES THIS SHEET:**

1. ALL NEW PIPING SHALL BE BURIED A MINIMUM 36" BELOW GRADE.
2. LOCATE EXISTING U.G. HDPE GAS LINE. REMOVE PIPING UNDER BUILDING AND CAP 5' OUTSIDE BUILDING FOOTPRINT. VERIFY ON SITE.

**SPECIFIC NOTES THIS SHEET:**

1. CONNECT NEW SEWER TO UTILITY AS INDICATED. VERIFY EXACT LOCATION AND COORDINATE WITH PARISH REQUIREMENTS. INCLUDE ALL REQUIRED PIPING, FEES, ETC.
2. CONNECT NEW WATER TO UTILITY AS INDICATED. VERIFY EXACT LOCATION AND COORDINATE WITH PARISH REQUIREMENTS. INCLUDE ALL REQUIRED PIPING, FEES, ETC.
3. NEW 1/2" WATER METER AND MAIN SHUTOFF PER UTILITY REQUIREMENTS.
4. 1/2" CW UP TO REDUCED PRESSURE BACKFLOW PREVENTOR. ELBOW DOWN U.G.
5. VERIFY LOCATION OF EXISTING UTILITIES. REMOVE ALL PIPING UNDER FOOTPRINT OF NEW BUILDING AND CAP 5' OUTSIDE OF BUILDING FOOTPRINT.

1 SITE / ROOF PLAN - MECHANICAL  
M001 scale 1/16" = 1'-0"



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MANVILLE, LA

MARTIN WAY AT WREN

DATE: 7-3-2020  
DRAWN BY:  
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M001

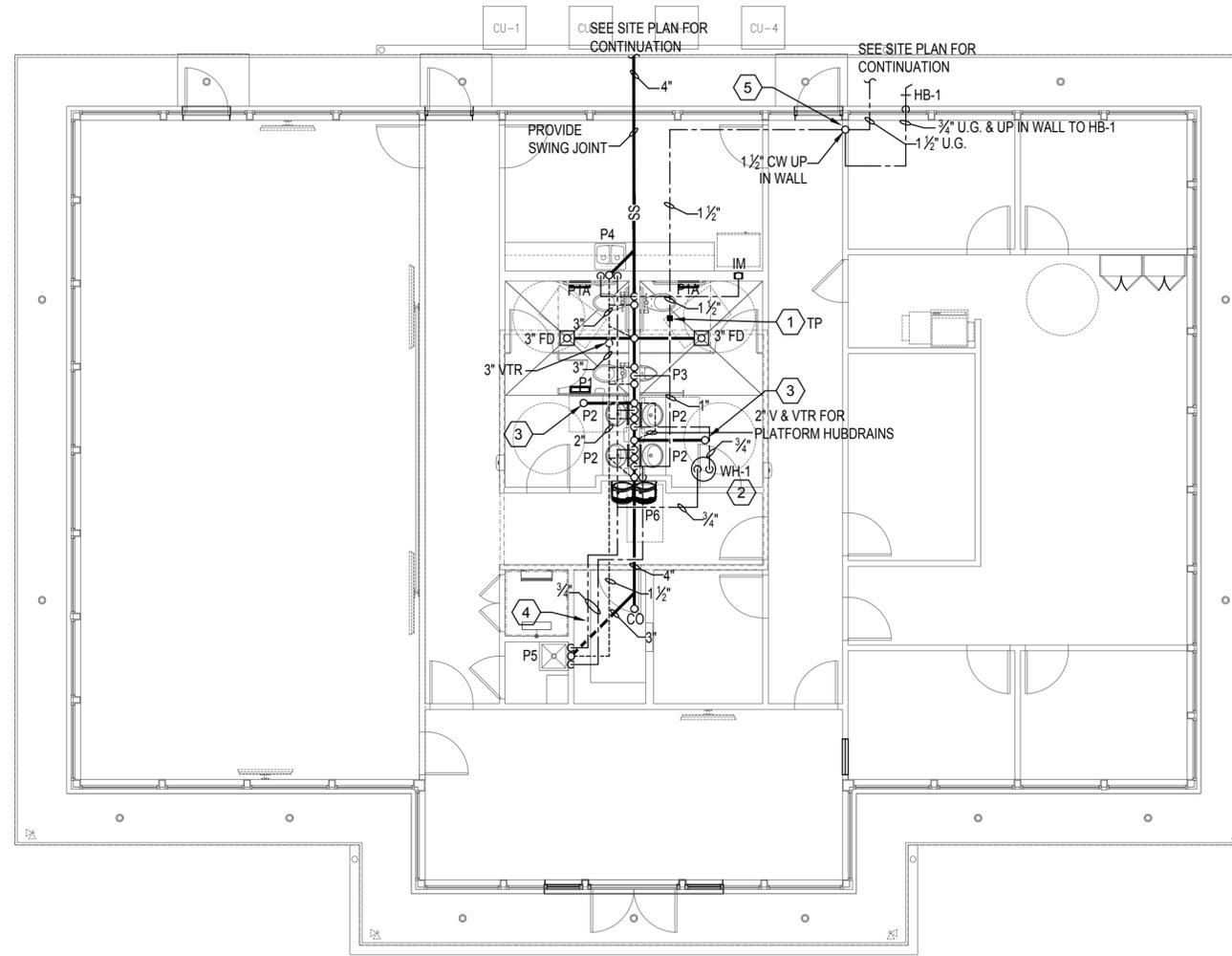
SHEET 1 OF 7

**GENERAL NOTES THIS SHEET:**

1. ALL SEWER AND STORM DRAIN PIPING SHALL BE RUN BELOW SLAB UNLESS NOTED OTHERWISE.
2. VENT PIPING SHALL BE RUN ABOVE CEILING OR TIGHT TO STRUCTURE.
3. PROVIDE TRAP PRIMERS ON ALL FLOOR DRAINS.
4. INSULATE HORIZONTAL RUN OF ALL WASTE PIPING RECEIVING A/C CONDENSATE.
5. INSULATE ROOF DRAINS AND HORIZONTAL STORM DRAIN PIPING RUNS ABOVE GRADE.
6. ALL COLD WATER, HOT WATER AND HOT WATER RE-CIRCULATING PIPING SHALL BE RUN ABOVE CEILING OR TIGHT TO STRUCTURE. STORM DRAIN PIPING ABOVE GRADE SHALL BE RUN ABOVE CEILING OR TIGHT TO STRUCTURE.
7. ALL WATER PIPING SHALL BE 3/4" UNLESS NOTED OTHERWISE.
8. PROVIDE AIR CHAMBERS ON ALL DOMESTIC WATER BRANCH PIPING SERVING FIXTURES.
9. PROVIDE ISOLATION VALVES IN THE HOT AND COLD WATER PIPING TO ALL FIXTURE GROUPS.
10. MINIMUM VENT THRU ROOF SHALL BE 2".
11. ALL FIXTURES SHALL BE INSTALLED LEVEL AND TRUE, CENTER FIXTURES WHERE APPLICABLE, FOR INSTANCE WATER CLOSETS IN NON-ADA STALLS.
12. ALL ADA FIXTURES SHALL BE INSTALLED PER ADA GUIDELINES.
13. FLOOR DRAINS IN TOILET ROOMS SHALL BE COORDINATED AND LOCATED PER ARCHITECTURAL FLOOR PLANS.
14. FLOOR DRAINS USED FOR AIR UNITS SHALL BE LOCATED AS CLOSE TO EDGE OF UNIT AS POSSIBLE. COORDINATE LOCATION WITH SUBMITTED UNIT DIMENSIONAL DATA.
15. PLUMBING SHALL CONFORM TO THE INTERNATIONAL PLUMBING CODE.
16. ALL PUBLIC LAVATORIES SHALL BE PROVIDED WITH A THERMOSTATIC MIXING VALVE LOCATED ABOVE THE CEILING WITH THE HW PIPED TO THE LAVATORY FIXTURE GROUP HW INLET(S). FOR 1 TO 6 LAVATORIES, USE LEONARD MODEL LF-370 OR LAWLER MODEL 570 WITH 3/4" FITTINGS.
17. PLUMBING DRAWINGS ARE SCHEMATIC IN NATURE. COORDINATE PIPE ROUTING WITH STRUCTURE AND UNDERGROUND SUPPORTS. ADJUST LOCATION AS REQUIRED.

**SPECIFIC NOTES THIS SHEET:**

- 1 TRAP PRIMER ABOVE CEILING. RUN 1/2" TP LINE DOWN WALL TO FLOOR DRAINS. SEE DETAIL ON M5.
- 2 ELECTRIC STORAGE WATER HEATER ON PLATFORM. SEE DETAIL ON M5.
- 3 2" HD AT MECHANICAL PLATFORM.
- 4 RUN WATER PIPING CLEAR OF ELECTRICAL PANELS AND ATTIC ACCESS.
- 5 PROVIDE MAIN SHUTOFF BALL VALVE IN WALL 4' AFF. PROVIDE ACCESS PANEL. TAP 3/4" CW FOR HOSEBIBB ABOVE SHUTOFF VALVE AND RUN DOWN WALL U.G. TO HOSEBIBB.



**1 FLOOR PLAN - PLUMBING**  
 M101 scale 1/8" = 1'-0"

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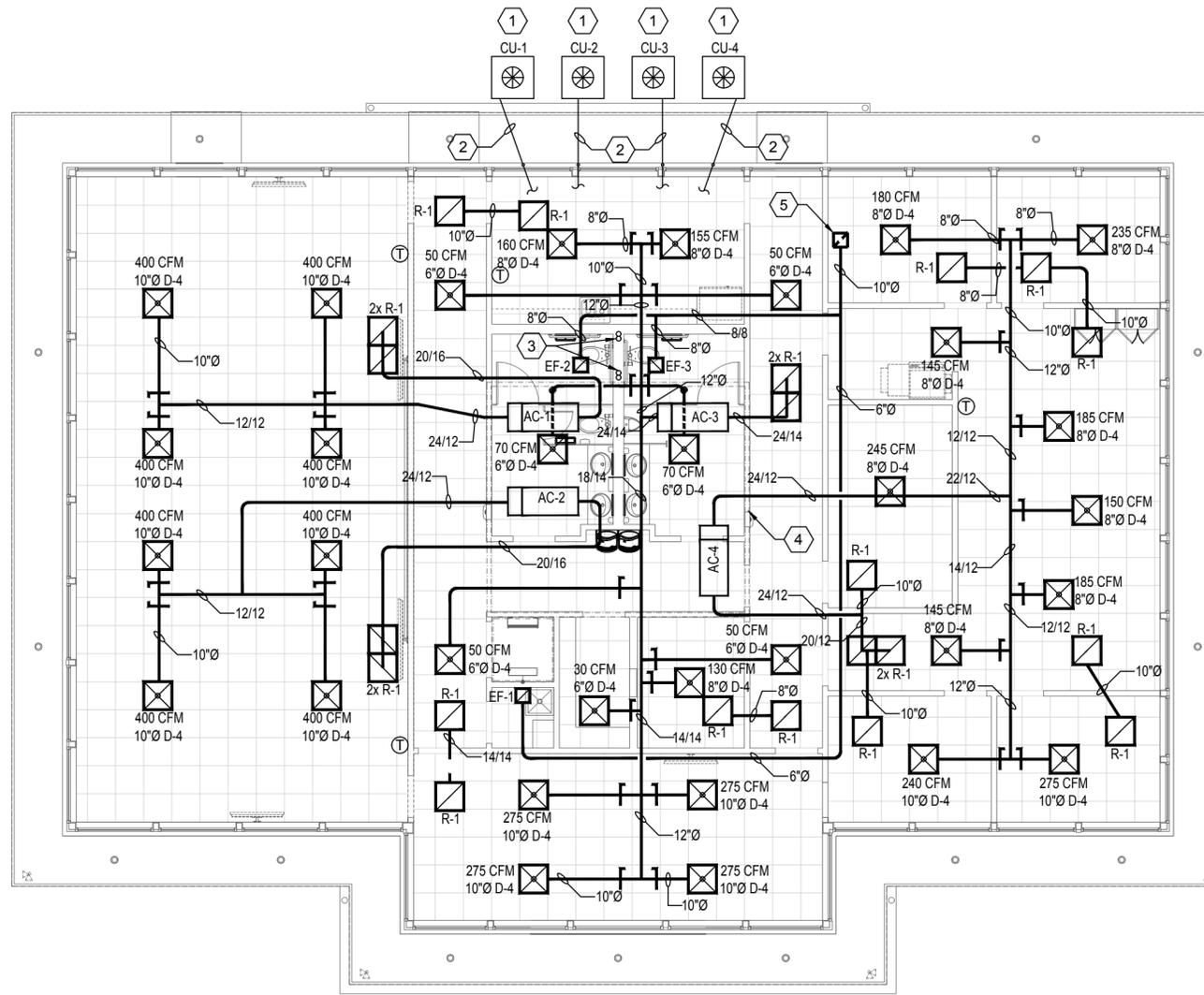
M101  
 SHEET 2 OF 7

**GENERAL NOTES THIS SHEET:**

1. DUCT SIZES SHOWN ARE FREE AREA SIZES. SEE SPECIFICATIONS FOR DUCT MATERIALS AND INSULATION.
2. ALL DUCTWORK SHALL BE EXTERNALLY WRAPPED UNLESS NOTED OTHERWISE. INTERNALLY LINE ALL DUCTWORK FOR FIRST 10' OF SUPPLY AND RETURN FROM UNIT. EXPOSED RECTANGULAR DUCTWORK SHALL BE INTERNALLY LINED. ALL RETURN PLENUMS AND TRANSFER DUCTS SHALL BE INTERNALLY LINED.
3. PROVIDE VOLUME DAMPERS AT ALL TAPS INTO MAIN DUCT RUNS. PROVIDE VOLUME DAMPERS AT MAIN RETURN AND OUTSIDE AIR DUCTS.
4. INSULATE THE BACK OF ALL DIFFUSERS.
5. NO FLEX DUCT RUN SHALL EXCEED 8 FEET.
6. FLEX DUCT RUN OUTS TO DIFFUSERS SHALL BE SIZED SAME AS DIFFUSER NECK SIZE. FASTEN THE INNER HELIX AND OUTER JACKET OF FLEX DUCTS TO DIFFUSERS AND DUCTS WITH NYLON TIE WRAPS.
7. PROVIDE FLEXIBLE CONNECTIONS AT SUPPLY AND RETURN CONNECTIONS TO AC UNITS.
8. TOILET AND JANITOR EXHAUST FANS TO BE INTERLOCKED WITH ROOM LIGHT SWITCH.
9. ALL NEW DUCTWORK SHALL BE RUN ABOVE CEILINGS AND TIGHT TO STRUCTURE. COORDINATE WITH OTHER TRADES AND MAKE OFFSETS WHERE REQUIRED. PROVIDE DUCTWORK SHOP DRAWINGS. RUN DUCTWORK THROUGH TRUSSES WHERE SPACE IS LIMITED.
10. PROVIDE ACCESS TO ALL EQUIPMENT, INCLUDING ACCESS PANELS WHERE REQUIRED.
11. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE SUPPORTS, DUCTWORK, PIPING, CONTROLS, ETC AS REQUIRED.
12. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION OF FIRE WALLS AND PROVIDE FIRE DAMPERS IN ALL RATED WALLS AND FLOORS. PROVIDE FIRE DAMPERS IN ALL OUTSIDE AIR INTAKES.
13. PROVIDE DUCT DETECTORS IN THE SUPPLY AND RETURN FOR ALL AIR UNITS 2000 CFM AND OVER. PROVIDE FIRESTATS FOR ALL FANS 600 CFM AND OVER.
14. PROVIDE THERMOSTATS AND CONTROL WIRING FOR ALL AC AND FAN SYSTEMS SHOWN ON DRAWINGS.
15. PROVIDE TEST AND BALANCE FOR ALL AC AND FAN SYSTEMS.
16. PROVIDE INSULATED PLENUM BOXES (MINIMUM 12" DEEP UNLESS OTHERWISE NOTED) AT ALL LOUVERS FOR DUCT CONNECTIONS.
17. PROVIDE INSULATED CONDENSATE DRAIN PIPING FOR ALL AC SYSTEMS.
18. ALL REFRIGERATION PIPING SHALL BE SIZED AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. INSULATE ALL PIPING FOR HEAT PUMP SYSTEMS. FOR LONG REFRIGERANT PIPING RUNS, CONSULT EQUIPMENT MANUFACTURER FOR SPECIFIC INSTALLATION REQUIREMENTS.
19. COORDINATE DUCT RUNS WITH STRUCTURAL DRAWINGS. RUN DUCTS THRU TRUSSES AND BETWEEN TRUSSES AS REQUIRED.

**SPECIFIC NOTES THIS SHEET:**

- ① CONDENSING UNIT ON EQUIPMENT PAD.
- ② 6" SCH 40 PVC CONDUIT FROM CONDENSING UNIT UNDERGROUND TO INTERIOR CHASE WALL. RUN REFRIGERANT PIPING U.G. AND UP CHASE WALL TO AC UNITS ON PLATFORM. COORDINATE WITH PLUMBING PIPING. SEAL ENDS OF CONDUIT WITH ELASTOMERIC FOAM.
- ③ REFRIGERANT PIPING UP IN CHASE WALL FROM U.G. CONDUITS.
- ④ SEE M6 FOR PLATFORM LAYOUT.
- ⑤ 10"Ø EXHAUST UP TO GREENHECK MODEL GRSF FLASHING FLANGE WITH BIRD SCREEN.



1 FLOOR PLAN - HVAC  
 M201 scale 1/8" = 1'-0"

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 DRAWN BY:  
 REVISIONS:

M201

SHEET 3 OF 7

| MECHANICAL/PLUMBING |  | LEGEND             |                             |
|---------------------|--|--------------------|-----------------------------|
| SYMBOL              | DESCRIPTION                            | SYMBOL             | DESCRIPTION                 |
| -----               | COLD WATER PIPING                      | O/A                | OUTSIDE AIR                 |
| -----               | HOT WATER PIPING (NUMBER DENOTES TEMP) | OD                 | OVERFLOW DRAIN              |
| -----               | HOT WATER CIRCULATING                  | R/A                | RETURN AIR                  |
| -----               | VENT PIPING                            | RAG                | RETURN AIR GRILLE           |
| -----               | GAS PIPING                             | RD                 | ROOF DRAIN                  |
| SS                  | SANITARY SEWER                         | S/A                | SUPPLY AIR                  |
| CFM                 | CUBIC FEET PER MINUTE                  | TP                 | TRAP PRIMER                 |
| CLG.                | CEILING                                | (TYP)              | TYPICAL                     |
| CO                  | CLEAN OUT                              | VD                 | VOLUME DAMPER               |
| CW                  | COLD WATER                             | VTR                | VENT THRU ROOF              |
| DF                  | DRINKING FOUNTAIN                      | WCO                | WALL CLEAN OUT              |
| DN                  | DOWN                                   | (CO <sub>2</sub> ) | CARBON DIOXIDE SENSOR       |
| E/A                 | EXHAUST AIR                            | (CO)               | CARBON MONOXIDE SENSOR      |
| EF                  | EXHAUST FAN                            | (T)                | TEMPERATURE SENSOR          |
| FD                  | FLOOR DRAIN                            | (H)                | HUMIDITY SENSOR             |
| F.I.D.              | 1 1/2 HOUR UL 555 FIRE DAMPER          | ~~~~~              | FLEX DUCT                   |
| HB                  | HOSE BIBB                              | --- ---            | BALL VALVE                  |
| HD                  | HUB DRAIN                              | --- ---            | GATE VALVE                  |
| HW                  | HOT WATER                              | --- ---            | CHECK VALVE                 |
| HWC                 | HOT WATER CIRCULATING                  | --- ---            | UNION                       |
|                     |  | ⊥                  | AIR CHAMBER (10" HIGH PIPE) |

| MARK    | CFM | EXT. S.P. | MOTOR |       | DATA  |      | DESCRIPTION   |
|---------|-----|-----------|-------|-------|-------|------|---|
|         |     |           | H.P.  | VOLTS | PHASE | RPM  |   |
| EF-1    | 50  | 0.25      | 16W   | 120   | 1     | 850  | DIRECT DRIVE CEILING MOUNTED EXHAUST FAN WITH SOLID STATE SPEED CONTROL.<br>GREENHECK SP-A70  |
| EF-2, 3 | 100 | 0.25      | 23W   | 120   | 1     | 1100 | DIRECT DRIVE CEILING MOUNTED EXHAUST FAN WITH SOLID STATE SPEED CONTROL.<br>GREENHECK SP-A125 |

- NOTES:
- SPEED CONTROLLER SHALL BE PROVIDED FOR ALL FANS UNLESS NOTED OTHERWISE. MOUNT ON UNIT IN FIELD.
  - USE THE SPEED CONTROLLER TO BALANCE THE FAN CFM.

| ELECTRIC |      | WATER              |     | HEATER |    | SCHEDULE |           |               |
|----------|------|--------------------|-----|--------|----|----------|-----------|---------------|
| MARK     | GAL. | RECOVERY 80°F RISE | KW  | VOLT   | PH | MOUNTING | PIPE SIZE | DESCRIPTION   |
| WH-1     | 30   | 23                 | 4.5 | 208    | 1  | FLOOR    | 3/4"      | RHEEM EGSP-30 |

| DIFFUSER |  | GRILLE & |  | REGISTER |  | SCHEDULE |  |
|----------|--|----------|--|----------|--|----------|--|
| MARK     | DESCRIPTION  |          |  |          |  |          |  |
| D        | ARCHITECTURAL PLAQUE ALUMINUM CEILING DIFFUSER WITH 4-WAY PATTERN, 24"x24" LAY-IN FRAME, ROUND NECK AND WHITE FINISH.<br>TITUS OMNI-AA |          |  |          |  |          |  |
| R-1      | PERFORATED ALUMINUM RETURN AIR GRILLE WITH 18"x18" SQUARE NECK FOR LAY-IN CEILING.<br>TITUS MODEL PAR-AA                               |          |  |          |  |          |  |

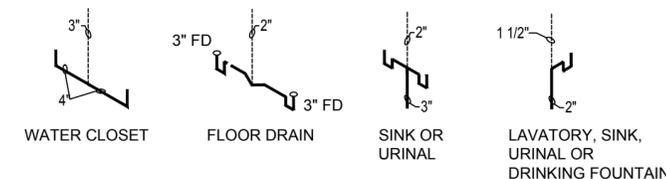
- NOTES:
- PROVIDE PLASTER FRAME FOR DIFFUSERS/GRILLES IN SHEETROCK CEILINGS.
  - PROVIDE PLENUM BOX AT REAR OF ALL RETURN GRILLES SIZED FOR GRILLE NECK FOR CONNECTION OF RETURN DUCTS.
  - INSULATE BACK OF ALL DIFFUSERS. SEE DETAIL ON DRAWINGS OR AT CONTRACTOR'S OPTION PROVIDE FACTORY BACK PAN INSULATION
  - ADJUST LOCATION OF DIFFUSERS AS REQUIRED FOR ANY LIGHT CONFLICTS.

| A/C              |                      |                         | UNIT            |                   |           |               | SCHEDULE    |     |                |       |     |  |
|------------------|----------------------|-------------------------|-----------------|-------------------|-----------|---------------|-------------|-----|----------------|-------|-----|--|
| MARK             | NOMINAL COOLING BTUH | HEATING CAP. KW         | OUTSIDE AIR CFM | EXT. S.P. IN W.C. | EVAP. CFM | CAPACITY H.P. | COND. VOLTS | PH. | FLA.           | VOLTS | PH. | DESCRIPTION  |
| AC 1-4<br>CU 1-4 | 60,000               | 11<br>60A & 25A<br>FUZE | 200             | 0.5               | 1600-1975 | 1             | 208         | 1   | 30<br>60A FUZE | 208   | 1   | 2-STAGE DX SPLIT SYSTEM WITH HORIZONTAL INDOOR UNIT, 5 YEAR WARRANTY, ELECTRIC HEAT. |

- NOTES:
- OUTDOOR UNITS SHALL BE SET ON RAISED PLATFORM.
  - RUN REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS.
  - APPROVED MANUFACTURERS: TRANE, CARRIER, YORK.

Plumbing Fixture Schedule Notes:

- Water closets:
  - Provide heavy duty plastic toilet seat with open front, no cover and stainless steel posts and pintles. and check hinge Residential tank type toilets shall have solid plastic seat with slow close cover.
  - For tank type toilets, provide braided stainless steel supply hose with wheel handle stop and escutcheon.
- Lavatories:
  - Provide braided stainless steel supply hoses with wheel handle stop and escutcheon.
  - Provide 1-1/2" chrome plated 17 ga. tailpiece and P-trap with clean out plug.
- Sinks:
  - Provide braided stainless steel supply hoses with wheel handle stop and escutcheon.
  - Provide 1-1/2" chrome plated 17 ga. tailpiece and P-trap with clean out plug. For 2 and 3 compartment sinks, provide continuous waste.
  - For sinks with dishwashers nearby, provide tailpiece with dishwasher drain connection.
- Drinking Fountains:
  - Provide braided stainless steel supply hose with wheel handle stop.
  - Provide 1-1/2" chrome plated 17 ga. tailpiece and P-trap with clean out plug.
- General:
  - Insulate water supply and waste for ADA sinks and lavatories that do not have built-in protection with casework. Wall mounted lavatories shall have ADA LAVshield or VandalGuard. All waste shall be offset as required for ADA fixtures.
  - Provide carriers for all wall mounted fixtures.
  - Provide code compliant thermostatic mixing valves at all lavatories and eye wash/safety showers.
  - Provide all required trim, fittings, piping, etc. for a complete installation.
  - Provide chrome plated escutcheon plates at all piping wall penetrations.
  - Refer to architectural plans and provide fixtures as indicated with water, waste and vent piping from nearest mains.
  - All bolts and hardware shall be commercial grade stainless steel.
  - Where electronic mixing valves are used on lavatories, the piping and mixing valve shall be installed neatly within the width of the lavatory.
  - Trap primers shall have dual check valve installed in main supply line.
  - All fixtures shall be installed in accordance with manufacturer's installation instructions. Include all required items for a complete installation.
  - Provide caulk sealant at the wall and/or floor of all fixtures.
  - Use of offset flanges is limited to 1/2" effect. Water closets shall be centered in stalls for non-ADA installations.



TYPICAL PLUMBING FIXTURE RISERS

NO SCALE

NOTES:

- ALL WORK SHALL CONFORM TO THE INTERNATIONAL PLUMBING CODE.
- PROVIDE TRAP PRIMERS ON ALL FLOOR DRAINS.
- PROVIDE ACCESS PANELS IN WALLS FOR ALL CLEANOUTS.
- SIZE WATER PIPING FOR EACH FIXTURE GROUP PER TABLE BELOW.
- PROVIDE BALL VALVES AT ALL FIXTURE GROUPS TO ISOLATE WATER SUPPLIES.
- PROVIDE AIR CHAMBERS ON HW & CW AT EACH FIXTURE GROUP.
- SIZE SEWER AND VENT PIPING PER PLUMBING FIXTURES TABLES.
- MINIMUM VENT THRU ROOF SHALL BE 2".
- PROVIDE 3/4" CW TO EACH ICE MACHINE, COFFEE MACHINE AND DRINK MACHINE WITH WALL BOX AND SHUTOFF VALVE.
- MINIMUM WATER PIPING SIZE TO SAFETY SHOWER IS 1 1/4".
- MINIMUM WATER PIPING SIZE SHALL BE 3/4".
- MINIMUM SEWER FOR WATER CLOSET OR TOILET ROOM FIXTURE GROUP SHALL BE 4".
- MINIMUM VENT FOR WATER CLOSET OR TOILET ROOM FIXTURE GROUP SHALL BE 3".

WATER PIPE SIZING TABLE:

| WATER CLOSETS |           | DRINKING FOUNTAINS |           |
|---------------|-----------|--------------------|-----------|
| #             | PIPE SIZE | #                  | PIPE SIZE |
| 1             | 1"        | 1-4                | 3/4"      |
| 2             | 1 1/4"    |                    |           |
| 3-4           | 1 1/2"    | URINALS            |           |
| 5-10          | 2"        | #                  | PIPE SIZE |
| 11-15         | 2 1/2"    | 1                  | 3/4"      |
|               |           | 2                  | 1"        |
|               |           | 3-4                | 1 1/4"    |

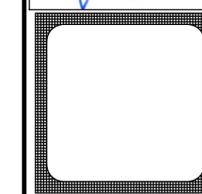
| LAVATORIES, SINKS OR SHOWERS |           |
|------------------------------|-----------|
| #                            | PIPE SIZE |
| 1-4                          | 3/4"      |
| 5-8                          | 1"        |
| 9-12                         | 1 1/4"    |

| MARK | FIXTURE TYPE | WASTE     | VENT      | HW   | CW   | PLUMBING FIXTURE SCHEDULE DESCRIPTION                  | MODEL  |
|------|--------------|-----------|-----------|------|------|--|--|
| P1   | WATER CLOSET | 4"        | 3"        | —    | 1"   | Floor mounted manual flush valve                       | Fixture--Kohler Model K-4350<br>Flush Valve--Sloan Royal 111-1.28<br>Fixture-- American Standard Madera 2854.128<br>Flush Valve--Sloan Royal 111-1.28  |
| P1A  | WATER CLOSET | 4"        | 3"        | —    | 1"   | Floor mounted ADA manual flush valve                   | Fixture--American Standard Model 0476.028<br>Faucet--Delta 2523 chrome<br>Fixture--American Standard 6590.051<br>Flush Valve--Sloan Royal 186-0.5  |
| P2A  | LAVATORY     | 1-1/2"    | 1-1/2"    | 1/2" | 1/2" | Countertop lay-in ADA lavatory                         | Carrier--Jay R Smith 0636<br>Fixture--Elkay Model GECR3321<br>Faucet--Elkay LKD2423BHC   |
| P3   | URINAL       | 1-1/2"    | 1-1/2"    | —    | 3/4" | Wall hung manual flush valve urinal                    | Continuous Waste--Elkay Model LK-53<br>Stopper--Elkay Model LK-35  |
| P4   | SINK         | 1-1/2"    | 1-1/2"    | 1/2" | 1/2" | 2-compartment stainless steel sink                     | Stainless steel wall guards<br>Fixture--Fiat Model MSB2424, Stern Williams HL1800<br>Faucet--Fiat Model #830-AA, Stern William T-10-VB<br>Hose--Fiat Model #832-AA, Stern Williams T-35  |
| P5   | MOP SINK     | 3"        | 1-1/2"    | 1/2" | 1/2" | 2'x2' molded plastic mop sink                          | Fixture--Elkay EZSTL8LC<br>3/4" rough brass, loose key sill cock with vacuum breaker, Smith 5609.QT or Mifab MHY-16. Use for all interior hose bibs.<br>Wall hydrant J. R. Smith 5509.QT cast box with cover, bronze finish, loose key with vacuum breaker. Use for all exterior hose bibs.<br>J. R. Smith 2005-B, cast-iron - See plans for sizes. Nickel brass square strainers in toilet rooms and finished areas. All floor drains shall have 4" deep seal traps and trap primer connections.<br>Zurn Z211-S-P |
| P6A  | EDF          | 1-1/2"    | 1-1/2"    | —    | 1/2" | Wall mounted dual level ADA electric drinking fountain |  |
| HB   | HOSE BIBB    | —         | —         | —    | 3/4" | Wall hydrant   |  |
| HB-1 | HOSE BIBB    | —         | —         | —    | 3/4" | Freeze proof wall hydrant                              |  |
| FD   | FLOOR DRAIN  | see plans | see plans | —    | —    | Floor drain with trap primer                           |  |
| HD   | HUB DRAIN    | see plans | see plans | —    | —    |  |  |
| IM   | ICE MAKER    | —         | —         | —    | 1/2" | Metal ice maker wall box                               | Metal recessed wall box with 1/4 turn ball valve.<br>Oatey 39141<br>Automatic water metering type, Precision Plumbing Products Model PR-500, with SS-8 supply tube and DU distribution unit to serve drains as shown on drawings. Install per manufacturers recommendations and provide wall access panel for periodic inspection.   |
| TP   | TRAP PRIMER  | —         | —         | —    | 1/2" | Automatic trap primer                                  |  |

MECHANICAL SCHEDULES



4609 Fairfield Street  
P-504 455-4450  
Crumb Engineering, LLC  
Metairie, La 70006  
jcrumb@crumbengineering.com

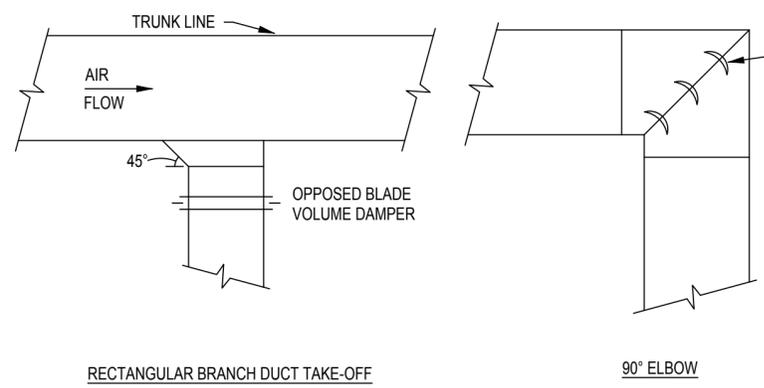


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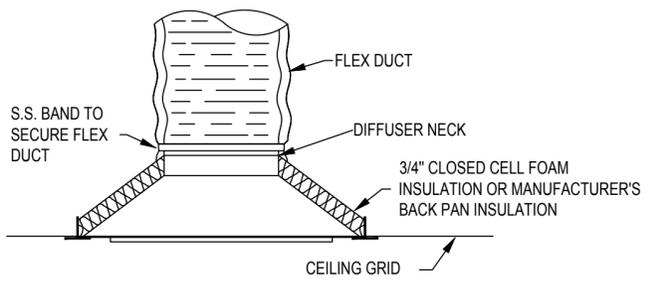
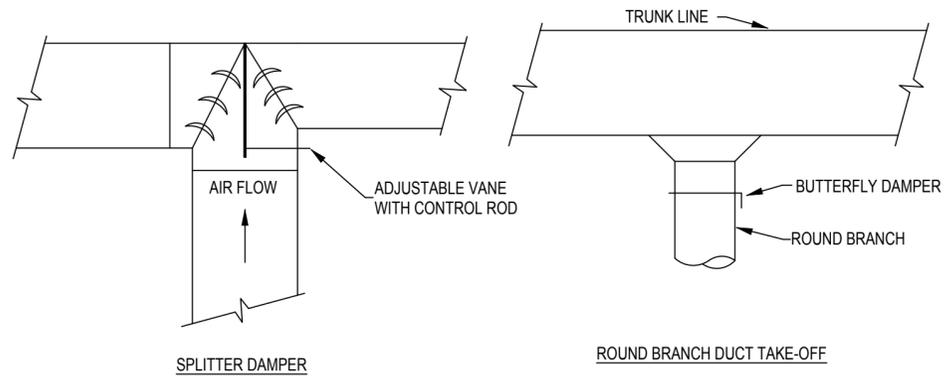
**NEW SAFE HAVEN TRAINING AND EDUCATION CENTER FOR ST. TAMMANY PARISH**  
MANVILLE, LA  
MARTIN WAY AT WREN

DATE: 7-3-2020  
DRAWN BY:  
REVISIONS:

M301  
SHEET 4 OF 7

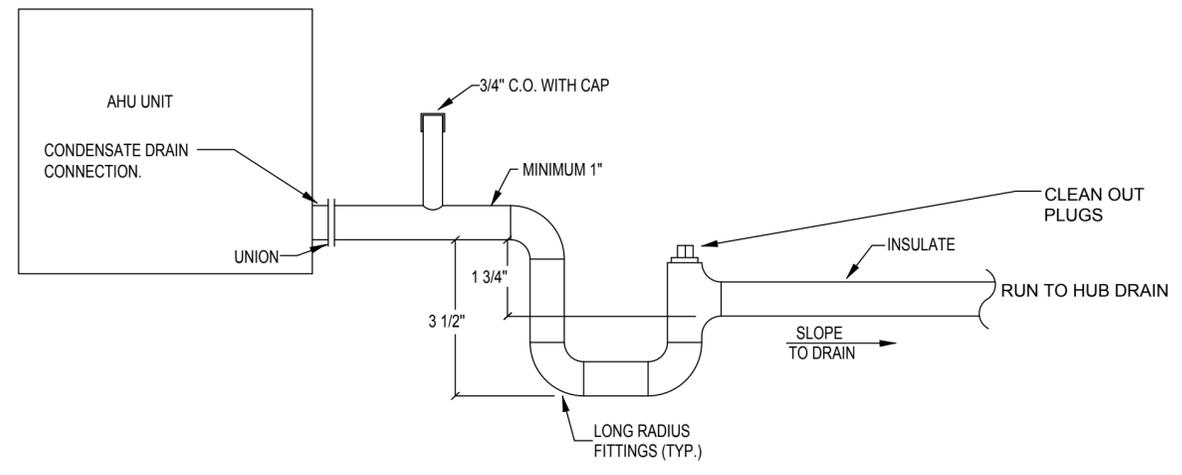


**DUCT DETAILS**

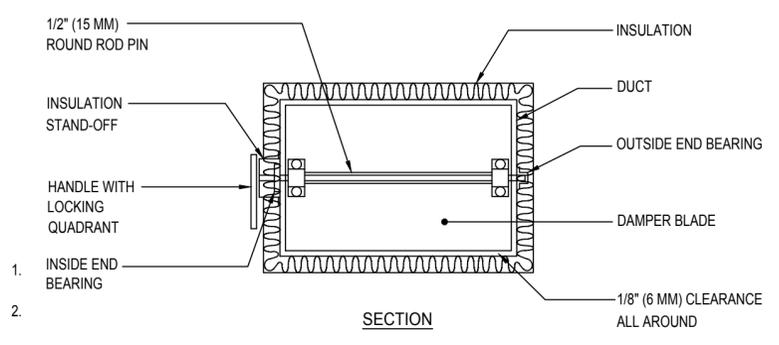


NOTE: ALL SEAMS SHALL BE PROPERLY SEALED AND INSULATION GLUED TO BACK OF DIFFUSER. INSULATION SHALL COVER ENTIRE DIFFUSER AND NECK.

**DIFFUSER INSULATION DETAIL**  
 NO SCALE



**A/C UNIT CONDENSATE DRAIN DETAIL (DRAW-THRU)**  
 NO SCALE



**VOLUME DAMPER DETAIL**

NOTES:  
 DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.  
 PROVIDE OPPOSED BLADE DAMPERS.

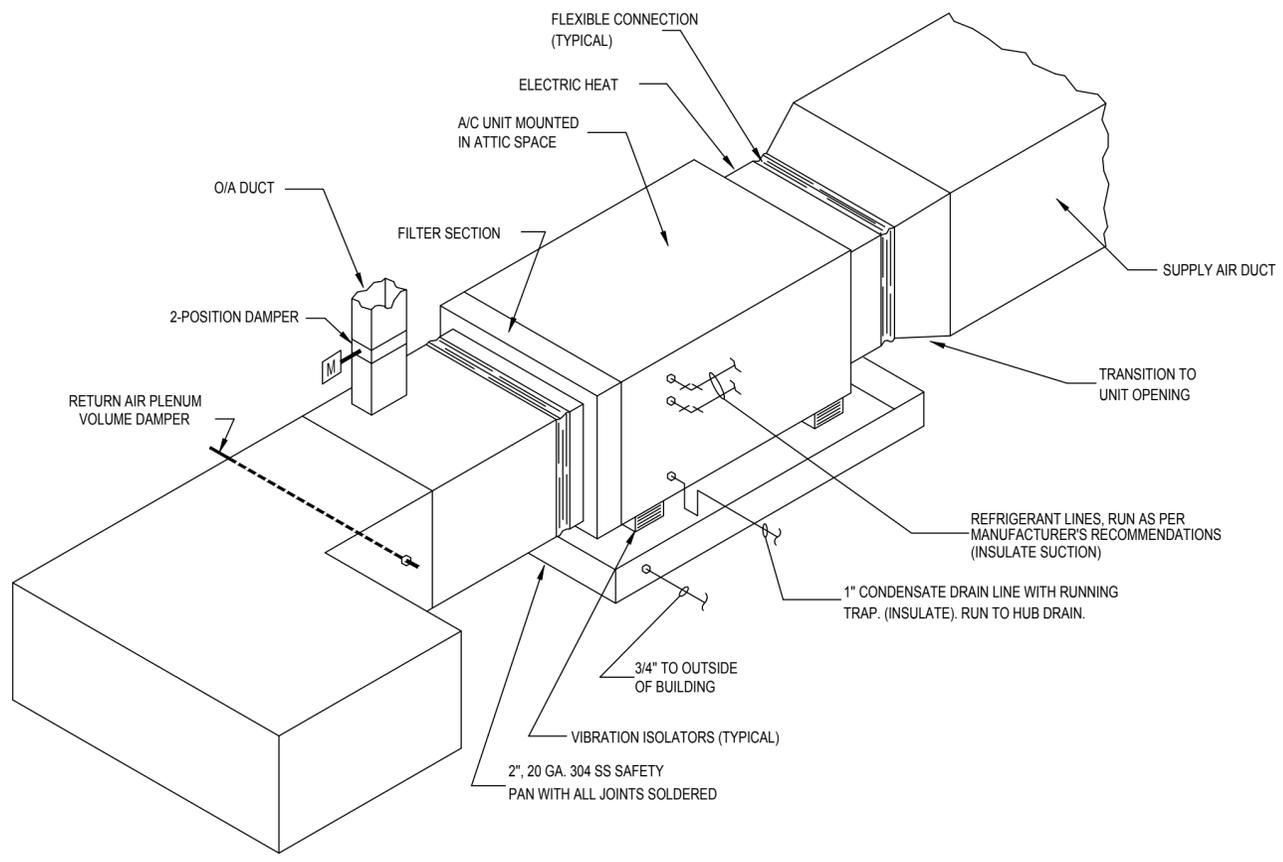
**MECHANICAL DETAILS**

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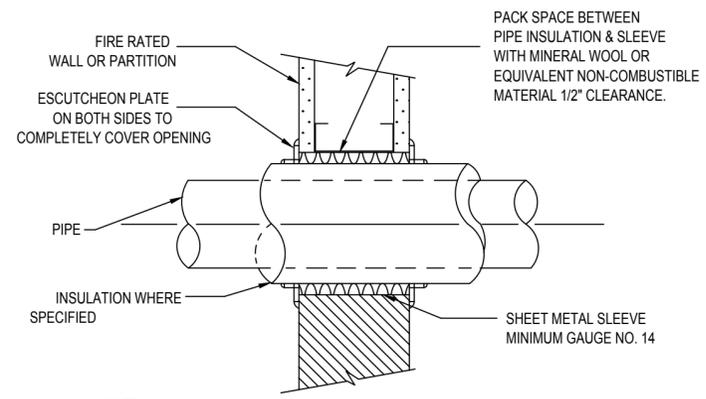
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 SHEET 5 OF 7

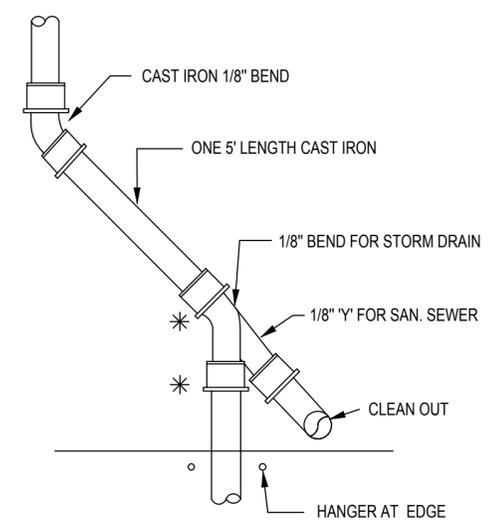


**A/C UNIT INSTALLATION DETAIL**  
NO SCALE



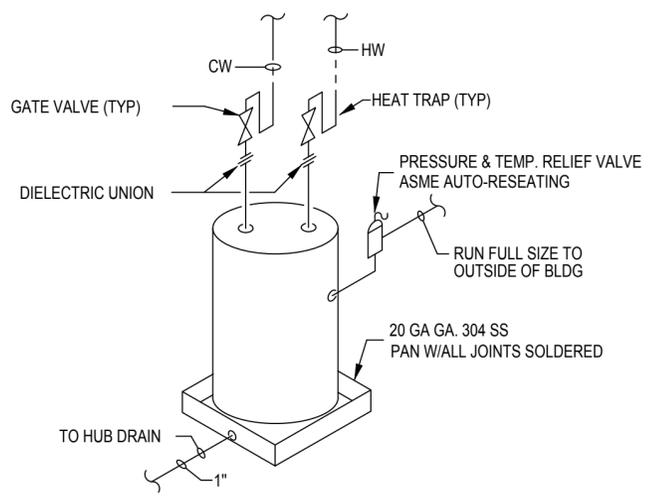
**NOTE:**  
1.) THE INSTALLATION OF FIRE STOPPING MATERIALS SHALL BE SUBJECT TO CONTROLLED INSPECTION IN ACCORDANCE WITH C26-106.3.

**PIPE SLEEVE THRU WALL**

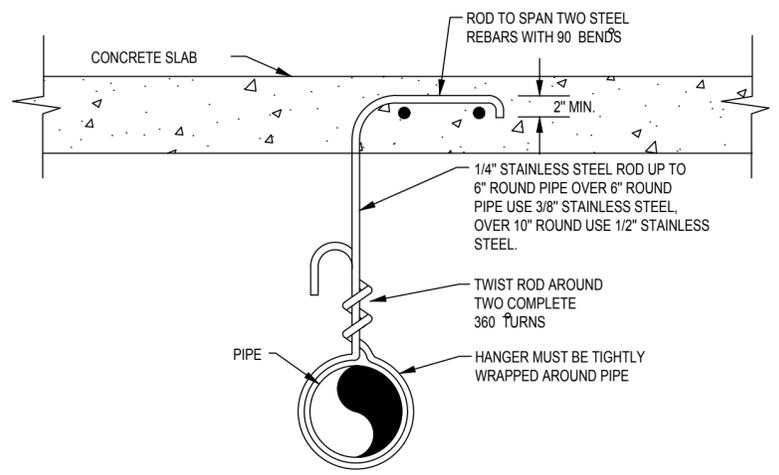


\* PIPE JOINTS SHALL BE OF NEOPRENE GASKET TYPE EQUAL TO TYLER CO. SEAL JOINTS

**SWING JOINT DETAIL**  
NO SCALE

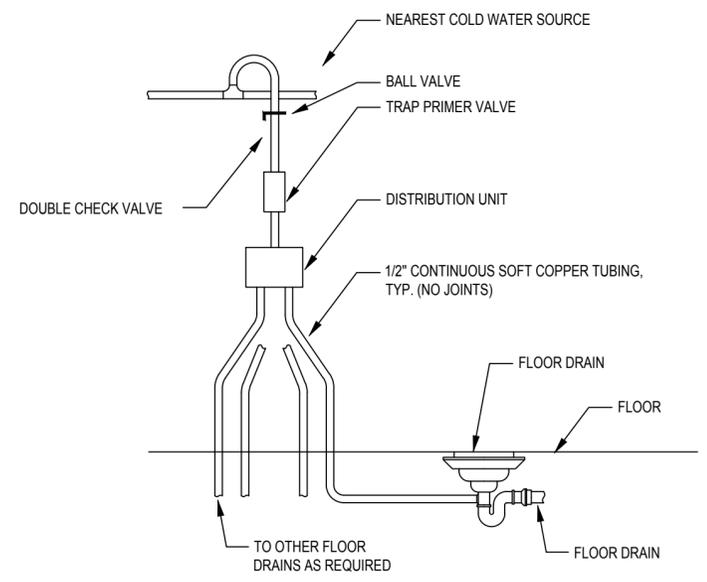


**WATER HEATER DETAIL**  
NO SCALE



**NOTE:** HANGER SPACING SHALL NOT EXCEED 4' AND A HANGER SHALL BE AT EVERY FITTING.

**PIPE HANGER UNDER SLAB DETAIL**  
NO SCALE



**TRAP PRIMER DETAIL**  
NO SCALE

**MECHANICAL DETAILS**

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SHEET 6 OF 7



Crumb Engineering, LLC Metairie, La 70006  
 4609 Fairfield Street P.O. Box 455,4450 jrumb@crumbengineering.com

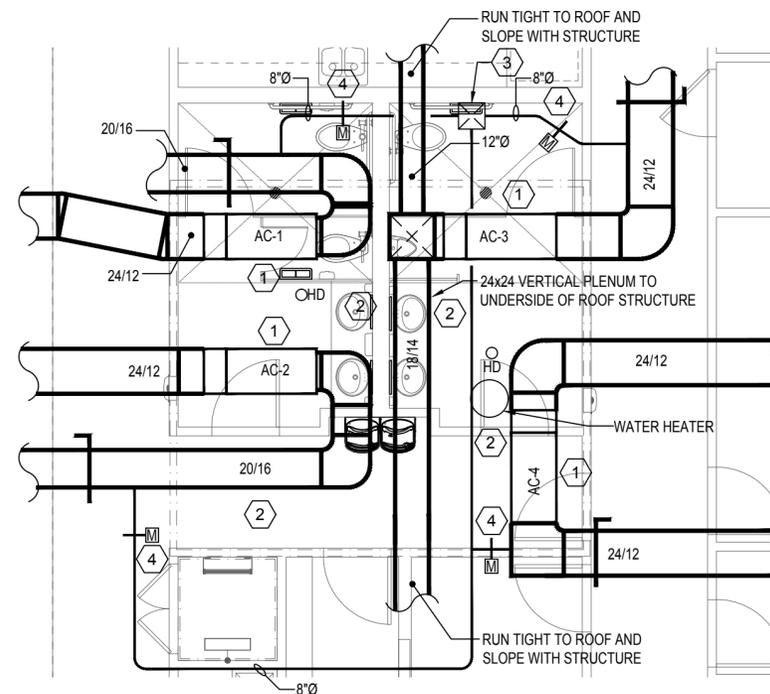


GENERAL NOTES THIS SHEET:

1. DUCT SIZES SHOWN ARE FREE AREA SIZES. SEE SPECIFICATIONS FOR DUCT MATERIALS AND INSULATION.
2. ALL DUCTWORK SHALL BE EXTERNALLY WRAPPED UNLESS NOTED OTHERWISE. INTERNALLY LINE ALL DUCTWORK FOR FIRST 10' OF SUPPLY AND RETURN FROM UNIT. EXPOSED RECTANGULAR DUCTWORK SHALL BE INTERNALLY LINED. ALL RETURN PLENUMS AND TRANSFER DUCTS SHALL BE INTERNALLY LINED.
3. PROVIDE VOLUME DAMPERS AT ALL TAPS INTO MAIN DUCT RUNS. PROVIDE VOLUME DAMPERS AT MAIN RETURN AND OUTSIDE AIR DUCTS.
4. INSULATE THE BACK OF ALL DIFFUSERS.
5. NO FLEX DUCT RUN SHALL EXCEED 8 FEET.
6. FLEX DUCT RUN OUTS TO DIFFUSERS SHALL BE SIZED SAME AS DIFFUSER NECK SIZE. FASTEN THE INNER HELIX AND OUTER JACKET OF FLEX DUCTS TO DIFFUSERS AND DUCTS WITH NYLON TIE WRAPS.
7. PROVIDE FLEXIBLE CONNECTIONS AT SUPPLY AND RETURN CONNECTIONS TO AC UNITS.
8. TOILET AND JANITOR EXHAUST FANS TO BE INTERLOCKED WITH ROOM LIGHT SWITCH.
9. ALL NEW DUCTWORK SHALL BE RUN ABOVE CEILINGS AND TIGHT TO STRUCTURE. COORDINATE WITH OTHER TRADES AND MAKE OFFSETS WHERE REQUIRED. PROVIDE DUCTWORK SHOP DRAWINGS. RUN DUCTWORK THROUGH TRUSSES WHERE SPACE IS LIMITED.
10. PROVIDE ACCESS TO ALL EQUIPMENT, INCLUDING ACCESS PANELS WHERE REQUIRED.
11. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE SUPPORTS, DUCTWORK, PIPING, CONTROLS, ETC AS REQUIRED.
12. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION OF FIRE WALLS AND PROVIDE FIRE DAMPERS IN ALL RATED WALLS AND FLOORS. PROVIDE FIRE DAMPERS IN ALL OUTSIDE AIR INTAKES.
13. PROVIDE DUCT DETECTORS IN THE SUPPLY AND RETURN FOR ALL AIR UNITS 2000 CFM AND OVER. PROVIDE FIRESTATS FOR ALL FANS 600 CFM AND OVER.
14. PROVIDE THERMOSTATS AND CONTROL WIRING FOR ALL AC AND FAN SYSTEMS SHOWN ON DRAWINGS.
15. PROVIDE TEST AND BALANCE FOR ALL AC AND FAN SYSTEMS.
16. PROVIDE INSULATED PLENUM BOXES (MINIMUM 12" DEEP UNLESS OTHERWISE NOTED) AT ALL LOUVERS FOR DUCT CONNECTIONS.
17. PROVIDE INSULATED CONDENSATE DRAIN PIPING FOR ALL AC SYSTEMS.
18. ALL REFRIGERATION PIPING SHALL BE SIZED AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. INSULATE ALL PIPING FOR HEAT PUMP SYSTEMS. FOR LONG REFRIGERANT PIPING RUNS, CONSULT EQUIPMENT MANUFACTURER FOR SPECIFIC INSTALLATION REQUIREMENTS.
19. COORDINATE DUCT RUNS WITH STRUCTURAL DRAWINGS. RUN DUCTS THRU TRUSSES AND BETWEEN TRUSSES AS REQUIRED.

SPECIFIC NOTES THIS SHEET:

- ① AC UNIT MOUNTED ON PLATFORM. SEE DETAIL ON M5.
- ② PROVIDE CLEAR ACCESS SPACE TO SERVICE EQUIPMENT AND LADDER.
- ③ 14"x14" GREENHECK FABRAHOOD OUTSIDE INTAKE ON ROOF. PROVIDE SLOPED ROOF CURB AND BIRDSCREEN.
- ④ 2-POSITION DAMPER IN OUTSIDE AIR DUCT.



① LARGE SCALE MECHANICAL PLATFORM  
 scale 3/16"= 1'-0"

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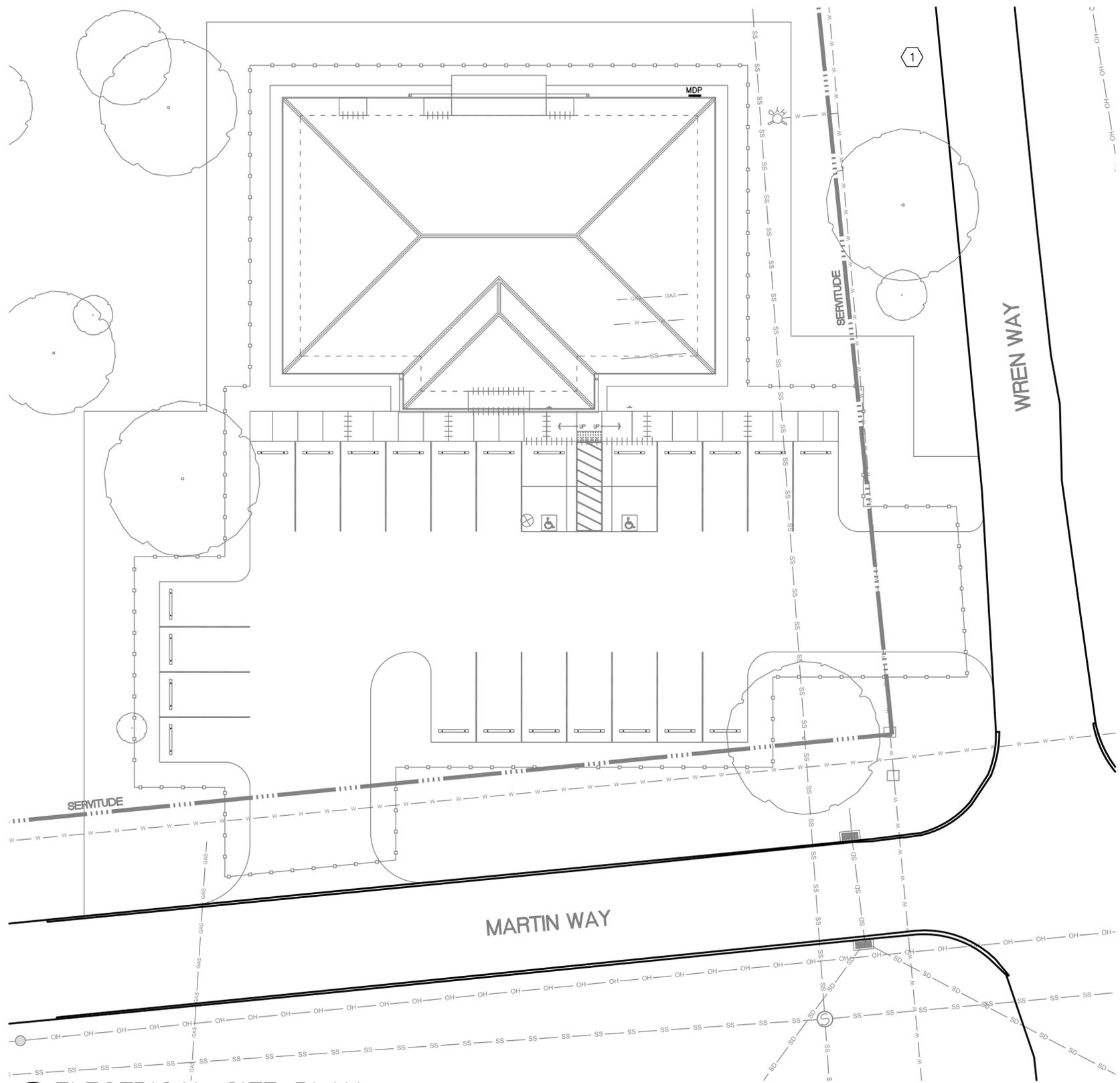
MANVILLE, LA

MARTIN WAY AT WREN

DATE: 7-3-2020  
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M601

SHEET 7 OF 7



**GENERAL NOTES THIS SHEET**

A. COORDINATE NEW SERVICE POLE LOCATION NEAR WREN WAY WITH CLECO AND ARCHITECT. SERVICE FROM BUILDING TO POLE SHALL BE UNDERGROUND.

**SPECIFIC NOTES THIS SHEET:**

1 APPROXIMATE LOCATION OF ELECTRICAL SERVICE POLE. PROVIDE POLE AS NECESSARY. COORDINATE WITH PROVIDER.

**1 ELECTRICAL SITE PLAN**  
 E101 scale 1/16"= 1'-0"



7-1-20

|                                     |  |
|-------------------------------------|--|
| <b>ELLIS</b><br>ENGINEERING, L.L.C. | 525 BREWSTER RD.<br>MADISONVILLE, LA 70447<br>(504) 415-7670 |
|                                     | PROJECT No. 19015  |
|                                     | JAMES W. ELLIS II, P.E., LOUISIANA LICENSE # 31603           |

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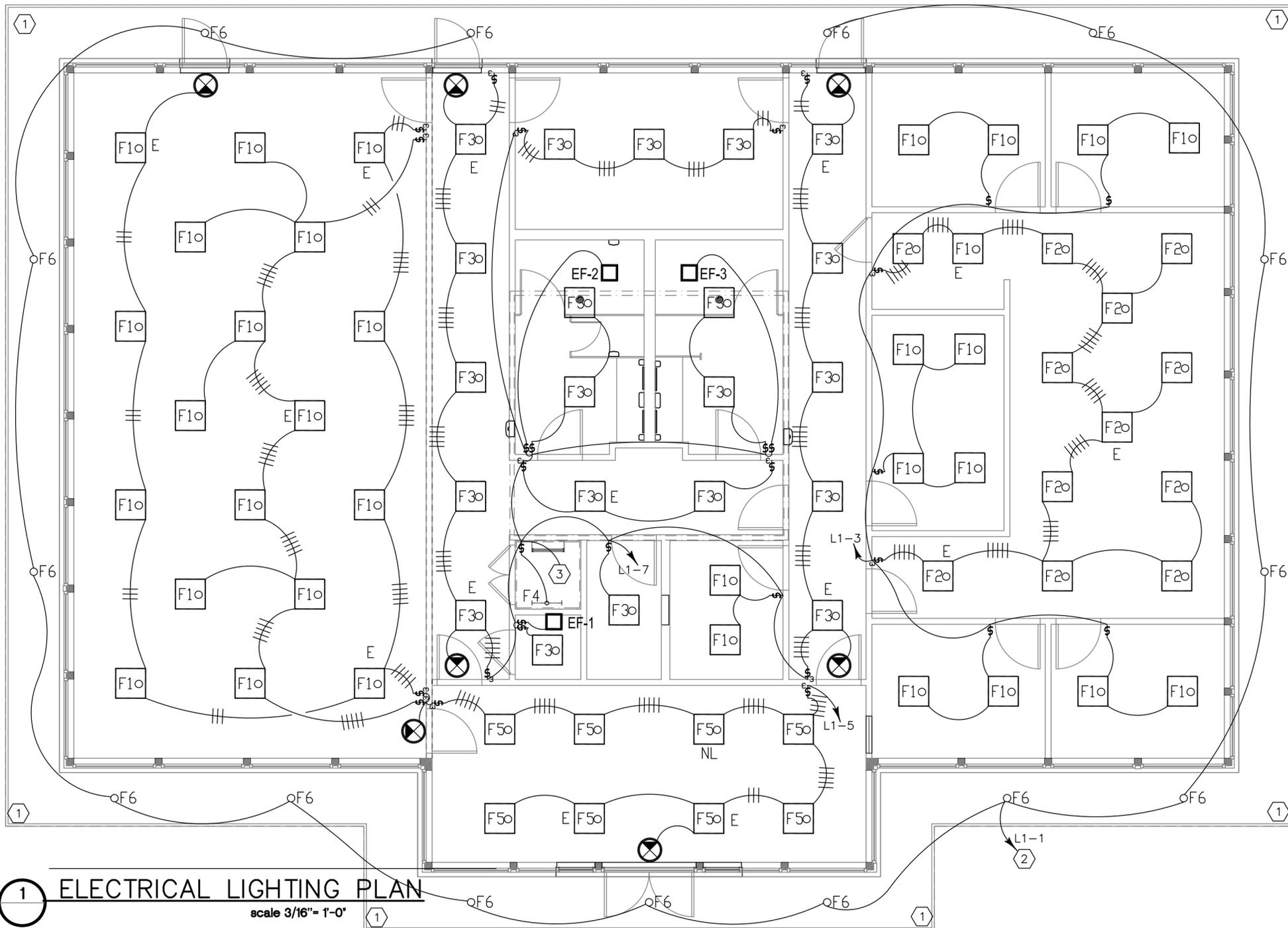
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SHEET OF



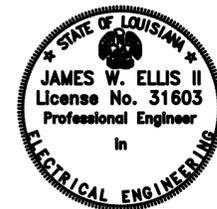
**1 ELECTRICAL LIGHTING PLAN**  
 scale 3/16" = 1'-0"

**GENERAL NOTES THIS SHEET**

- A. ALL FIXTURES SHALL BE F1 UNLESS NOTED OTHERWISE.
- B. ALL CONDUIT SHALL BE MINIMUM 1/2" AND CONTAIN A#12 GROUND MINIMUM.
- C. PROVIDE UNSWITCHED 120V TO EVERY E DESIGNATED FIXTURE AND EXIT SIGN.
- D. PROVIDE EL14W BATTERY PACKS FOR E DESIGNATED F1 FIXTURES.

**SPECIFIC NOTES THIS SHEET:**

- 1 PROVIDE F7 FIXTURE UNDER SOFFIT THIS LOCATION. AIM AT THE DIRECTION OF THE ARCHITECT. HOME RUN TO L1-1 AND PROVIDE TORK EWZ-103 ASTRONOMIC CONTROLLER. LOCATE NEXT TO OTHER CONTROLLER.
- 2 PROVIDE AND ROUTE THROUGH TORK EWZ-103 ASTRONOMIC CONTROLLER. LOCATE CONTROLLER NEAR ELECTRICAL PANEL.
- 3 CONTINUE TO LIGHTS ABOVE.



7-1-20

*J. W. Ellis*

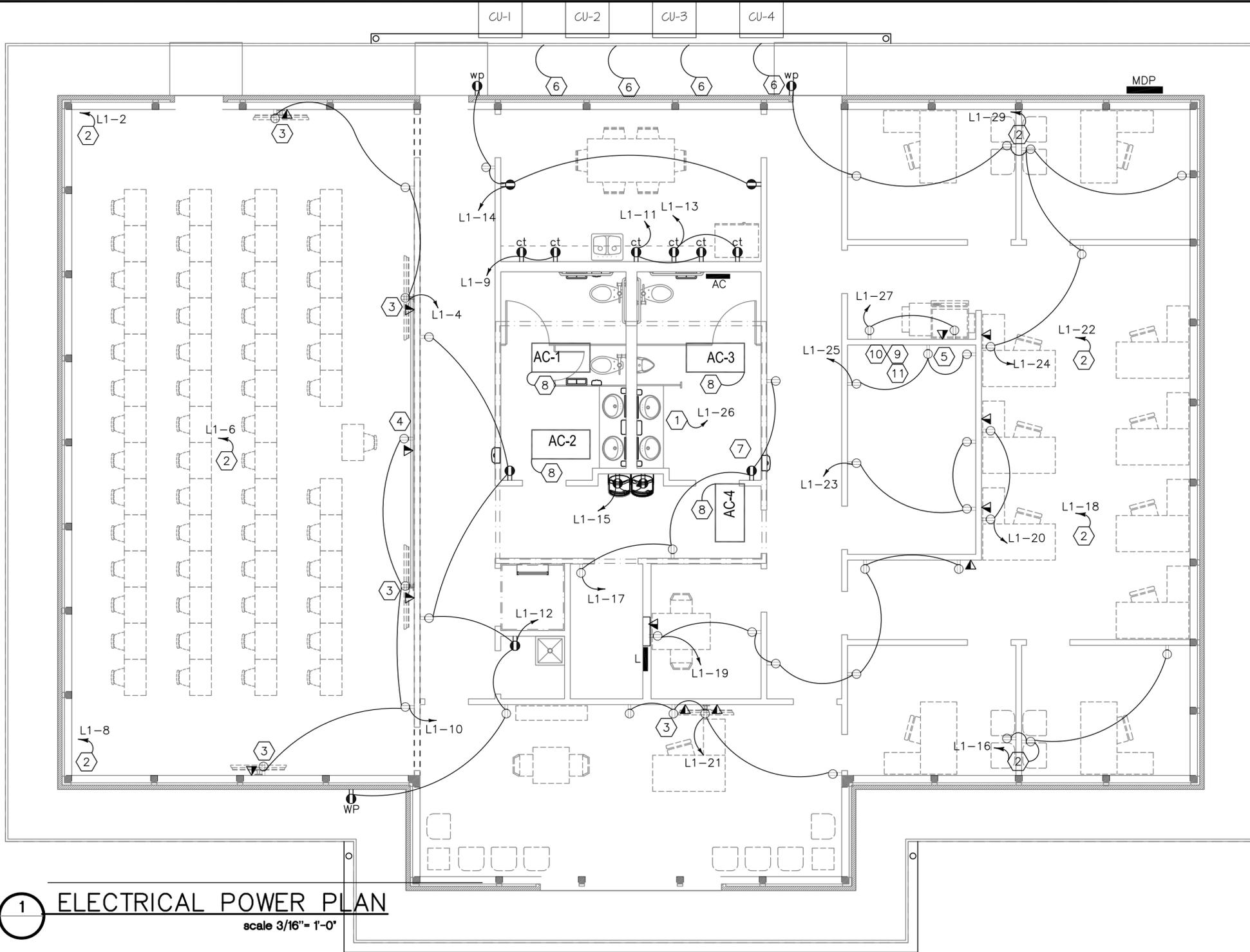
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| <b>ELLIS</b>                                       | 525 BREWSTER RD.<br>MADISONVILLE, LA 70447<br>(504) 415-7670 |
| ENGINEERING, L.L.C.                                | PROJECT No. 19015  |
| JAMES W. ELLIS II, P.E., LOUISIANA LICENSE # 31603 |  |

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**MARTIN WAY AT WREN**  
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DATE: 7-03-2020  
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**1 ELECTRICAL POWER PLAN**  
scale 3/16" = 1'-0"

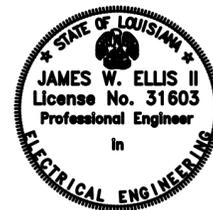
**GENERAL NOTES THIS SHEET**

- A. ALL CONDUIT SHALL BE MINIMUM 1/2" AND CONTAIN A#12 GROUND MINIMUM.
- B. POWER MAY NEED TO COME FROM BELOW ON OUTSIDE WALLS. SEE WINDOWS ON ARCHITECTURAL DRAWINGS.
- C. PROVIDE A GFCI, DUPLEX, RECEPTACLE NEAR AHU-1 AND AHU-4 AND CONNECT TO THE RECEPTACLE CIRCUIT IN TOILET ROOM BELOW.
- D. ROUTE CONDUITS FOR CONDENSING UNITS BELOW GRADE FROM MDP TO DISCONNECT SWITCH.
- E. ROUTE FEEDER FOR PANEL AC BELOW GRADE AND UP CHASE AT REAR OF KITCHEN. LOCATE PANEL AC ABOVE ON HVAC PLATFORM. PROVIDE GALVANIZED C CHANNEL FRAMING AS NECESSARY TO MOUNT.
- F. COORDINATE POWER AND DATA OUTLET EXACT LOCATIONS WITH FURNITURE PLAN.

**SPECIFIC NOTES THIS SHEET:**

- 1 PROVIDE GFCI RECEPTACLE NEAR HVAC UNITS ABOVE. PROVIDE 2-F4 FIXTURES MOUNTED NEAR HVAC EQUIPMENT WITH SWITCH AT ENTRANCE TO HVAC PLATFORM.
- 2 PROVIDE 2-YELLOW AND 5 BLUE CAT 6E CABLES FROM ABOVE CEILING THIS LOCATION AND ROUTED BACK TO WALL IN DATA ROOM, SEE SPECIFIC NOTE 5.. LEAVE 10' OF SLACK AT EACH END. TERMINATE BOTH ENDS AND TEST FOR CONTINUITY IN ACCORDANCE WITH TIA/EIA STANDARDS. ALSO PROVIDE A JUNCTION BOX FOR CIRCUIT SHOWN AND WIRE NUT ENDS IN JUNCTION BOX.
- 3 MOUNT POWER AND DATA BEHIND DISPLAY. SEE ARCHITECTURAL DRAWINGS FOR DETAILS.
- 4 PROVIDE DEEP JUNCTION BOX WITH HOOD COVER PLATE. FROM JUNCTION BOX ROUTE 2" CONDUIT TO ABOVE ACCESSIBLE CEILING WITH PULL STRING. BUSH ENDS.
- 5 LOCATION FOR DATA CABLES.
- 6 2#6 AWG AND 1#10 GRD IN 3/4" C. MAKE FINAL CONNECTIONS TO UNIT WITH WEATHER PROOF, FLEXIBLE, METALLIC CONDUIT THROUGH 60A, 2P, NEMA 3R, DISCONNECT SWITCH. HOME RUN TO MDP.

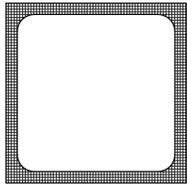
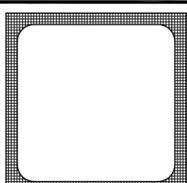
- 7 2#10 AWG AND 1#10 GRD IN 3/4" C. MAKE FINAL CONNECTION TO EWH THROUGH 30A, 2P, DISCONNECT SWITCH. HOME RUN TO PANEL AC.
- 8 PROVIDE 2 CIRCUITS TO HEATER. FOR CIRCUIT 1, HOMERUN 2#4 AWG AND 1#10 GRD TO PANEL AC AND MAKE CONNECTIONS TO 60A CONNECTION SWITCH WITH 2#6 AND 1#10 GRD THROUGH A 60A DISCONNECT SWITCH. FOR CIRCUIT 2, HOMERUN 2#10 AWG AND 1#10 GRD TO PANEL AC AND MAKE CONNECTIONS TO 25A CONNECTION WITH 2#10 AND 1#10 GRD THROUGH A 30A DISCONNECT SWITCH.
- 9 PROVIDE 2-2" C. FROM WALL TO DATA UTILITY PROVIDER SERVICE LOCATION AND 25' UP POLE. CAP BOTH ENDS. COORDINATE EXACT LOCATIONS WITH ARCHITECT.
- 10 #6 GRD IN JUNCTION BOX 18" AFF ROUTED TO GROUND BUS IN MDP. COORDINATE EXACT LOCATION WITH ARCHITECT.
- 11 4#6 AWG AND 1#10 GRD IN 1" C. ROUTE FROM JUNCTION BOX IN CEILING TO 60A, 3P, BREAKER IN PANEL L1.



7-1-20

*J. W. Ellis*

|  |  |
|--|--|
| <b>ELLIS</b>                                       | 525 BREWSTER RD.<br>MADISONVILLE, LA 70447<br>(504) 415-7670 |
| ENGINEERING, L.L.C.                                | PROJECT No. 19015  |
| JAMES W. ELLIS II, P.E., LOUISIANA LICENSE # 31603 |  |



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# ELECTRICAL LEGEND

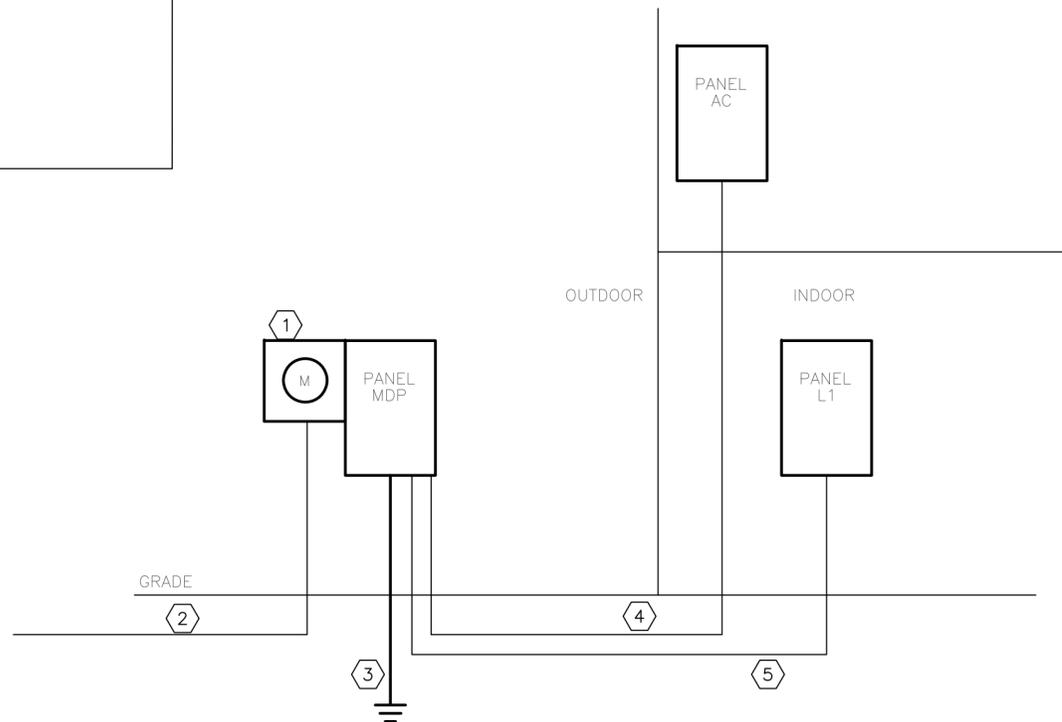
|               |  |
|---------------|--|
| \$            | FLUSH MOUNTED, DECORA PADDLE, WALL SWITCH WITH STAINLESS STEEL DEVICE PLATE, SINGLE POLE, 20A, 120/277V, SATIN FINISH, MOUNTED AT 48" A.F.F. TO CENTERLINE OR AS NOTED.  |
| \$, \$, \$    | WALL SWITCHES WITH SAME SPECS AS ABOVE EXCEPT: 3-WAY, 4-WAY  |
| \$\$          | TWO WALL SWITCHES COMBINED FOR SWITCHING DUAL BALLAST FIXTURES. ONE SWITCH FOR THE OUTSIDE LAMPS AND ONE FOR THE INSIDE LAMP.  |
| \$b           | FLUSH MOUNTED DIMMER WITH STAINLESS STEEL DEVICE PLATE, SINGLE POLE, 20A, 120/277V, SATIN FINISH, MOUNTED AT 48" A.F.F. TO CENTERLINE OR AS NOTED.   |
| \$m           | FLUSH MOUNTED WALL MOTION SENSOR SWITCH WITH STAINLESS STEEL DEVICE PLATE, WATTSTOPPER WS-250 (277V) OR EQUAL BY MYTECH, MOUNTED AT 48" A.F.F. TO CENTERLINE OR AS NOTED.  |
| ▼             | PROVIDE 1-YELLOW AND 1-BLUE CAT 6E CABLE PUNCHED DOWN WITH COVER PLATE. MARK YELLOW VOICE AND BLUE DATA. ROUTE EACH BACK TO WALL DESIGNATED BY SPECIFIC NOTE 5, SHEET E301, AND LEAVE 10' OF SLACK. TERMINATE BOTH ENDS AND TEST FOR CONTINUITY IN ACCORDANCE WITH TIA/EIA STANDARDS.  |
| ⊕             | FLUSH WALL MOUNTED DUPLEX RECEPTACLE, 20A, 120V, MOUNTED AT 18" A.F.F. TO CENTERLINE OR AS NOTED.  |
| ⊕             | DUPLEX RECEPTACLE WITH SAME SPECS AS ABOVE WITH INTERNAL GROUND FAULT CIRCUIT INTERRUPTER.   |
| WP ⊕          | DUPLEX RECEPTACLE WITH SAME SPECS AS ABOVE WITH INTERNAL GROUND FAULT CIRCUIT INTERRUPTER AND A WEATHERPROOF COVER.  |
| ⊕             | QUADRUPLEX RECEPTACLE WITH SAME SPECS AS ABOVE.  |
| □             | FUSED DISCONNECT SWITCH.   |
| ▬             | PANELBOARD, SURFACE OR RECESSED AS SHOWN   |
| #10<br>A-27   | CONDUIT AND WIRE CONCEALED IN WALL OR ABOVE CEILING. THE ARROW INDICATES A HOMERUN TO THE PANEL. SLASHES MARKS INDICATE THE NUMBER OF #12 WIRES IN THE CONDUIT, ABSENCE OF SLASHES IS (2) #12. SIZE CONDUIT PER N.E.C. A SEPARATE EQUIPMENT GROUND IS REQUIRED BUT IT IS NOT DENOTED WITH A SLASH. #10 DENOTES AN INCREASE IN THE WIRE SIZE. |
| ⊙             | JUNCTION BOX WITH COVER PLATE  |
| NRC           | NEAREST RECEPTACLE CIRCUIT   |
| WP/RT         | WEATHERPROOF/RAIN TIGHT WITH FLUSH COVER   |
| NL            | UNSWITCHED NIGHT LIGHT   |
| E             | EMERGENCY FIXTURE  |
| A.F.F./A.F.G. | ABOVE FINISHED FLOOR OR GRADE  |
| C             | CONDUIT  |
| PC            | PHOTOCELL  |

# GENERAL NOTES THIS SHEET

A. PROVIDE GALVANIZED C CHANNEL FRAMING AS REQUIRED TO MOUNT GEAR.

# SPECIFIC NOTES THIS SHEET:

- ① CLECO METER. COORDINATE METER TYPE (SOCKET OR C.T.) WITH CLECO. INSTALL AND GROUND IN ACCORDANCE WITH CLECO STANDARDS.
- ② 4-350 KCMIL IN EACH OF 2-3" CONDUITS. ROUTE CONDUITS UP CLECO POLE IN ACCORDANCE WITH THEIR STANDARDS AND PROVIDE WEATHER HEAD OR SEAL CONDUIT.
- ③ #2/0 GRD COPPER BONDED, DRIVEN, GROUND ROD. ROUTE #2/0 TO NEUTRAL BUS IN MDP. BOND NEUTRAL TO GROUND WITH #2/0 OR MFG. PROVIDED EQUIVALENT.
- ④ 4-250 KCMIL AND 1#6 GRD IN 2 1/2" C.
- ⑤ 4#4/0 AWG AND 1#6 GRD IN 2 1/2" C.



7-1-20

*J. W. Ellis*

GENERAL NOTES THIS SHEET      SPECIFIC NOTES THIS SHEET:

A. XXXX

① XXXX

| DIRECTORY | CKT. NO. | BKR. AMPS | L1 L2 L3 | BKR. AMPS | CKT. NO. | DIRECTORY |          |
|-----------|----------|-----------|----------|-----------|----------|-----------|----------|
| CU-1      | 1        | 50        |          |           | 2        |           |          |
|           | 3        |           |          |           |          | 4         |          |
| CU-2      | 5        | 50        |          |           |          | 6         |          |
|           | 7        |           |          |           |          | 8         |          |
| CU-3      | 9        | 50        |          |           |          | 10        |          |
|           | 11       |           |          |           |          | 12        |          |
| CU-4      | 13       | 50        |          |           |          | 14        |          |
|           | 15       |           |          |           |          | 16        |          |
| SPACE     | 17       |           |          |           |          | 18        |          |
| SPACE     | 19       |           |          |           |          | 20        |          |
| SPACE     | 21       |           |          |           |          | 22        |          |
| SPACE     | 23       |           |          |           |          | 24        |          |
| SPACE     | 25       |           |          |           |          | 26        |          |
| SPACE     | 27       |           |          |           |          | 28        |          |
| SPACE     | 29       |           |          |           |          | 30        |          |
| SPACE     | 31       |           |          |           | 250      | 32        | PANEL AC |
| SPACE     | 33       |           |          |           |          | 34        |          |
| SPACE     | 35       |           |          |           |          | 36        |          |
| SPACE     | 37       |           |          |           | 200      | 38        | PANEL L1 |
| SPACE     | 39       |           |          |           |          | 40        |          |
| SPACE     | 41       |           |          |           |          | 42        |          |

VOLTAGE: 120/208V 3P.H. 4W. SN      MAIN BUS: 600  
 MAIN BREAKER: MB-600  
 MOUNTING: SURFACE  
 NOTE: NEMA 3R, 42K AIC, PROVIDE 240K TVSS. SEE SPECIFICATIONS

PANEL NO.      MDP  
 LOC.      SEE PLANS

| DIRECTORY | CKT. NO. | BKR. AMPS | L1 L2 L3 | BKR. AMPS | CKT. NO. | DIRECTORY |       |
|-----------|----------|-----------|----------|-----------|----------|-----------|-------|
| SPACE     | 1        |           |          | 60        | 2        | AHU-1     |       |
| SPACE     | 3        |           |          |           |          | 4         |       |
| SPACE     | 5        |           |          |           | 25       | 6         | AHU-1 |
| SPACE     | 7        |           |          |           |          | 8         |       |
| SPACE     | 9        |           |          |           | 60       | 10        | AHU-2 |
|           | 11       |           |          |           |          | 12        |       |
|           | 13       |           |          |           | 25       | 14        | AHU-2 |
|           | 15       |           |          |           |          | 16        |       |
|           | 17       |           |          |           | 60       | 18        | AHU-3 |
|           | 19       |           |          |           |          | 20        |       |
|           | 21       |           |          |           | 25       | 22        | AHU-3 |
|           | 23       |           |          |           |          | 24        |       |
|           | 25       |           |          |           | 60       | 26        | AHU-4 |
|           | 27       |           |          |           |          | 28        |       |
|           | 29       |           |          |           | 25       | 30        | AHU-4 |
|           | 31       |           |          |           |          | 32        |       |
|           | 33       |           |          |           | 30       | 34        | EWB   |
|           | 35       |           |          |           |          | 36        |       |
|           | 37       |           |          |           |          | 38        |       |
|           | 39       |           |          |           |          | 40        |       |
|           | 41       |           |          |           |          | 42        |       |

VOLTAGE: 120/208V 3P.H. 4W. SN      MAIN BUS: 250  
 MAIN BREAKER: MLO  
 MOUNTING: SURFACE  
 NOTE: 42K AIC,

PANEL NO.      AC  
 LOC.      SEE PLANS

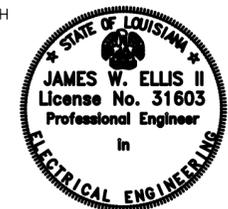
| DIRECTORY         | CKT. NO. | BKR. AMPS | L1 L2 L3 | BKR. AMPS | CKT. NO. | DIRECTORY  |            |
|-------------------|----------|-----------|----------|-----------|----------|------------|------------|
| OUTDOOR LIGHTS    | 1        | 20        |          | 20        | 2        | RECEPTACLE |            |
| LIGHTS            | 3        | 20        |          |           | 20       | 4          | RECEPTACLE |
| LIGHTS            | 5        | 20        |          |           | 20       | 6          | RECEPTACLE |
| LIGHTS            | 7        | 20        |          |           | 20       | 8          | RECEPTACLE |
| BREAK RECEPTACLES | 9        | 20        |          |           | 20       | 10         | RECEPTACLE |
| BREAK RECEPTACLES | 11       | 20        |          |           | 20       | 12         | RECEPTACLE |
| BREAK RECEPTACLES | 13       | 20        |          |           | 20       | 14         | RECEPTACLE |
| WATER COOLER      | 15       | 20        |          |           | 20       | 16         | RECEPTACLE |
| RECEPTACLES       | 17       | 20        |          |           | 20       | 18         | RECEPTACLE |
| RECEPTACLES       | 19       | 20        |          |           | 20       | 20         | RECEPTACLE |
| RECEPTACLES       | 21       | 20        |          |           | 20       | 22         | RECEPTACLE |
| RECEPTACLES       | 23       | 20        |          |           | 20       | 24         | RECEPTACLE |
| RECEPTACLES       | 25       | 20        |          |           | 20       | 26         | RECEPTACLE |
| RECEPTACLES       | 27       | 20        |          |           |          | 28         | SPACE      |
| RECEPTACLES       | 29       | 20        |          |           |          | 30         | SPACE      |
| SPARE             | 31       | 20        |          |           |          | 32         | SPACE      |
| SPARE             | 33       | 20        |          |           |          | 34         | SPACE      |
| SPARE             | 35       | 20        |          |           |          | 36         | SPACE      |
| SPARE             | 37       | 20        |          |           | 60       | 38         | SPACE      |
| SPARE             | 39       | 20        |          |           |          | 40         |            |
| SPARE             | 41       | 20        |          |           |          | 42         |            |

VOLTAGE: 120/208V 3P.H. 4W. SN      MAIN BUS: 200  
 MAIN BREAKER: MLO  
 MOUNTING: SURFACE  
 NOTE: 42K AIC PROVIDE 160K TVSS. SEE SPECIFICATIONS

PANEL NO.      L1  
 LOC.      SEE PLANS

| MARK | DESCRIPTION AND CATALOG NUMBER  | LAMP TYPE |
|------|---|-----------|
| F1   | 2X2 RECESSED LED, 4800 LUMENS<br>LITHONIA 2GTL-248L-120-LP835                             | 120V LED  |
| F2   | 2X2 RECESSED LED, 4000 LUMENS<br>LITHONIA 2GTL-240L-120-LP835                             | 120V LED  |
| F3   | 2X2 RECESSED LED, 3300 LUMENS<br>LITHONIA 2GTL-233L-120-LP835                             | 120V LED  |
| F4   | LED STRIP<br>LITHONIA CSS-L48-4000LM-MVQLT  | 120V LED  |
| F5   | 2X2 RECESSED LED, 2000 LUMENS<br>LITHONIA 2GTL-220L-120-LP835                             | 120V LED  |
| F6   | LED DOWNLIGHT<br>LITHONIA IC22LED G4 06LM 35 120 27CWH                                    | 120V LED  |
| F7   | LED WALL 2 HEADED UNIT WITH PHOTOCELL<br>LITHONIA DLF 2RH 40 120 PE                       | 120V LED  |
| ⊗    | UNIVERSAL, LED EXIT WITH BATTERY BACKUP, FACES AND ARROWS AS REQUIRED<br>LITHONIA LQMSW3R | 120V LED  |

NOTES: 1. ALL E DESIGNATED FIXTURES SHALL HAVE 1200 LUMEN EMERGENCY BATTERY PACKS WITH INTEGRAL TEST SWITCH..



7-1-20

DATE: 7-03-2020  
 DRAWN BY:  
 REVISIONS:

|                                     |  |
|-------------------------------------|--|
| <b>ELLIS</b><br>ENGINEERING, L.L.C. | 525 BREWSTER RD.<br>MADISONVILLE, LA 70447<br>(504) 415-7670 |
|                                     | PROJECT No. 19015  |
|                                     | JAMES W. ELLIS II, P.E., LOUISIANA LICENSE # 31603           |

E402  
 SHEET OF

BURGDahl & GRAVES  
 A.I.A. ARCHITECTS  
 A PROFESSIONAL CORPORATION · PHONE (504) 366-4433

NEW SAFE HAVEN TRAINING  
 AND EDUCATION CENTER  
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