SECTION 00 0101
PROJECT TITLE PAGE
PROJECT MANUAL FOR

OWNER'S PROJECT NUMBER: GOLF003-17

CITY OF FAIRHOPE
REPAIRS TO QUAIL CREEK CLUBHOUSE

BID NO. 003-18

KARIN WILSON, MAYOR
FAIRHOPE CITY COUNCIL
JACK BURRELL, CITY COUNCIL PRESIDENT

DATE: 11-1-2017

PREPARED BY:

NEW SOUTH ARCHITECTS, INC.

SECTION 00 0103

PROJECT DIRECTORY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Identification of project team members and their contact information.

1.02 OWNER:

A. Name: City of Fairhope.
Fairhope City Hall.
161 N. Section Street.
Fairhope.
Alabama.
36532.
(251) 928-2136.

B. Primary Contact: All correspondence from the Contractor to the Architect will be through this party, unless alternate arrangements are mutually agreed upon at preconstruction meeting.
   1. Project Management Consultant:
      a. Company Name: Engineering Design Technologies, Inc..
      9786-B Timber Circle.
      Spanish Fort.
      Alabama.
      36527.
      (251) 680-2241.
   2. Project Manager:
      a. Title: Senior Project Manager
      b. Contact Person: Lawrence Wilson, P.E.,.
      c. Email: lawrence.wilson@edtinc.net.

1.03 CONSULTANTS:

A. Architect: Design Professional of Record. All correspondence from the Contractor regarding construction documents authored by Architect's consultants will be through this party, unless alternate arrangements are mutually agreed upon at preconstruction meeting.
   1. Company Name: New South Architects, Inc..
      5184 Caldwell Mill Rd..
      Suite 204-249.
      Birmingham.
      Alabama.
      35244.
      (205) 620-1414.
   2. Primary Contact: .
      a. Title: Architect of Record.
      b. Contact Person: David R. Mugg, President.
      c. Email: dmugg@newsoutharchitects.com.

B. Structural Engineering Consultant:
   1. Company Name Triple Sawyer, P.E..
      a. 8823 Asphodel Lane.
      b. Daphne.
      c. Alabama.
      d. 36526.
      e. (251) 776-4571.
   2. Primary Contact: .
      a. Title: Structural Engineer of Record.
      b. Name: Triple Sawyer, P.E..

c. Email: triplesawyer@gmail.com.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 00 0107
SEALS PAGE

EDT, INC. - ENGINEER OF RECORD
LAWRENCE A. WILSON, P.E. PROJECT MANAGER

ARCHITECT OF RECORD
DAVID R. MUGG, PRESIDENT
NEW SOUTH ARCHITECTS, INC.

STRUCTURAL ENGINEER OF RECORD
TRIPLE SAWYER, P.E.
TRIPLE SAWYER, P.E. STRUCTURAL ENGINEER

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CITY OF FAIRHOPE, ALABAMA

BID AND CONTRACT DOCUMENTS

BID NO. 003-18

Repairs to Quail Creek Clubhouse

PROJECT No. GOLF003-17

Repairs to Quail Creek Clubhouse

Karin Wilson, MAYOR

FAIRHOPE CITY COUNCIL

JACK BURRELL, COUNCIL PRESIDENT

Posted

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ITEM I
ADVERTISEMENT

Sealed bids will be received by the City of Fairhope of Baldwin County, Alabama, in the City of Fairhope offices, 555 South Section St. Fairhope, Alabama, until 9:00 A.M. Thursday, December 1, 2017, then publicly opened thereafter, for furnishing all labor and materials, and performing all work required by the City of Fairhope and described as follows:

Bid No. **003-18 Repairs to Quail Creek Clubhouse**
Project No. **GOLF003-17 Repairs to Quail Creek Clubhouse**

The work consists primarily of the repairs and renovations of the Quail Creek Clubhouse. The construction time will be competitively evaluated and shall constitute a valuable consideration as part of the bid. The Client intends to maintain operation during all phases of construction.

Plans, Drawings and Specifications are on file and may be viewed in the Purchasing Department of the City of Fairhope, Alabama, located at 555 S. Section Street. Prior to opening, copies of the bid packet, including plans, drawings and specifications will be available for purchase at Engineering Design Technologies, Inc, 9786-B Timber Circle, Daphne, AL, 36527 at a nonrefundable charge of $75 per set. Please make checks payable to Engineering Design Technologies, Inc. Bid packages may be picked up at that location during normal operation time. No plans and specifications will be issued to contractors later than one (1) week prior to the time indicated above for receiving bids. Bid advertisement, addenda and other related documents will be posted on the City of Fairhope website: www.cofairhope.com , Questions or comments pertaining to this bid must be presented in writing and sent as e-mail to the attention of the Project Manager, Lawrence A. Wilson, P.E., e-mail: lawrence.wilson@edtinc.net, no later than seven (7) days prior to the bid opening or will be forever waived.

All Bids must be on blank bid forms provided in the Bid documents. Bids shall be accompanied by a BID SECURITY equal to 5% (percent) of the bid price, but in no event more than $50,000.00. BID SECURITY shall be in the form of a Bid Bond signed by a Bonding company authorized to do business in the State of Alabama, or a Cashier's Check payable to the City of Fairhope. NO BID SECURITY is required on bids less than $10,000.00.

A **Performance Bond** in the form and terms approved by the City of Fairhope in an amount not less than the sum of the bid will be required at the signing of the CONTRACT, and in addition, a **Labor and Materials Bond** in the form and terms approved by the City of Fairhope in an amount not less than fifty percent (50%) of the CONTRACT price insuring payment for all labor and materials.

A mandatory pre-bid meeting will be held at the Fairhope City Hall, 161 N. Section Street, Fairhope, Al, at 9:00 A.M., November 28, 2017.

The City of Fairhope is an Equal Opportunity Employer and requires that all contractors comply with the Equal Employment Opportunity laws and the provisions of the Contract documents in this regard. The CITY also encourages and supports the utilization of Minority Business Enterprises on this and all public bids.

All bids, with their guarantee (when required), must be enclosed in a sealed, opaque envelope, clearly identified on the outside as "**Sealed Bid**" **with Bid Name, Bid Number, City of Fairhope's name and address, and the Bidder's name, address, and General Contractor's License Number (Mandatory by State law).** Each bid must be in a separate envelope. Bids made out in pencil will not be accepted. Failure to observe the instructions contained herein will constitute grounds for rejection of your bid. The CITY reserves the right to accept or reject all bids, or any portions thereof, and to waive informalities, and to furnish any item of material or work to change the amount of the **CONTRACT**, whichever is in the best interest of the City of Fairhope.

The **CONTRACTOR** must furnish to the City of Fairhope at the time of the signing of the **CONTRACT**, a Certificate of Insurance coverage as provided in the contract documents which will include Comprehensive Insurance, Contractor's Automobile, and where applicable, Owner's Protective Liability insurance, Subcontractor's Public Liability and Property Damage Insurance. The company that is awarded the bid must have Workman's Compensation Insurance on all of its employees if work is to be performed on City of Fairhope premises. General Liability Insurance, specifying coverage, must be maintained to hold the City of Fairhope harmless in the event of an accident. See bid packet for details.

No bids will be considered unless the Bidder, whether resident or non-resident of Alabama, is properly qualified to submit a bid for this type of work in accordance with all applicable laws of the State of Alabama. Where applicable, this shall include evidence of holding a current license from the Alabama Licensing Board for General Contractors, Montgomery, Alabama, as required by Chapter 8, Title 34, of the Code of Alabama, 1975. In addition, the awarded vendor, if a non-resident of the State, and if a corporation, Shall show evidence of having qualified with the Secretary of State to do business in the State of Alabama, http://www.sos.alabama.gov/BusinessServices/ForeignCorps.aspx . Awarded Bidder must have a current business license, or purchase a business license with the City of Fairhope prior to work performed. No bids shall be withdrawn for

the period of thirty (30) days subsequent to the opening of bids without the consent of the City of Fairhope, Baldwin County, Alabama. Once completed, a tabulation of the responsive and responsible bids will be available for public viewing by visiting the following web address: www.cofairhope.com.

Daniel P. Ames, Purchasing Manager
City of Fairhope
Posted: 11-22-17

ITEM II
INSTRUCTIONS TO BIDDERS
CITY OF FAIRHOPE

NOTE: THIS DOCUMENT CONTAINS IMPORTANT BIDDING AND CONTRACTING INFORMATION. ALL POTENTIAL BIDDERS SHOULD READ IT THOROUGHLY

2.00 BID INVITATION
Notice is hereby given that the City of Fairhope will receive bids on the project described herein. Qualified Bidders are invited to bid on this contract.

2.01 **Bid No. 003-18 Repairs to Quail Creek Clubhouse**
Project No. GOLF003-17 Repairs to Quail Creek Clubhouse

2.02 Summary:
The CITY contemplates the construction of a public works project as generally described in the Advertisement for Bid and as more particularly described, shown and depicted on the plans, specifications, drawings and in the contract documents.

2.1 DEFINITIONS: Where the following words, or the pronouns used in their stead, occur herein, they shall have the following meaning:

2.1.1 "Awarding Authority" shall mean the City of Fairhope, Alabama.

2.1.2 "Bidder" shall mean any person, firm or corporation, that is responsible, submitting a responsive bid for the Project contemplated by the contract documents, who meets the requirements set forth in the contract documents, maintains a permanent place of business, has adequate forces and equipment to perform the work on the Project properly and within the time limit that is established, has sufficient experience in the type work provided for in the contract documents and has adequate financial status and resources to meets its obligations contingent to the work.

2.1.3 "CITY" or "OWNER" shall mean the City of Fairhope, Alabama, as the awarding authority or its authorized and legal representatives.

2.1.4 "Construction Manager" shall mean that person or entity if employed by the City, to provide Construction Manager services on the work or Project, who shall be the City's representative on the Project.

2.1.5 "CONTRACTOR" shall mean initially the successful or probable low Bidder and then the party of the first part to the construction agreement or the legally authorized representatives of such party, including a trade contractor.

2.1.6 "Engineer" shall mean an Engineer of Record, responsible for design and related services on the Project, and if no Construction Manager is employed, then the Engineer is the representative of the City of Fairhope, Alabama, on the Project.

2.1.7 "Force Account Work" work paid for by reimbursing for the actual cost for labor, materials and equipment usage incurred in the performance of the work, as directed, including a percentage for overhead and profit where appropriate.

2.1.8 "Gender": a word importing one gender shall if appropriate extend to and be applied to the other gender. The masculine shall include the feminine and vice versa, unless the context clearly indicates otherwise.

2.1.9 "Inspector" shall mean a representative of the Engineer of Record, Construction Manager or the CITY,

as the case may be.

2.1.10 "Non-Resident Contractor" shall mean a contractor which is neither (a) organized and existing under the laws of the State of Alabama nor (b) maintains its principal place of business in the State of Alabama. A non-resident contractor which has maintained a permanent branch office within the State of Alabama for at least five (5) continuous years shall not thereafter be deemed to be a non-resident contractor so long as the contractor continues to maintain a branch office within Alabama.

2.1.11 "Project" shall mean the Public Work to which these Contract Documents relate, including the labor, materials and all work to be done by Contractor that is the subject of the bid, plans, specifications and contract documents.

2.1.12 "Public Property": Real property which the awarding authority owns or has contractual right to own or purchase, including easements, rights-of-way, or otherwise.

2.1.13 "Public Work(s)" shall mean a Project consisting of the construction, repair, renovation, or maintenance of public buildings, structures, sewers, water works, roads, bridges, docks, underpasses and viaducts, as well as any other improvement to be constructed, repaired or renovated or maintained on public property to be paid, in whole or in part, with public funds or with financing to be retired with public funds in the form of lease payments or otherwise.

2.1.14 "Responsible Bidder" shall mean a Bidder, who among other qualities determined necessary for performance, is competent, experienced and financially able to perform the contract.

2.1.15 "Responsive Bidder" shall mean a Bidder who submits a bid that complies with the terms and conditions of the invitation for bids, including plans, drawings, specifications and other provisions of the contract documents.

2.1.16 "Retainage" shall mean that money belonging to the Contractor which has been retained by the awarding authority conditioned upon final completion and acceptance of all work in connection with the Project.

2.1.17 "Singular/Plural" the singular shall include the plural and vice versa, unless the context clearly indicates otherwise.

2.1.18 "Trade Contracts" "Trade contracts" or "multiple prime contracts" are multiple but separate contracts with the City on the same Project that represent significant construction activities performed concurrently with and closely coordinated with construction activities performed on the Project under other trade contracts.

2.1.19 “Unbalanced Bid” Unbalanced bids may be considered non-responsive and may be subject to rejection. An unbalanced bid includes but is not limited to one which results in a substantial advance payment to the contractor.

2.2 BID DEADLINE

Bids will be received until 9:00 A.M. local time, Thursday, December 1, 2017 at the City of Fairhope offices located at 555 S. Section Street, Fairhope, Alabama, and publicly opened shortly thereafter. If sending by USPS: P.O. Drawer 429, Fairhope, Al 36533. Any unauthorized conditions, limitations or provisos attached to the bid proposal, except as otherwise provided herein, will render a bid proposal informal and may cause its rejection. Unbalanced bids may be subject to rejection. Bids without the General Contractor's license number and a copy of the license will be rejected. All Bidders are invited to be present at the opening of bids. No bids will be received after the time established for the opening of bids.

2.3 AVAILABILITY OF DOCUMENTS

Plans, Drawings and Specifications are on file and may be viewed in the Purchasing Department of the City of Fairhope, Alabama, located at 555 S. Section Street. Prior to opening, copies of the bid packet, including plans, drawings and specifications will be available for purchase at Engineering Design Technologies, Inc., 9786-B Timber Circle, Daphne, Al 36527, at a nonrefundable charge of $50 per set.

Please make checks payable to Engineering Design Technologies, Inc. Bid packages may be picked up at that location during normal operation time. No plans and specifications will be issued to contractors later than one (1) week prior to the time indicated above for receiving bids.

2.4 INQUIRIES

Questions or comments pertaining to this bid must be presented in writing, and sent as e-mail to the attention of the Project Manager, Lawrence A. Wilson, P.E., at lawrence.wilson@edtinc.net, no less than seven (7) calendar days prior to the bid opening, or will be forever waived. The Bidder submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by written addendum.

2.4.1 All Addenda are part of the Contract documents. Include resultant costs in the Bid. Addenda will be issued by email to all plan holders on record and posted on the CITY'S website www.cofairhope.com. It is the responsibility of the Bidder to verify that all addenda have been received.

2.5 PRE-BID MEETING / SITE EXAMINATION

A mandatory pre-bid meeting to be held at the Fairhope City Hall, 161 N. Section Street, Fairhope, Al, at 9:00 A.M. November 28, 2017.

Before submitting a bid proposal for the Project, each Bidder shall carefully examine the Contract Documents, including but not limited to plans, drawings, specifications, contract, etc.; visit the site, and satisfy itself as to the nature and location of the Project, and the general and local conditions, including weather, the general character of the site or building, the character and extent of existing work within or adjacent to the site, and any other work being performed or proposed thereon at the time of submission of their bids. It shall obtain full knowledge as to transportation, disposal, handling, and storage of materials, availability of water, electric power, and all other facilities in the area which will have a bearing on the performance of the Project for which they submit their bids. The submission of a bid shall be prima facie evidence that the Bidder has made such examination and visit and has judged for and satisfied himself as to conditions to be encountered regarding the character, difficulties, quality, and quantities of work to be performed and the material and equipment to be furnished, and as to the contract requirements and contingencies involved. It shall be the Bidder's obligation to verify for himself and to his complete satisfaction, all information concerning site and surface conditions.

2.6 SUBSURFACE REPORTS

Not Used.

2.6.1 Not Used.

2.6.2 Not Used.

2.6.3 Not Used.

2.7 BID SECURITY

Bids shall be accompanied by a Bid Security equal to 5% (percent) of the bid price, but in no event more than $10,000.00. Bid Security shall be in the form of a Bid Bond executed by a Surety company duly authorized and qualified to make bond in the State of Alabama; or a Cashier's Check payable to the City of Fairhope. No Bid Security is required on bids less than $50,000.00. Should the successful Bidder or Bidders to whom a contract is awarded fail to execute a contract(s) and furnish acceptable contract securities and evidence of insurance, as required, within thirty (30) days after the prescribed forms have been presented to him/her, the CITY may retain from the proposal guaranty, if it is a cashier's check or recovered from the principal or the sureties, if the guaranty is a bid bond, the difference between the amount of the contract as awarded, and the amount of the proposals of the new lowest Bidder. If no other bids are received, the full amount of the proposal guaranty may be so retained and recovered as liquidated damages for such default. Any sum so retained or recovered shall be the property of the awarding authority.

2.8 PERFORMANCE ASSURANCE AND INSURANCE

The Bidder to whom award is made shall provide a Performance Bond equal to 100% (percent) of the Contract amount and a Labor and Materials Bond equal to 50% (percent) of the Contract amount, see ITEMS VI AND VII. The accepted Bidder shall also provide insurance as required in ITEM IV.

2.9 DURATION OF OFFER

Bids may be withdrawn in written or telegraphic request received from the Bidder prior to the time fixed for opening. No bid shall be withdrawn for a period of THIRTY (30) days subsequent to the opening of bid without the consent of the City Council of the City of Fairhope.

2.10 EQUAL OPPORTUNITY

The City of Fairhope is an Equal Opportunity Employer and requires that all contractors comply with the Equal Employment Opportunity Laws and the provisions of the Contract documents in this regard. The CITY also encourages and supports the utilization of Minority Business Enterprises on this and all public bids

2.11 BID PREPARATION AND SUBMISSION

Sealed Bids, signed, executed, and dated will be received by the City of Fairhope as noted in section 2.2 above. Submit one copy of the executed offer, on the Bid Response Form provided, along with the required Bid Security. The bid shall be enclosed in a sealed opaque envelope approximately 9X12 inches or larger, clearly identified on the outside as a SEALED BID with PROJECT NUMBER, PROJECT NAME, OWNER'S NAME AND ADDRESS, BIDDER'S NAME AND ADDRESS, AND BIDDER'S ALABAMA CONTRACTOR'S LICENSE NUMBER.

2.11.1 Forms furnished, or copies thereof, shall be used, and strict compliance with the requirements of the Invitation, these instructions, and the instructions printed on the forms is necessary. Special care should be exercised in the preparation of bids. Bidders must make their own estimates of the facilities and difficulties attending the performance of the proposed contract, including local conditions, uncertainty of weather, and all other contingencies. All designations and prices shall be fully and clearly set forth. The proper space in the bid and guaranty forms shall be suitable filled in.

2.11.2 Fill in all blanks on the Bid Form with non-erasable ink or type. Erasers or other changes must be explained or noted over the signature of the Bidder.

2.11.3 The Bid Form **may have** a Contingency Allowance listed. **If so**, add this amount to the Bid Base to derive the Total Bid. The Contingency Allowance covers unforeseen conditions and shall not be used by the Contractor without the written authorization of the OWNER. At the conclusion of the project, the unused portion of the Contingency Allowance shall revert to the OWNER.

2.11.4 Each bid must give the full business address of the Bidder and must be signed by him with his usual signature. Bids by partnerships must furnish the full names of all names of all partners and must be signed with the partnership name by one of the members of the partnership, or by an authorized representative, followed by the signature and designation of the person signing. Bids by corporations must be signed with the partnership name by one of the members of the partnership, or by an authorized representative, followed by the signature and designation of the person signing. Bids by corporations must be signed with the legal name of the corporation followed by the name of the State of Incorporation and by the signature and designation of the President, Secretary, or other person authorized to bind it in the matter. The name of each person who affixes to this signature the word "President", "Secretary", "Agent", or other designation without disclosing his principal, may be held to be the bid of the individual signing. When requested by the City of Fairhope, satisfactory evidence of the authority of the officer signing in behalf of the corporation shall be furnished.

2.11.5 Each project will be bid separately unless otherwise expressly requested in the contract document. Combination bids, that is, bids on separate projects lumped together as a single bid or on all or none basis, will not be accepted unless the contract document expressly requests or permits same. Alternate bids will not be considered unless requested.

2.12 BID INELIGIBILITY

Bids that contain irregularities of any kind may be declared unacceptable at the discretion of the OWNER. The OWNER may waive any irregularities and may reject any or all bids. Bids received after the deadline will be returned to the Bidder unopened.

2.13 RESPONSIBLE BIDDERS / RESPONSIVE BIDS

The CITY reserves the right to reject any bid that is submitted by a Bidder that is determined by the CITY to not be a responsible Bidder or whose bid is not responsive. In determining whether a Bidder or bid is responsible and/or responsive, the CITY reserves the right to also request and consider the

following factors:

2.13.1 Types or kinds of materials or items best suited to the CITY'S needs for the Project.

2.13.2 A current financial statement of the Bidder and/ or bonding capability or limits.

2.13.3 An accurate list of materials to be used on the Project.

2.13.4 A list of key personnel to be used on the Project and detailed histories of their experience.

2.13.5 A list of similar **repair projects done by the Bidder within the last five (5) years.**

2.13.6 A list of five (5) references familiar with the Bidder's competence, experience, capabilities, skill and integrity.

2.13.7 A statement of Bidder pertaining to bankruptcies, judgments, liens or litigation within the last five (5) years. Such statement shall also apply to each company, officer and the key personnel on the Project.

2.13.8 The **General Contractor's State license number, class and bid limit**.

2.13.9 Bidder's performance and prosecution of past projects for the CITY, or other government entities.

2.13.10 An unbalanced bid.

2.13.11 Other information supplied in the bid response.

2.13.12 The CITY may make such investigations as it deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the CITY all such information and data for this purpose as the CITY may request. The CITY reserves the right to reject any Proposal if the evidence submitted by, or investigation of, such Bidder fails to satisfy the CITY that such Bidder is properly qualified to carry out the obligations of the Contract and complete the work contemplated therein.

2.14 CONTRACT TIME

The CONTRACTOR agrees to perform the work in as expeditious manner as possible, while affording the City continued operation and safety during all phases of construction. The Contractor’s bid shall indicate his/her proposed construction time based upon the above criteria which shall be a key factor to be considered with respect to award of this contract. The City has key events scheduled for the middle of March and due consideration shall be afforded to bids that favor their best interest in maintaining the successful fulfillment of these objectives.

2.15 CONSTRUCTION DOCUMENT IDENTIFICATION

The Construction documents are the Bid and Contract Documents, Specifications, Drawings, Addenda, and all other related documents bearing the Project Title and Number. Bidders shall use complete sets of Construction Documents in preparing their Bids. The CITY will not assume responsibility for errors or misinterpretation resulting from the use of incomplete sets of Construction Documents.

2.16 BID ACCEPTANCE

2.16.1 Generally: The contract will be awarded to the lowest responsible and responsive Bidder, unless the CITY determines that all the bids are unreasonable or that it is not in the best interest of the CITY to accept any of the bids.

2.16.2 Award of the contract will be made on the basis of the lowest actual bid amount and proposed construction time for the contract, which is defined as the total of the bid option accepted and/or extended total amounts for unit price items, pursuant to the provisions hereof.

2.16.3 The CITY reserves the right to reject all bids and/or reject and rebid the Project should it determine the same is in the best interest of the CITY.

2.16.4 Minor irregularities as determined by the CITY or its representatives, will not cause a bid to be non-responsive and may be waived by the CITY.

2.16.5 Bidder must possess all licenses and permits required by applicable law, rule or regulation for the performance of the work prior to bidding.

2.16.6 Where the CITY elects to prequalify contractors prior to bidding, it shall be understood that such prequalification may be general in nature and shall not limit the CITY'S right to revoke such prequalification pursuant to Ala. Code §39-2-4(d) (1975).

2.16.7 Joint ventures shall not generally be considered acceptable bids without special waiver from the CITY, which must be requested in writing at least thirty (30) days prior to bid opening.

2.16.8 No Bids or Only One Bid: In the event no bid proposals or only one bid proposal is received in response to the CITY'S Advertisement for Bids at the time stated for the opening of bids, the CITY may elect at its discretion, any of the following options:

2.16.8.1 Advertise for and seek other competitive bids.

2.16.8.2 Direct that the work shall be done by force account under its direction and control.

2.16.8.3 Negotiate for the work through the receipt of informal bids; provided; however, where only one responsible and responsive bid has been received. Any negotiation for the work shall be for a price lower than that bid.

2.17 BIDDERS INTERESTED IN MORE THAN ONE BID

If more than one bid is offered by any one party, by or in a name of his clerk, partner, corporation in which he has a substantial interest, or in which he is an officer, or other person, all such bids may be rejected. A party who has quoted prices on materials to a bid is not thereby disqualified from quoting prices to other Bidders or from submitting a bid directly for the materials or work. The CITY reserves the right to determine in its discretion whether the provisions of this clause have been violated by any Bidder.

2.18 ERRORS IN BIDS

Bidders or their authorized agents are expected to examine the maps, drawings, specifications, and all other instructions pertaining to the work, which will be open to their inspection. Failure to do so will be at the Bidder's own risk. In case of error, in the extension of prices the unit price will govern.

2.19 EXCEPTIONS / CHANGES TO SPECIFICATIONS

A request for a change in the specifications to accommodate a variation must be called to the attention of the Purchasing Manager at least 72 hours before the bid opening date. All requests for such changes will be considered and the merits weighed. Only those changes in specifications deemed to be in the best interest of the CITY will be made. In the event of a change in specifications, an addendum will be supplied to Bidders. Exceptions may be accepted if they are minor, equal, or superior to that which is specified, and provided that they are listed and fully explained on a separate page entitled, "Exceptions to Specifications". The exceptions shall refer to the specification page and paragraph number The CITY shall determine which (if any) exceptions are acceptable and this determination shall be final.

2.20 CONTRACT AND BOND

The Bidder to whom award is made must, when requested, enter into written contract on the standard form as set out herein, with satisfactory security in the amount required, evidence of insurance, and all other submittals required for contract execution, within the period specified, or, if no period be specified, within 15 days after the required forms are presented for signature.

2.21 COLLUSION

If there is any reason for believing that collusion exists among the Bidders, any or all bids may be rejected, and those participating in such collusion may be barred from submitting bids on the same or other work with the CITY.

2.22 SUBLETTING OR ASSIGNING OF CONTRACT

Limitations: The CONTRACTOR shall not sublet, assign, transfer, convey, sell or otherwise dispose of

any portions of the contract, his right, title, or interest therein, or his power to execute such contact, to any person, firm or corporation without written consent of the CITY, and such written consent shall not be construed to relieve the CONTRACTOR of any responsibility for the fulfillment of the contract. Unless otherwise stipulated in the proposal or special provisions, the contractor shall perform with his own organization, and with the assistance of workmen under his immediate superintendence and reported on his payroll, all contract work of a value not less than 50 percent of the total contract amount, except that any items designated in the contract as “Specialty Items” so performed by sub-contract may be deducted from the total contract amount before computing the amount of work required to be performed by the CONTRACTOR with his own organization.

2.22.1 Sub-contractor’s Status: A Sub-contractor shall be recognized only in the capacity of an employee or agent of the Contractor and the Contractor will be responsible to the CITY for all of the subcontractor’s work, including failures or omissions; and his removal may be required by the Project Manager, as in the case of an employee.

2.23 PROSECUTION OF WORK

The Contractor shall commence work on the date stipulated in the Notice to Proceed (NTP), or as otherwise directed in writing. Contractor is responsible for obtaining permit from the City of Fairhope Building Department prior to commencing any site activity work.

2.23.1 The Contractor shall prosecute the work continuously and diligently in the order and manner set out in his schedule as approved by the Project Manager. He shall provide sufficient satisfactory materials, labor, and equipment to ensure that the work will be completed in a satisfactory manner within the time specified in the contract.

2.23.2 Should the Contractor fail to maintain a satisfactory rate of progress, the Project Manger may require that additional forces and/or equipment be placed on the work to bring the project up to schedule and maintain it at that level.

2.23.3 Should the Contract fail to furnish sufficient satisfactory equipment and/or labor for maintaining the quality and progress of the work at satisfactory level, the Project Manager may withhold all estimates that may become due until satisfactory quality and progress are maintained; or the contract may be annulled.

2.24 MATERIALS AND WORK CREW

All materials, which the engineering plans specify or are required, will be installed as they are shown on the drawings, plans and/or specs.

2.24.1 Brand names, catalog numbers, weights, etc., are used to indicate levels of quality only and are not intended to restrict the bidding. If bidding on an item of another brand or manufacturer than that specified, Bidder's bid should be accompanied by brochures or other pertinent literature giving detailed specifications of the item(s) on which the bid is being made. Bids received without sufficient literature to determine equal quality may not be considered. Final determination as to equal quality will be made by the CITY.

2.24.2 Quantities: The quantities shown in the bid packet shall be considered by the contractor as the quantities required to complete the work for the purpose of bidding. During the course of work, the prices bid for adjustment items may be used by the CITY to increase or decrease the total cost for the work if the quantity of work exceeds or is less than the amount shown on plans.

2.24.3 Construction Crews: The Contractor will be required to furnish at least one separate construction crew during the work as set forth in the contract. Unless waived by the CITY, the Contractor shall perform on the sites and with his own organization and equipment, at least fifty percent of the total amount of the work to be performed under this Contract. The Contractor may only subcontract a maximum of fifty (50%) percent of the work without CITY consent. If, during the progress of the work hereunder, the Contractor requests a reduction of such percentage, and the CITY representative determines that it would be to the CITY's advantage, the percentage of the labor required to be performed by the Contractor's own organization may be reduced; PROVIDED prior written approval of such reduction is obtained by the Contractor from the CITY.

.25 GENERAL CONTRACTOR'S LICENSE

The attention of all Bidders is called to the provisions of the State law governing general contractors

as set forth in Ala. Code §34-8-1 et seq. (1975), particularly in regard to the need for and evidence of a State general contractor's license. The provisions of said statute are adopted herein by reference and form a part of the Contract with the selected Bidder should this Project be awarded. **Bidder MUST include with his bid a State of Alabama contractor's current license number and a copy of the license. State law, Ala. Code §34-8-8(b) (1975) requires all bids to be rejected which do not contain general contractor's license number on the outside of the bid response sealed envelope.**

2.25.1 Bidders are reminded that they will be governed by said statutes insofar as they are applicable. To summarize the above quoted statutes, Ala. Code §34-8-1, et seq. (1975) provides that no one is entitled to bid, and no contract may be awarded to anyone who does not possess a valid general contractor's permit or license, including specialty classifications for the work, as provided by the foregoing sections of the State Code, and rules and regulations promulgated pursuant thereto and that said bid may not be considered without evidence being produced that he is so qualified. Trade contractors must be duly licensed in accordance with applicable law.

2.25.2 CONTRACTOR must be properly licensed to obtain City of Fairhope permits and perform the work as outlined in the Scope of Work. Bidder must have a current business license, or purchase a business license with the City of Fairhope prior to or (upon) bid being awarded. Sub-contractors must also comply with this provision.

2.26 U. S. PRODUCTS PREFERENCE

The successful Bidder (contractor) shall comply with Ala. Code §39-3-1 (1975), shall agree to utilize in the execution of the Project, materials, supplies and products manufactured, mined, processed or otherwise produced in the United States or its territories, if the same are available at reasonable and competitive prices and not contrary to any sole source specifications. It is further stipulated that a breach of the foregoing provision of this agreement by the contractor in failing to utilize domestic products shall result in a downward adjustment in the contract price equal to any realized savings or benefit to the Contractor.

2.27 USE OF DOMESTIC STEEL

The attention of all Bidders and that of the successful Bidder (CONTRACTOR) is drawn to Ala. Code §39-3-4 (1975), requiring the use of steel produced within the United States for municipal construction projects when specifications in the construction contract require the use of steel and do not limit its supply to a sole source. This provision is subject to waiver if the procurement of domestic steel products becomes impractical as a result of national emergency, national strike or other causes. Violations of the use of domestic steel requirements shall result in a downward adjustment in the contract price to equal any savings or benefit to the CONTRACTOR.

2.28 IN STATE BIDDER PREFERENCE

Pursuant to Ala. Code §39-3-5 (1975), in the letting of public contracts in which municipal funds are utilized, except those contracts funded in whole or in part with funds received from a federal agency, preference shall be given to resident contractors, and a nonresident Bidder domiciled in a state having laws granting preference to local contractors shall be awarded Alabama public contracts only on the same basis as the nonresident Bidders' state awards contracts to Alabama contractors bidding under similar circumstances; and resident contractors in Alabama, as defined in Ala. Code §39-2-12 (1975), be they corporate, individuals or partnerships, are to be granted preference over non-residents in awarding of contracts in the same manner and to the same extent as provided by the laws of the state of the domicile of the nonresident. **The CITY may not enter into a contract with a nonresident corporation that is not qualified under the State law to do business in Alabama.** Except for contracts funded in whole or in part by funds received from a federal agency, preference shall be given to resident contractors on the same basis as the non-resident Bidder's state awards contracts to Alabama contractors bidding under similar circumstances.

2.29 APPLICABLE LAWS

Each Bidder shall inform himself of, and the Bidder awarded a contract shall comply with federal, state, and local laws, statutes, and ordinances relative to the execution of the work. This requirement includes, but is not limited to, applicable regulations concerning minimum wage rates, the use of domestic products, U.S. steel and resident labor, non-discrimination in the employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, burning and non-burning requirements, permits, fees and similar subjects. The attention of all Bidders is called to the fact that the work will be subject to compliance

with all applicable CITY building and technical codes, including environmental ordinances. Project will be subject, in addition to all other inspections, to inspection by a representative of the City of Fairhope Building Inspections Department.

2.30 COMPLIANCE WITH IMMIGRATION LAW

By signing this Contract, the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment or continue to employ an unauthorized alien within the State of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom, to the extent allowed by Federal law (SEE ITEM X, ALABAMA IMMIGRATION ACT CONTRACT REQUIREMENTS).

[END INSTRUCTION TO BIDDER]

ITEM III
BID RESPONSE FORM

Date:_____

BID NO.: **003-18**
BID NAME: **Repairs to Quail Creek Clubhouse**

PROJECT NO.: **GOLF003-17**
PROJECT NAME: **Repairs to Quail Creek Clubhouse**

3.0 BIDDER'S DECLARATION AND UNDERSTANDING

3.0.1 The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Proposal are those named herein, that this Proposal is, in all respects, fair and without fraud, that it is made without collusion with any official of the CITY, and that the Proposal is made without any connection or collusion with any person submitting another Proposal on this Contract.

3.0.2 The Bidder further agrees that he has checked and verified the completeness of the Contract Documents and that he has exercised his own judgment regarding the interpretation of subsurface information utilizing all pertinent data in arriving at his conclusions. The Bidder shall be fully responsible for any damages or liability arising out of his or his subcontractors pre-bid investigations.

3.0.3 The Bidder understands and agrees that if a Contract is awarded, the CITY may elect to award all schedules under one Contract, lump sum, separately, or in any combination that best serves the interests of the CITY.

3.0.4 The Bidder further declares that he has carefully examined the Contract documents for the construction of the Project, and has checked and verified the completeness of the Contract Documents; that he has personally inspected the site, that he has satisfied himself as to the quantities involved, including materials and equipment, and conditions of work involved. Bidder further declares that he is fully aware of the fact that the description of the work, quantities of work and materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the Contract Documents. Bidder also declares that this Proposal is made according to the provisions and under the terms of the Contract Documents, which Documents are hereby made a part of this Proposal.

3.1 START OF CONSTRUCTION AND CONTRACT COMPLETION TIME

The Bidder further agrees to **begin work on the date stated in the Notice to Proceed** and to fully complete the work, in all respects, within the time set forth with his/her bid.

3.2 ADDENDA:

The Bidder hereby acknowledges that he has received Addenda No's._____, _____, _____, _____ , _____ , _____ , _____ , _____,

Bidder shall Insert No. of each Addendum received, and agrees that all addenda issued are hereby made part of the Contract Documents, and the Bidder further agrees that his Bid(s) include(s) all impacts resulting from said addenda.

3.3 BID AMOUNTS

3.3.1 TURNKEY LUMP SUM BASE BID:

The OWNER agrees to provide the following materials: NONE

Bid will include **all** labor, materials, equipment, shipping, overhead, profit, bonds, insurance and all other costs necessary to provide the complete services outlined within this contract and scope of work:

The Bidder agrees to accept as full payment of the work proposed under this Project, as services are rendered, as herein specified and as shown on the Contract Documents, upon the undersigned's own estimate of quantities and costs, the following turnkey lump sum base bid of:

_____Dollars ($_____)

(*Amount written in words has precedence*)

3.3.2 PROPOSED CONSTRUCTION TIME: _____ Calendar days following the Notice to Proceed and shall afford continued occupancy during all phases of construction.

Bid will include all labor, materials, equipment, shipping, overhead, profit, bonds, insurance and all other costs necessary to provide the complete services outlined within this contract and scope of work, **with the exception of the OWNER provided materials listed above**.

The Bidder agrees to accept as full payment of the work proposed under this Project, as services are rendered, as herein specified and as shown on the Contract Documents as Bid Option No. 1, upon the undersigned's own estimate of quantities and costs, the following alternate base bid sum

_____Dollars ($_____)

(*Amount written in words has precedence*)

Each bid must give the full business address of the Bidder and must be signed by him with his usual signature. Bids by partnerships must furnish the full names of all partners and must be signed with the partnership name by one of the members of the partnership, or by an authorized representative, followed by the signature and designation of the person signing. Bids by Corporations must be signed with the legal name of the corporation followed by the name of the State of Incorporation and by the signature and designation of the President, secretary, or other person authorized to bind it in the matter. The name of each person shall also be typed or printed below the signature. A bid by a person who affixes to this signature the word "president", "secretary", "agent" or other designation without disclosing his principal, may be held to be the bid of the individual signing. When requested by the City of Fairhope, Baldwin County, Alabama, satisfactory evidence of the authority of the officer signing in behalf of the corporation shall be furnished.

The undersigned agrees to furnish the goods/services as requested by you for the City of Fairhope, Baldwin County, Alabama in your Invitation to Bid, and certifies that they will meet or exceed the Specifications called for. The undersigned has read all information pertaining to this bid and has resolved all questions. It is also understood and agreed that all prices quoted are F.O.B. as described in the bid documents and specifications. The undersigned also affirms he/she has not been in any agreement or collusion among Bidders or prospective Bidders in restraint of freedom of competition, by agreement to bid at a fixed price or to refrain from bidding or otherwise.

WITNESS our hands this _____day of _____, 2017.

IF INDIVIDUAL

_____Doing Business As, _____
(SIGNATURE of Individual Bidder) (Business name)

_____
Business

_____
Business Mailing Address Phone

_____
City, State, Zip code

Alabama General Contractor License No. _____(Attach Copy)

Alabama General Contractor License Major Categories:

_____ _____

Alabama General Contractor Specialties

_____

Alabama Foreign Corporation Entity ID _____
(Required of Out of State vendors)

NOTARY FOR INDIVIDUAL

STATE OF _____}

COUNTY OF _____}

I the undersigned authority in and for the said State and County, hereby certify that

_____ As _____ of_____

PRINT name of Bid signer Title PRIN**T** Company name

whose name is signed to the foregoing document and who is known to me, acknowledged before me on this day, that, being informed of the contents of the document they executed the same voluntarily on the day the same bears date.

Given under my hand and Notary Seal on this _____day of _____, 2017.

Notary Public_____

My Commission Expires _____/____/____

IF CORPORATION, PARTNERSHIP, OR JOINT VENTURE

_____
Name of Corporation, Partnership or Joint Venture

BY:_____ _____
(**SIGNATURE** of Officer authorized for sign Bids and Contracts for the firm) (Position or Title)

_____
(**PRINT** NAME(S) OF OTHERS IF IN PARTNERSHIP

_____

Business Mailing Address Phone

_____

City, State, Zip Code

Alabama General Contractor License No. _____(Attach Copy)

Alabama General Contractor License Major Categories:

_____ _____

Alabama General Contractor Specialties

_____

Alabama Foreign Corporation Entity ID _____
(Required of Out of State vendors)

NOTARY FOR CORPORATION, PARTNERSHIP OR JOINT VENTURE

STATE OF _____}

COUNTY OF _____}

I the undersigned authority in and for the said State and County, hereby certify that

_____ and _____, as _____and
Print name of Bid signer **Print** name of Bid signer Title

_____, respectively, of _____
Title **Print** Company
whose name(s) is signed to the foregoing document and who is known to me, acknowledged before me on this day, that, being informed of the contents of the document they executed the same voluntarily on the day the same bears date.

Given under my hand and Notary Seal on this _____day of ____, 2017.

Notary Public_____

My Commission Expires _____/___/_____

3.4 EXPERIENCE OF BIDDER:

Unless advised by the awarding authority in the Advertisement for Bids that the same is not required, the Bidder submits the following list of at least three clients for whom projects involving construction of similar projects have been performed within the past 5 years.

1.

Name of Client _____ Telephone Number _____

Street _____ City _____

Facility _____ Size _____ Date _____

Name of Engineer of Record _____ Telephone Number _____

Name of Engineering Firm _____

2.

Name of Client _____ Telephone Number _____

Street _____ City _____

Facility _____ Size _____ Date _____

Name of Engineer of Record _____ Telephone Number _____

Name of Engineering Firm _____

3.

Name of Client _____ Telephone Number _____

Street _____ City _____

Facility _____ Size _____ Date _____

Name of Engineer of Record _____ Telephone Number _____

Name of Engineering Firm _____

3.5 PERFORMANCE OF WORK BY CONTRACTOR:

The Bidder shall perform at least 50 percent of the work with his own forces (refer to the INSTRUCTIONS TO BIDDERS).

3.6 SUBCONTRACTORS:

Unless the same information has been provided in the prequalification statement, the Bidder further certifies that if his bid is accepted, the following subcontracting firms or businesses will be awarded subcontracts for the following portions of the work:

Description of Work _____

_____

Name

_____, _____, _____

Street City State Zip

Description of Work _____

_____

Name

_____, _____, _____

Street City State Zip

Description of Work _____

_____

Name

_____, _____, _____

Street City State Zip

Description of Work _____

_____

Name

_____, _____, _____

Street City State Zip

Description of Work _____

_____

Name

_____, _____, _____

Street City State Zip

3.7 SURETY:

If the Bidder is awarded a construction contract on this Proposal, the Surety who provides the Performance Bond and Payment Bond will be:

_____whose address is

_____, _____, _____
Street City State Zip

Single Job Bond Limit _____ Aggregate Job Bond Limit _____

Attached hereto is a (Bid Bond) or (Check) for the sum of_____ ($0.00)
_____
according to the conditions under "Instructions to Bidders" and provisions therein.

Dated this ____day of _____ 2017

.

[END OF BID RESPONSE]

ITEM IV
INSURANCE REQUIREMENTS

4.0 INSURANCE REQUIREMENTS

Awarded Contractor, at its sole expense, shall obtain and maintain in full force the following insurance to protect the Contractor and the City of Fairhope at limits and coverages specified herein. The City of Fairhope will be listed as an additional insured under the Contractor's General Liability insurance and automobile liability insurance policies, and all other applicable policies and certificates of insurance. These limits and coverages specified are the minimum to be maintained and are not intended to represent the correct insurance needed to fully and adequately protect the awarded Bidder.

4.01 All insurance will be provided by insurers by admitted carriers in the State of Alabama, shall have a minimum A.M. Best rating of A-VII and must be acceptable to the CITY. Self-insured plans and/or group funds not having an A.M. Best rating must be submitted to the CITY for prior approval.

4.02 NO WORK IS TO BE PERFORMED UNTIL PROOF OF COMPLIANCE WITH THE INSURANCE REQUIREMENTS HAS BEEN RECEIVED BY THE CITY.

4.03 Worker's Compensation and Employer's Liability

Part One:	Statutory Benefits as required by the State of Alabama		
Part Two:	Employer's Liability	$1,000,000	each accident
		$1,000,000	each employee
		$1,000,000	Policy Limit

4.04 U.S. Longshoreman & Harbor Workers Act (USL&H)
Required if contract involves work near a navigable waterway that may be subject to the USL&H law.

4.05 Maritime Endorsement (Jones Act)
Endorsement required if contract involves the use of a Vessel. Or include coverage for "Master or Member or Crew" under "Protection and Indemnity" coverage (P&I) unless crew is covered under Workers Compensation.

Bodily injury by accident	$1,000,000	each accident
Bodily injury by disease	$1,000,000	aggregate

4.06 Commercial General Liability
Coverage on an Occurrence from with a combined single limit of (Bodily Injury and Property Damage combined as follows:

Each occurrence	$1,000,000
Personal and Advertising Injury	$1,000,000
Products/Completed Operation Aggregate	$2,000,000
General Aggregate	$2,000,000

Coverage to include:
- Premises and operations
- Personal injury and Advertising Injury
- Products/completed operations
- Independent Contractors
- Blanket Contractual Liability
  - Explosion, Collapse and Underground hazards
- Broad Form Property Damage
- Railroad Protective Liability Insurance if work involves construction, demolition, or maintenance operations on or within 50 feet of a railroad.

4.07 Automobile Liability
Covering all owned, non-owned and hired vehicles with a limit of no less than $1,000,000 combined single limit of Bodily injury and property damage per occurrence.

4.08 Certificates of Insurance

A Certificate of Insurance evidencing the above minimum requirements must be provided to and accepted by the CITY PRIOR to commencement of any work on the contract. Each policy shall be endorsed to provide ten (10) days written notice of cancellation to the CITY.

4.08.1 The Contractor shall require certificates of insurance from sub-Contractors. Sub-Contractors will carry limits of insurance equal to or greater than those carried by the Contractor. These certificates shall evidence waivers of subrogation in favor of the Contractor and the CITY, and shall be made available to the CITY upon request.

ITEM V
BID BOND

The PRINCIPAL (Bidder's name and address)

The OWNER
City of Fairhope
P.O. Drawer 429
Fairhope, Al 36533

The PROJECT for which the Principal's Bid is submitted: (Project name as it appears in the Bid Documents)

Bid No. 003-18	Repairs to Quail Creek Clubhouse
Project No. GOLF003-17	Repairs to Quail Creek Clubhouse

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned Principal and Surety, jointly and severally, hereby bind ourselves, our heirs, executors, administrators, successors, and assigns to the OWNER in the PENAL SUM of five percent (5%) of the amount of the Principal's bid, but in no event more than FIFTY THOUSAND DOLLARS ($50,000.00).

THE CONDITION OF THIS OBIGATION is that the Principal has submitted to the OWNER the attached bid, which is incorporated herein by reference, for the Project identified above.

NOW, THEREFORE, if, within the terms of the Bid Document, the OWNER accepts the Principal's bid and the Principal thereafter either:

executes and delivers a Construction Contract with the required Performance and Payment Bonds (each in the for contained in the Bid Documents and properly completed in accordance with the bid) and delivers evidence of insurance as prescribed in the Bid Documents, or
fails to execute and deliver such Construction Contract with such Bonds and evidence of insurance, but pays the OWNER the difference, not to exceed the Penal Sum of this Bond, between the amount of the Principal's Bid and the larger amount for which the OWNER may award a Construction Contract for the same Work to another Bidder,
then, this obligation shall be null and void, otherwise it shall remain in full force and effect.

The Surety, for value received, hereby stipulates and agrees that the obligation of the Surety under this Bond shall not in any manner be impaired or affected by any extension of the time within which the OWNER may accept the Principal's bid, and the Surety does hereby waive notice of any such extension.

SIGNED AND SEALED this____ day of _____, 2017.

_____
(Principal (Company)

ATTEST
_____ By_____

_____
Print Name and Title

SURETY
ATTEST

_____
Surety Company

_____ By_____

_____
Print Name and Title

ITEM VI
PERFORMANCE BOND

KNOW ALL MEN: That we _____
(Insert here the name & address of legal title of the Contractor)

hereinafter called the Principal, and _____
(Insert here the name and address of legal title of one or more sureties)_

and _____

hereinafter called the Surety or Sureties, are held and firmly bound unto the City of Fairhope hereinafter called the OWNER in the sum of_____ Dollars ($_____) for the payment whereof the Principal and the Surety or Sureties bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly, by these presents.

WHEREAS, the Principal has, by means of a written agreement, dated ___/__/___ entered into a contract with the OWNER for: **Bid No. 003-18 Repairs to Quail Creek Clubhouse, GOLF003-17**, **Repairs to Quail Creek Clubhouse** which agreement is by reference made a part hereof,

NOW THEREFORE, The conditions of this obligation is such that if the Principal shall faithfully perform the Contract on his part, and satisfy all claims and demands, incurred for the same, and shall fully indemnify and save harmless the OWNER from all cost and damage which he may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good for any such default thence this obligation shall be null and void; otherwise, it shall remain in full force and effect.

PROVIDED, HOWEVER, that no suit, action or proceedings, by reason of any default whatever be brought on his Bond after twelve months from the day on which the final payment under the Contract falls due.

PROVIDED, further, that the said surety or sureties, for value received hereby stipulate and agree that no change, extension of time, or addition to the terms of the Contract or to the work to be performed thereunder of the Specifications thereof shall in any way effect their obligations on this bond, and they do hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract, or to the work, or to the Specifications.

Witness our hands and seals this _____ day of _____, 2017.

INDIVIDUAL

_____, Doing Business As, _____
(Signature of Individual Bidder) (Business Name)

Business Mailing Address: _____

_____

email_____

phone_____

CORPORATION

_____

Name of Corporation, Partnership, or Joint Venture

Business Mailing Address: _____

_____

email_____

phone_____

BY: _____ _____

(Signature of Officer Authorized to sign Bids and Contracts for the Firm) (Position or Title)

_____ _____

(General Contractor's License Number) Foreign Corporation Entity Id (Required of out-of-state-vendors)

Attest:

_____ _____

(Secretary) (Name of State under the laws of which incorporated)

_____ BY:_____

(Name of Surety) (Attorney in Fact)

ITEM VII
LABOR AND MATERIALS BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____
As Principal, and _____ as Surety, are held and firmly bound unto said City of Fairhope hereinafter called the Obligee, in the penal sum of _____ Dollars ($ _____) lawful money of the United States, for the payment of which sum and truly to be made, we bind ourselves, our heirs, personal representatives, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, said principal has entered into a certain Contract with said Obligee, dated __/___/ 2017. (Hereinafter called the Contract) for **Bid No. 003-18, Repairs to Quail Creek Clubhouse,** which Contract and the Specifications for said work shall be deemed a part hereof as fully as if set out herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT if the said Principal and all subcontractors to whom any portion of the work in said contract is sublet and all assignees of said Principal and of such subcontractors shall promptly make payments to all persons supplying him or them with labor, materials, or supplies for or in the prosecution of the work provided for in such Contract, or any amendment or extension of or addition to said Contract, and for the payment of reasonable attorney's fees incurred by the successful claimant or plaintiffs in suits or claims against the contractor arising out of or in connection with the said contract, then the above obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is subject to the following conditions and limitations.

(a) Any person, firm or corporation that has furnished labor, materials, or supplies for or in the prosecution of the work provided for in said Contract shall have a direct right to action against the Principal and Surety on this bond, which right of action shall be asserted in a proceeding, instituted in the County in which the work provided for in said Contract is to be performed or in any County in which said Principal or Surety does business. Such right of action shall be asserted in a proceeding instituted in the name of the claimant or claimants for his or their use and benefit against the Principal and Surety or either of them (but not later than one year after the final settlement of said Contract falls due) in which action such claim or claims shall be adjusted and judgment rendered thereon.

(b) The Principal and Surety hereby designate and appoint the Mayor of the City of Fairhope or his successor or representative as the agent of each of them to receive and accept services of process or other pleading issued, or filed in any proceeding instituted on this bond and hereby consent that such service shall be the same as personal service on the Principal and/or Surety.

(c) The Surety shall not be liable hereunder for any damages or compensation recoverable under Workmen's Compensation or Employer’s Liability Statute.

(d) In no event shall the Surety be liable for a greater sum than the penalty of this bond, or subject to any suit, action or preceding thereon that is instituted later than one year after the final settlement of said contract.

(e) This Bond is given pursuant to the terms of an Act of the Legislature of the State of Alabama approved

February 8, 1935, entitled: "An Act to further provide for Bonds and Contractors on State and other public works and suits thereon".

Witness our hands and seals this _____ day of _____, 2017.

_____, Doing Business As, _____
(Signature of Bidder) **(Business Name)**

_____
Business Mailing Address:

Attest:

_____ _____
(Secretary) **(Name of State under the laws of which incorporated)**

_____ BY:_____
(Name of Surety) **(Attorney in Fact)**

[END DOCUMENT]

ITEM VIII
Standard Terms and Conditions
City of Fairhope, AL

1. ACCEPTANCE OF AGREEMENT

This Agreement contains all terms and conditions agreed upon by the Owner and Winning bidder. No other agreement, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind either party hereto. The Winning Bidder shall not employ Subcontractors without the express written permission of the Owner. No waiver, alteration, consent or modification of any of the provisions of the Agreement shall be binding unless in writing and signed by the Owner and Contractor. This Agreement shall not be construed against the party or parties preparing it. It shall be construed as if all the parties and each of them jointly prepared this Agreement, and any uncertainty or ambiguity shall not be interpreted against one or more parties.

2. ACCEPTANCE OF WORK

The City of Fairhope will be deemed to have accepted the Work after the City of Fairhope agrees the Work is completed by signature on delivery or service tickets. In the event Work furnished under the Contract / Agreement / Purchase Order is found to be defective or does not conform to the intent of the Contract / Agreement / Purchase Order, the awarded vendor shall, after receipt of notice from the City of Fairhope, correct the deficiencies. Failure on the part of the awarded vendor to properly correct the deficiencies within the time period allowed will constitute the City of Fairhope's right to cancel the Contract / Agreement / Purchase Order immediately, upon written notice to the awarded vendor.

3. ADDENDA

All Addenda are part of the Contract Documents. Include resultant costs in the Bid. Addenda will be issued by email to all Bidders on record, and posted to the City of Fairhope website www.cofairhope.com. It is the responsibility of the bidder to verify that all addenda have been received, and to include all signed addenda in the bid submission

4. ADDITIONAL ORDERS

Unless it is specifically stated to the contrary in the bid response, the City of Fairhope reserves the option to place additional orders against a contract awarded as a result of this solicitation at the same terms and conditions; to extend the renewal date until a new bid is in place, if it is mutually agreeable.

5. APPLICABLE LAW

This Agreement is deemed to be under and shall be governed by and construed according to the laws of the State of Alabama. Any litigation arising out of the Agreement shall be heard in the Courts of Baldwin County, Alabama.

6. ASSIGNMENT

The awarded vendor shall not assign the Contract / Agreement /Purchase Order or sublet it as a whole without the express written permission of the City of Fairhope. The awarded vendor shall not assign any payment due them hereunder, without the express written permission of City of Fairhope. The City of Fairhope may assign the Contract / Agreement / Purchase Order, or sublet it as a whole, without the consent of the awarded vendor.

7. ASSURANCE OF NON-CONVICTION OF BRIBERY

The bidder hereby declares and affirms that, to its best knowledge, none of its officers, directors, or partners and none of its employees directly involved in obtaining contracts has been convicted of bribery, attempted bribery or conspiracy to bribe under the laws of any state or Federal government.

8. AWARD CONSIDERATION

The following factors will be considered in determining the lowest **responsible** bidder: Overall quality, Conformity with specifications both general and specific, Purposes for which materials or services are required, Delivery dates and time required for delivery, Unit acquisition cost, financial ability to meet the contract, previous performance, facilities and equipment, availability of repair parts, experience, delivery promise, terms of payments, compatibility as required, other costs, and other objective and accountable factors which are reasonable.

9. AWARD OR REJECTION OF BIDS

The Bid will be awarded to the lowest responsible bidder complying with conditions of the invitation for bids, provided his bid is reasonable and it is in the interest of the City of Fairhope to accept it. The bidder to whom the award is made will be notified at the earliest possible date. The City of Fairhope, however, reserves the right to reject any and all bids and to waiver any informality in bids received whenever such rejection or waiver is in the interest to the City of Fairhope.

10. BACK ORDERS

If it is necessary to back order any items, the vendor must notify the Purchasing Department and advice as to the expected shipping or delivery date. If this date is not acceptable, the City of Fairhope may seek remedies for default.

11. BID AND PERFORMANCE SECURITY

If bid security is required, a bid bond or cashier's check in the amount indicated on the bid cover must accompany the bid and be made payable to The City of Fairhope of Baldwin County, Al. Corporate or certified checks are not acceptable. Bonds must be in a form satisfactory to the City and underwritten by a company licensed to issue bonds in the State of Alabama. If bid security fails to accompany the bid, it shall be deemed unresponsive, unless the Purchasing Manager deems the failure to be non-substantial. All checks will be returned to the bidders after the contract has been approved. If a performance bond is required, the successful bidder will be notified after the awarding of the contract.

12. BRAND NAMES

Reference to brand names and numbers is descriptive, but not restrictive, unless otherwise specified. Bids on equivalent items meeting the standards of quality thereby indicated will be considered, providing the bid clearly describes the article offered and indicates how it differs from the referenced brands. Descriptive literature or manufacturers specifications plus any supplemental information necessary for comparison purposes should be submitted with the bid or the bid on that item may be rejected. Reference to literature submitted with a previous bid or on file with the Division of Purchasing will not satisfy this requirement. The burden is on the bidder to demonstrate that the item bid is equivalent to the item specified in the ITB. Bids without sufficient documentation to fully support equality, may be considered non-responsive. Reference by the City of Fairhope in the ITB to available existing specifications shall be sufficient to make the terms of such specifications binding on the bidder. Unless the bidder specifies otherwise in its bid, it is understood the bidder is offering a referenced brand item as specified in the ITB or is bidding as specified when no brand is referenced. Failure to examine drawings, specifications and instructions will be at the bidder's risk.

13. BUSINESS LICENSE

The vendor selected to enter into a Contract / Agreement with the City of Fairhope must be licensed to do business in the City of Fairhope prior to commencement of any work under the contract. Delivery of goods or services to the City of Fairhope by Purchase Order have detailed and varied Business License requirements. In all instances that require a business license. Awarded vendor will provide proof of possessing a current City of Fairhope Business License. Prospective bidders will not be required to possess a City of Fairhope Business License prior to award.

14. CANCELLATION OF / CONTRACT / AGREEMENT / PURCHASE ORDER / LEASE

A purchase order can be canceled in whole or in part when awarded vendor fails to deliver or perform as specified. Cancellation of a purchase order can only be made by a written purchase order change (POC) from the City of Fairhope. A term contract, lease or agreement can be canceled by the City of Fairhope, for justifiable cause, or convenience, by written notice.

15. CERTIFICATION PURSUANT TO ACT NO. 2006-557

Alabama law (section 41-4-116, code of Alabama 1975) provides that every bid submitted and contract executed shall contain a certification that the vendor, contractor, and all of its affiliates that make sales for delivery into Alabama or leases for use in Alabama are registered, collecting, and remitting Alabama state and local sales, use, and/or lease tax on all taxable sales and leases into Alabama. By submitting this bid, the bidder is hereby certifying that they are in full compliance with act no. 2006-557, they are not barred from bidding or entering into a contract pursuant to 41-4-116, and acknowledges that the awarding authority may declare the contract void if the certification is false. All corporations must register to do business in Alabama with the Office of the Secretary of State. Their address is:

Office of the Secretary of State
P.O. Box 5616
Montgomery, AL 36103
(334) 242-5324
Fax: (334) 240-3138
http://www.sos.state.al.us/index.aspx

The Foreign Corporation form is online at http://www.sos.state.al.us/downloads/dl1.cfm.

16. COST OF REMEDYING DEFECTS

All defects, indirect and consequential costs of correcting, removing or replacing any or all of the defective materials or equipment will be charged against the awarded vendor.

17. DELIVERY OF BID

Bids must be received in the Purchasing Office by the date and time specified on the bid cover. All bids will be accepted until the time and date stated on the bid cover. No bids will be accepted that extend past the time and date on the bid cover. The time of receipt shall be determined by the time clock stamp in the Purchasing Department. Bids submitted by U.S. Mail must be received by the City of Fairhope of Baldwin County, Alabama, in the City of Fairhope offices, 555 South Section St., Fairhope, Al., unless otherwise specified.

18. DELIVERY

The number of calendar days required for delivery after receipt of a purchase order shall be stated in the RFQ / ITB / RFP and /or Purchase Orders. When no time is stated in the document, the time shall be fourteen (14) calendar days after receipt of

order. If a shipment is not made within the time period specified, the Purchase Order may be canceled.

19. ENVIRONMENTAL REQUIREMENTS

All products will be clearly labeled for their intended use. Each delivery of product or materials will include a Material Safety Data Sheet (MSDS) for all materials that require an MSDS. All manufacturers/distributors of hazardous substances, including any of the items listed on this bid/quote/ contract and subsequent award must include completed material safety data sheet (MSDS) for each hazardous material. Additionally, each container of hazardous materials must be appropriately labeled with:

a) The identity of the hazardous material,

b) Appropriate hazard warnings, and manufacturer, importer, or other responsible party.

20. EQUIPMENT DEMONSTRATION

The City of Fairhope may require equipment/ product materials or service techniques to be demonstrated at a time, date and location to be specified by the City of Fairhope.

21. EQUIPMENT ELECTRICAL CERTIFICATION

All electrical equipment purchased shall conform to, and be identified in, the applicable standard(s), or otherwise be certified as applicable, as of the bid opening date and time, by Underwriters Laboratories, Inc. or other recognized laboratory facility. Bidder must provide satisfactory documentation with returned bid that all such equipment meets the applicable product standard or has otherwise been certified as outlined above. Unless indicated in the bid document, the above certification shall apply to the equipment itself, not the individual components of that equipment.

22. ERRORS IN BID

Bidders are assumed to be informed regarding conditions, requirements and specifications prior to submitting bids. Failure to do so will be at the bidder's risk. Bids already submitted may be withdrawn without penalty prior to bid opening. Errors discovered after the bid opening may not be corrected.

23. FORCE MAJEURE

Neither the City nor the awarded vendor shall be deemed in breach of any contract / Purchase Order or Agreement which may result from this proposal submission if it is prevented from performing any of the obligations hereunder by reason of Acts of God, acts of the public enemy, acts of superior governmental authority, strikes or labor disputes, floods, riots, rebellion, sabotage, or any similar other unforeseeable causes beyond its control and not due to its fault or negligence. Each party shall notify the other immediately in writing of the cause of such after the beginning period thereof. The awarded vendor may request cancellation and the City of Fairhope may grant the request if performance is prevented by any of the above referenced causes, or other unavoidable circumstances not attributable to the fault or negligence of the vendor. The burden of proof for such relief rests with the vendor. All correspondence pertaining to cancellation of a purchase order or term contract must be addressed to the City of Fairhope Purchasing Manager.

24. HAZARDOUS AND TOXIC SUBSTANCES

Bidder must comply with all applicable Federal, State, County and City laws, ordinances and regulations relating to hazardous and toxic substances, including such laws, ordinances and regulations pertaining to information hazardous and toxic substances, and as amended from time to time. Bidder shall provide the City of Fairhope with a "Material Safety Data Sheet" for all goods that carry one.

25. INDEMNITY

Indemnity: The awarded vendor hereby agrees to indemnify and save harmless the City of Fairhope, its officers, agent, and employees, from and against any and all liabilities, claims, demands, damages, fines, fees, expenses, penalties, suits, proceedings, actions and cost of actions, including reasonable attorneys fees for trial and on appeal, of any kind and nature, arising or growing out of, or in any way connected with the performance of this Contract / Agreement / Purchase Order, to the extent caused by a negligent act or omission of the awarded vendor, their agents, servants, employees, Subcontractors, or others associated with the awarded vendor. The awarded vendor shall be responsible for damage to any equipment excluded from this agreement, or damage or injury caused by any equipment excluded from this agreement, only to the extent that the damage or injury is caused by a negligent act or omission of the awarded vendor, or caused by failure of the awarded vendor's supplied product to perform as specified.

26. INSPECTION

All materials, workmanship, equipment, and supplies are subject to inspection and test at any source or time. Final inspection, acceptance or rejection will be made at delivery destination. Goods that do not meet specifications will be rejected unless substitutions have been approved by the City of Fairhope. Failure to inspect or to reject upon receipt, however, does not relieve the awarded vendor of liability. When subsequent tests, after receipt, are conducted and when such tests reveal a failure to meet specifications, the City of Fairhope will reject the goods and the awarded vendor shall immediately supply goods meeting specifications or the City of Fairhope may seek damages including but not limited to the testing expense, regardless of whether a part of or all of the goods have been consumed through the testing process. Rejected goods shall be removed by the awarded vendor promptly after rejection, at his expense. If not removed in fourteen (14) calendar days, they may be disposed of at the discretion of the City of Fairhope. Disposal costs will be the awarded vendor's responsibility.

27. INSPECTION OF PREMISES

At reasonable times, the City may inspect those areas of the awarded vendor's place of business that are related to the performance of a Contract / Agreement / Purchase Order. If the City makes such an inspection, the awarded vendor must provide reasonable assistance. The City of Fairhope reserves the right on demand and without notice all the vendor's files associated with a subsequent Contract / Agreement / Purchase Order where payments are based on the awarded vendor's record of time, salaries, materials, or actual expenses. This same clause will apply to any subcontractors assigned to the

Contract / Agreement / Purchase Order.

28. INSURANCE
If a Contract / Agreement / Purchase Order results from this RFQ /ITB /RFP, or other form of solicitation, the awarded vendor shall maintain such insurance as will indemnify and hold harmless the City of Fairhope from Workmen's Compensation and Public Liability claims from property damage and personal injury, including death, which may arise from the awarded vendor's operations under this Contract / Agreement / Purchase Order, or by anyone directly or indirectly employed by him/her.

29. INVITATION TO BID
Any provisions made in the RFQ / ITB / RFP, or other form of solicitation, supersedes any provisions outlined here in the General Terms and Conditions.

30. INVOICING, DELIVERY, PACKAGING
Invoices shall be prepared only after ordered materials have been delivered. All invoices must show the purchase order number. Unless otherwise specified in writing, vendors shall not ship any material without an authorized Purchase Order from the City of Fairhope Purchasing Department. All packages delivered must show the purchase order number. The awarded vendor will be required to furnish all materials, equipment and/or service called for at the bid price quoted. In the event the awarded vendor fails to deliver within a reasonable period of time, as determined by the City of Fairhope, the right is reserved to cancel the award and subsequent purchase order and purchase from the next lowest responsible bidder the items needed. The original awarded vendor will be back charged the difference between the original contract price and the price the City of Fairhope has to pay as a result of the failure to perform by the original awarded vendor. All bids will remain firm for acceptance for 60 days from the date of bid opening. Prices shall be net F.O.B., Prepaid and Allow, City of Fairhope chosen site, Baldwin County, Al. The title and risk of loss of the goods will not pass to the City of Fairhope until receipt and acceptance takes place at the F.O.B. point.

31. LABELING
Individual shipping cartons shall be labeled with the name "City of Fairhope", Purchase Order Number, and where applicable, Contract Number, date of manufacture, batch number, storage requirements, conditions, and recommended shelf life. Bidders are encouraged to offer product packaging with recycled content.

32. LOSS OR DAMAGE IN TRANSIT
Delivery by a vendor to a common carrier does not constitute delivery to the City of Fairhope. Any claim for loss or damage incurred during delivery shall be between the vendor and the carrier. The City of Fairhope accepts title only after satisfactory receipt at the delivery point. The City of Fairhope shall note all visible damages on the freight bill and may refuse the damaged goods. The vendor shall make immediate replacement of the damaged merchandise or be subject to damages for breach of contract. If damage is to a small portion of a total shipment and the City of Fairhope will not be inconvenienced because of the shortage, the vendor may be permitted by the Purchasing Manager to deduct the amount of damage or loss from its invoice, in lieu of replacement. Risk of loss during delivery is borne by the vendor until the goods have been accepted by the City of Fairhope, unless otherwise specified in the RFQ / ITB / RFP or other form of solicitation.

33. MANDATORY SITE VISIT
If the RFQ / ITB /RFP or other form of solicitation requires a mandatory site visit, bidders must inspect the site where installation or service is to take place to obtain a full understanding of scope of work outlined therein. Date of site visit will be determined by the City of Fairhope.

34 MONITORING OF SERVICES
Performance of services will be monitored by the requisitioning department and/or the Purchasing Department, and evaluation reports may be filed with the Purchasing Department. Performance not meeting specifications will result in cancellation of Contract / Agreement / Purchase Order and may result in vendor being removed from the vendor list.

35. NONCONFORMING MERCHANDISE
When merchandise received from the lowest responsible bidder is not in accordance with the purchase order, it will be returned to the bidder, at bidder's expense.

36. NON-DESCRIMINATION
The City of Fairhope is an Equal Opportunity Employer and requires that all contractors comply with the Equal Employment Opportunity laws and the provisions of the Contract / Agreement / Purchase Order documents in this regard. The City also encourages and supports the utilization of Minority Business Enterprises on this and all public bids.

37. NON EXCLUSIVE
Unless otherwise specified, this Contract / Agreement / Purchase Order is considered a non-exclusive Contract /Agreement / Purchase Order between the parties.

38. NOTIFICATION AND ACCIDENT REPORTS
In the event of accidents of any kind, in the performance of a Contract / Agreement / Purchase Order, the awarded vendor shall notify the City of Fairhope immediately and furnish, without delay, copies of all such accident reports to the City of Fairhope. If in the performance of their Work, the awarded vendor fails to immediately report an accident to the City of Fairhope, of which the awarded vendor has knowledge of and which results in a fine levied against the City of Fairhope then the awarded vendor shall be responsible for all fines levied against the City of Fairhope.

39. PACKAGING
All goods must be packaged in new packing containers. Packing that meets the requirements of common carriers is acceptable, unless otherwise required. A packing slip or invoice must accompany all shipments and must reference the purchase order number. Unless otherwise specified, goods are to be packaged in cartons meeting federal specifications and shipped on non-returnable pallets.

. **40. PATENTS**

Awarded Vendor guarantees that the sale and / or use of goods will not infringe upon any U.S. or foreign patent. Awarded vendor will at his / her own expense, indemnify, protect and save harmless the City of Fairhope, on any patent claims arising from the purchase of goods or services.

41. PAYMENT

Invoices -- Upon completion of service and delivery of materials specified in the applicable purchase order, awarded vendor will submit an invoice and signed delivery ticket to:

City of Fairhope
Accounts Payable Department
P.O. Box 429
Fairhope, Al. 3653

All invoices must reference appropriate Purchase Order Numbers Payment of Invoice: All invoices received by the City of Fairhope are payable within thirty (30) days from the date of receipt by the City of Fairhope, provided they are approved by the City of Fairhope.

42. PAYMENT WITHHELD

Payment may be withheld until all items have been delivered and all requirements of the Contract / Agreement / Purchase Order have been fulfilled

43. PRODUCT TESTING

Vendor shall incur all cost involved in obtaining an Independent Laboratory Test if the City deems necessary during the term of the Contract / Agreement / Purchase Order. The City of Fairhope reserves the right to request a demonstration of any and all items bid before making the award

44. PERMITS LICENSES AND CERTIFICATES

The awarded vendor is to procure all permits, licenses, and certificates, or any approvals of plans or specifications as may be required by Federal, State, Local Laws, ordinances, rules, and regulations, for the proper execution and completion of Work covered under the Contract / Agreement / Purchase Order.

45. PREPARATION OF BID

All bids / proposals shall be typewritten or in ink on the form(s) prepared by the City of Fairhope. Bids / proposals prepared in pencil will not be accepted. All bids / proposals must be signed by officials of the corporation or company duly authorized to sign bids / proposals. Any bid / proposal submitted without being signed will automatically be rejected. All corrections or erasures shall be initialed and dated by the person authorized to sign quotations /bids / proposals. If there are discrepancies between unit prices quoted and extensions, the unit price will prevail.

46. QUESTIONS / CONTACT

. Commencing with the issuance of the RFQ / ITB / RFP, or other form of solicitation, no vendor or anyone acting on a vendor's behalf, shall make direct or indirect contact with City personnel or undertake any activities or take any action to otherwise promote its quotation / bid / proposal to the City or its personnel. All communications shall be made to the contact identified in the quotation / bid / proposal documents. Violation of this requirement may, at the City's sole and absolute discretion, be grounds for disqualifying a vendor from further consideration.

47. RECEIPT BY CITY OF FAIRHOPE

If not otherwise stated in the order, the City of Fairhope will be said to have received goods when they have been delivered, unloaded and placed on the agency's dock or if there is no dock,inside an accessible building, and signed for by an authorized City employee. Shipments will be checked against the receiving copy of the Purchase Order. If the purchase order requires grading certificates, USDA Stamps, or any proof of quality, such proof must accompany the shipment.

48. REJECTION OF BIDS

The City of Fairhope reserves the right to accept or reject any or all bids in whole or in part for any reason, to waive technicalities or informalities, or to advertise for new proposals, if, in the judgment of the awarding authority, the best interest of the City of Fairhope will be promoted thereby. Bidders may be disqualified and rejection of proposals may be recommended for any of (but not limited to) the following causes: Failure to use the bid forms furnished by the City of Fairhope, Lack of signature by an authorized representative on the bid form, Failure to properly complete the bid form and vendor compliance, Evidence of collusion among bidders, Unauthorized alteration of the bid form.

50. RIGHT TO AUDIT

The awarded vendor shall maintain documentation of all work performed. The awarded vendor shall make any and all documentation available to the City of Fairhope at all reasonable times, for inspections and audit by the City of Purchase Order and for a period of Three (3) years after expiration of the Contract / Agreement / Purchase Order.

51. SAMPLES

Bidders will not be required to furnish samples at the time of bid opening, unless specifically called for. The City of Fairhope reserves the right to request samples after bid opening to assist in the evaluation of proposals submitted.

52. SAFETY MEASURES

The awarded vendor shall take all necessary precautions for the safety of the City of Fairhope's and awarded vendor's employees at the Work site, and shall erect and properly maintain at all times, all necessary safeguards for the protection of the workmen and the public. The awarded vendor shall post signs warning against hazards in and around the Work site.

53. SET-UP AND INSTALLATION

Unless otherwise specified, bid / quotation to include cost of all uncrating, disposal of shipping materials, set-up, testing and initial instruction to agency personnel.

54. SPILL CLEAN UP

The awarded vendor shall be responsible for spillage caused by their negligence, which occurs during transit or unloading operations. The awarded vendor shall immediately report and clean up any spillage. Upon failure to do so, the awarded vendor shall remain responsible for all actual related costs

55. SUBSTITUTIONS

Substitutions on a purchase order shall require the approval of the Originating Buyer. The City of Fairhope reserves the right to reject at destination and hold at the vendor's risk and expense any goods supplied by the vendor which do not conform to the specification or description embodied in the order or are inferior in any respect to the good specified. Any good bought by sample which is inferior in quality to the sample submitted by vendor will be rejected. Any goods delivered that do not meet specifications may be returned to the vendor at its expense. When a good is returned, the vendor must make immediate replacement with acceptable merchandise or the City of Fairhope may seek remedies for default.

56. TABULATION

Bid results are posted on The City of Fairhope's web site: www.cofairhope.com . The awarded vendor will be sent a written notification via mail.

57. TAXES

Prices quoted shall be delivered prices, exclusive of all federal or state excise, sales, and manufacturer's taxes. The City will assume no transportation or handling charges other than specified in the RFQ, ITB, RFP or other form of solicitation. The City is tax exempt by law – Code of Alabama 1975.

58. TERMINATION FOR CONVENIENCE

Any Contract / Agreement / Purchase Order may be terminated for convenience by the City of Fairhope, in whole or in part, by written notification to the awarded vendor.

59. TERMINATION FOR DEFAULT

Performance of Work under the Contract / Agreement / Purchase Order Agreement may be terminated by the City of Fairhope, in whole or in part, in writing, whenever the City of Fairhope determines that the awarded vendor has failed to meet the requirements of the Contract / Agreement / Purchase Order.

60. TERMINATION FOR NON-APPROPRIATION

Termination for Non-appropriation – The continuation of any financial obligation beyond the current fiscal year is subject to and contingent upon sufficient funds being appropriated, budgeted, and otherwise made available by the local source, State Legislature and/or federal sources. The City of Fairhope may terminate any financial obligation, and awarded vendor waives any and all claim(s) for damages, effective immediately upon receipt of written notice (or any date specified therein) if for any reason the City of Fairhope's funding from local, State and/or federal sources is not appropriated, withdrawn or limited.

61. TIME IS OF THE ESSENCE

The City of Fairhope and awarded vendor agree that time is of the essence in the performance of work called for under this Contract / Agreement / Purchase Order. The awarded vendor agrees that all work will be accomplished regularly, diligently and uninterrupted at such a rate of progress as will ensure full completion thereof within reasonable time periods.

62. TITLE

All titles, fees, as well as other charges, are to be paid by awarded vendor. Awarded vendor is to furnish prepaid certificate of title in the name of the City of Fairhope, Title shall change upon acceptance of delivery at the City of Fairhope approved delivery location.

63. VENDOR LIST

A vendor may be removed from the City of Fairhope's Bidders List if a vendor fails to respond to three (3) consecutive ITB's. A properly submitted "No Bid" is considered as a response and the vendor will receive credit for the response.

64. WARRANTY

The awarded vendor expressly warrants that all articles, materials, and work offered shall conform to each and every specification, drawing, sample, or other description which is furnished to or adopted by the City of Fairhope, and that it will be fit and sufficient for the purpose intended, merchantable, of good material and workmanship, and free from defects. The awarded vendor further warrants all items for a period of one year, unless otherwise stated, from the date of acceptance of the items delivered and installed or work completed. All repairs, replacements, or adjustments during the warranty period will be at the awarded vendor's sole expense. Awarded vendor will provide written warranty for all parts and labor for a period of (1) one year commencing from date of written acceptance of delivery by City of Fairhope. Awarded vendor will provide written copies of all other applicable warranties, such as, Manufacturer's warranty. Those warranties, if any, will be in addition to the awarded vendor's warranty, and the terms of which will not be altered by the awarded vendor's warranty.

65. IMMIGRATION LAW

The Contractor agrees that it shall comply with all of the requirements of the **Beason-Hammon Alabama Taxpayer and Citizen Protection Act, Act No 2011-535**, Alabama Code (1975) Section 31-13-1, et. Seq., (also known as the Alabama Immigration Act) see Section 31-13-9, and the provisions of said Act, including all penalties for violation thereof, are incorporated herein.

ITEM IX
SCOPE AND SPECIFICATIONS

CONTRACT DOCUMENTS

BID FORM AND SPECIFICATIONS

for

Bid No. 003-18

Repairs to Quail Creek Clubhouse

FAIRHOPE CITY COUNCIL

Karin Wilson, Mayor

Jack Burrell, Council President

Set Number _____

ITEM X
CITY OF FAIRHOPE

CONTRACT AGREEMENT

STATE OF ALABAMA }
BALDWIN COUNTY }
CITY OF FAIRHOPE }

THIS AGREEMENT made and entered into this _____day of _____, 2017, by and between _____hereinafter sometimes called the CONTRACTOR, as party of the first part, and the CITY OF FAIRHOPE, Alabama, a Municipal Corporation, hereinafter sometimes called the CITY or OWNER, as party of the second part,

W-I-T-N-E-S-S-E-T-H:

In consideration of the amounts herein named and of the mutual agreements and provisions herein contained, the CONTRACTOR and the CITY agree in regard to a public works project (hereinafter either the "work" or the "Project") as described in the Advertisement for Bids pertaining to:

Bid No. 003-18 Repairs to Quail Creek Clubhouse
Project No. GOLF003-17 Repairs to Quail Creek Clubhouse

The CONTRACTOR will perform the work and/or construct the Project as well as furnish at his own cost and expense all labor, tools, equipment and transportation as are herein and in the Contract documents required to be furnished by the CONTRACTOR, and shall perform all the work in a manner and form required to construct the Project described in and shown on the contract documents as the same are hereinafter more specifically described and as provided by the plans, specifications and documents which are attached hereto and made a part hereof, as if fully set out herein and addenda together with all plans and drawings on file in the office specified below.

ARTICLE I
GENERAL CONDITIONS

1.0 Contract Documents: As used throughout the documents constituting the contract, the term "Contract Documents" shall mean and include the following: Advertisement for Bids, Addenda (if issued), the Instructions to Bidders, the Bid Proposal, the General Specifications, the Detail Specifications, Supplemental and Special Conditions (if attached), together with this Contract Agreement and any modifications, including change orders, if made, and the drawings, plans and profiles that are now on file in the office referred to in the advertisement, the Performance Bond and the Labor and Material Bond, executed by the CONTRACTOR in connection with this Contract and insurance requirements and certificates.

1.0.1 All such documents hereinabove enumerated are adopted herein by reference and constitute the Contract between the parties to the same extent as if each were set out in full in this agreement.

1.1 Independent Contractor: The CONTRACTOR enters into this Contract with the CITY as an Independent Contractor and, as such, agrees that neither the CITY nor its officers, agents, employees or inspectors shall be responsible for the acts or omissions of the CONTRACTOR, or any sub-contractor, or any of the CONTRACTOR'S or subcontractor's agents or employees, or any other persons performing any of the work pursuant to this Contract. The CONTRACTOR shall be solely responsible for controlling construction manner, means and techniques consistent with the contract documents, plans and specifications.

1.2 Order of Precedence: Should there be a direct conflict between the various elements of the contract documents to the extent that the same cannot be reconciled to be read *in para materia,* then precedence shall be given the same in the following order:

1.2.1 Subsequent modifications (change orders or amendments) to contract agreement after execution
1.2.2 Addenda (if issued)
1.2.3 Supplemental general conditions and special conditions (if included)
1.2.4 The Contract Agreement
1.2.5 Instructions to Bidders
1.2.6 Advertisement for bids
1.2.7 Proposal (Bid)
1.2.8 General and technical specifications
1.2.9 Large Scale Drawings (if included)
1.2.10 Enlarged Plans (if included)
1.2.11 Plans (if included)
1.2.12 Where more than one document relates to the same matter, if both can be given reasonable effect, both are to be retained. Written specifications will take precedence over drawings.

1.3 Integration: Contract Terms and Construction:

1.3.1 Integration: This Agreement, together with all documents which constitute the "Contract Documents," constitutes the entire agreement of the parties, as a complete and final integration thereof with respect to

its subject matter. All understandings and agreements heretofore had between and among the parties are merged into this Agreement, which alone fully and completely expresses their understandings. No representation, warranty, or covenant made by any party which is not contained in this Agreement or expressly referred to herein has been relied on by any party in entering into this Agreement.

1.3.2 Amendment in Writing: This Agreement may not be amended, modified, altered, changed, terminated, or waived in any respect whatsoever, except by a further agreement or change order, in writing, properly executed by all of the parties.

1.3.3 Binding Effect: This Agreement shall bind the parties and their respective personal representatives, heirs, next of kin, legatees, distributees, successors, and assigns.

1.3.4 Captions: The captions of this Agreement are for convenience and reference only, are not a part of this Agreement, and in no way define, describe, extend, or limit the scope or intent of this Agreement.

1.3.5 Construction: This Agreement shall be construed in its entirety according to its plain meaning and shall not be construed against the party who provided or drafted it.

1.3.6 Mandatory and Permissive: "Shall," "will," and "agrees" are mandatory; "may" is permissive.

1.3.7 Governing Laws: The laws of the State of Alabama shall govern the validity of this Agreement, the construction of its terms, the interpretation of the rights, the duties of the parties, the enforcement of its terms, and all other matters relating to this Agreement.

1.3.8 Ownership of Contract Documents: The Contract Documents, and copies of parts thereof, are furnished and owned by the CITY. All portions of the Contract Documents, and copies of parts thereof, are the instruments of service for this Project. They are not to be used on other work and are to be returned to the CITY on request at the completion of the Project. Any reuse of these materials without specific written verification or adaptation by the CITY will be at the risk of the user and without liability or legal expense to the or Engineer of Record. Such user shall hold the CITY and Engineer of Record harmless from any and all damages, including reasonable attorneys' fees, from any and all claims arising from any such reuse. Any such verification and adoption shall entitle the CITY to further compensation at rates to be agreed upon by the user and the CITY.

1.4 Rules of Construction: For the purposes of this contract, except as otherwise provided or unless the context otherwise requires:

1.4.1 Words of masculine, feminine or neuter gender include the correlative words of other genders. Singular terms include the plural as well as the singular, and vice versa.

1.4.2. All references herein to designated “articles,” “sections,” and other subdivisions or to lettered exhibits are to the designated articles, sections and subdivisions hereof and the exhibits annexed hereto unless expressly otherwise designated in context. All article, section, other subdivision and exhibit captions herein are used for reference only and do not limit or describe the scope or intent of, or in any way affect this agreement.

1.4.3 The terms “include,” “including,” and similar terms shall be construed as if followed by the phase, “without being limited to”.

1.4.4 The terms “herein,” “hereof,” and “hereunder,” and other words of similar import refer to this agreement as a whole and not to any particular article, section, other subdivision or exhibit.

1.4.5 All recitals set forth in, and all exhibits to, this agreement are hereby incorporated in this agreement by reference.

1.4.6 No inference in favor of or against any party shall be drawn from the fact that such party or such party’s counsel has drafted any portion hereof.

1.4.7 All references in this agreement to a separate instrument are to such separate instrument as the same may be amended or supplemented from time to time pursuant to the applicable provisions thereof.

1.5 Coordination of Plans, Specifications, etc.: The specifications, the plans, drawings and all supplementary documents are essential parts of the Contract, and requirements occurring in one are as binding as though occurring in all. They are intended to be comprehensive to describe and provide a complete work. In case of discrepancy, figured dimensions shall govern.

1.6 Corrections of Plans, etc.: Should any portions of the plans, specifications or drawings be obscure or in dispute, they shall be referred to the Engineer of Record and he shall decide as to the true meaning and intent. The Engineer of Record shall also have the right to correct any errors or omissions at any time when such corrections are necessary for the proper fulfillment of said plans and specifications.

1.7 Taxes and Charges: **See ITEM IX.** CONTRACTOR shall withhold and pay all withholding taxes, whether local, state or federal and pay all Social Security taxes and also all State Unemployment Compensation taxes, and pay or cause to be withheld, as the case may be, any and all taxes, charges, or fees or sums whatsoever, which are now or may hereafter be required to be paid or withheld under any laws. Pursuant to Ala. Code §39-1-3 (1975), CONTRACTOR shall be reimbursed for any additional severance, sales or uses taxes incurred as a result of an increase in such taxes during performance of the contract.

1.10 Shop Drawings and Submittals. The CONTRACTOR shall submit shop drawings, samples and submittals depicting or representing the construction of portions of the Project in accordance with the plans and specifications to the Engineer of Record and if there is no Engineer on the Project, to the CITY representative. The CONTRACTOR shall pay for or the cost may be withheld from payments to the CONTRACTOR for more than two (2) reviews of the shop drawings, samples or submittals or similar element of work by the Engineer, or CITY representative.

1.11 Alabama Immigration Law. By signing this contract, the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment or continue to employ an unauthorized alien within the State of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom, to the extent allowed by Federal law. **See ITEM X**.

ARTICLE II
PAYMENTS, CLAIMS AND CHARGES, ETC.

2.0 **Contract Price**: The CITY will pay and the CONTRACTOR will accept in full consideration for the performance of the work/Project, subject to additions and deductions (including but not limited to liquidated damages) as provided in the Contract documents and herein, the sum of _____ _____($_____) and/or in unit prices as shown in Bidder's schedule for the base bid amount of $_____ being the amount of the CONTRACTOR'S bid as awarded by the CITY.

2.1 **Estimated Quantities and Unit Prices**: If award was made in whole or in part based upon unit prices, the CONTRACTOR agrees that the prices given in the Proposal are unit prices. The estimated quantities as stated in the Advertisement for Bids and in the Proposal and as indicated on the plans or in other places are approximate only, are subject either to increase or decrease and are only for the purpose of comparing on uniform basis the bids offered for the Project under this Contract. The CONTRACTOR further agrees that should the quantities of any of the items of the work be increased, he will do the additional work at the unit prices set out in the Proposal and should the quantities be decreased, payment will be made on actual quantities at the unit prices and he will make no claim for anticipated profits for any decrease in the quantities. Actual quantities will be determined upon completion of the Project.

2.2 **Overtime Work by CONTRACTOR**: If the CONTRACTOR for his convenience, and at his own expense, should desire to carry on his work at night or outside regular hours, he shall submit written notice to the Engineer of Record and he shall allow ample time for satisfactory arrangements to be made for inspecting the work in progress. At no time shall the notice be given less than 24 hours before such overtime work is started. The CONTRACTOR must obtain, through the Engineer/ Architect, the CITY'S approval for work at night, on Saturdays, Sundays or legal holidays. The shall light the different parts of the Project as required to comply with all applicable federal and state regulations and with all applicable requirements of the CITY.

2.2.1 Overtime hours shall be considered any hours worked by the CONTRACTOR on Saturday, Sunday and legal holidays, which in the Engineer of Record's opinion requires the Engineer resident observers' presence to observe such overtime work. Overtime hours requiring the CITY inspectors shall be considered any hours worked by the CONTRACTOR in excess of eight (8) hours during any working day and/or in excess of forty (40) hours from Monday through Friday and/or any time on Saturday, Sunday or legal holiday. In general, it should be expected that the Engineer of Record's resident observer(s) or CITY'S inspectors will be present at all times that the CONTRACTOR is working.

2.2.2 If the CONTRACTOR elects to schedule and perform overtime work, the CONTRACTOR shall pay the CITY for the CITY'S resident inspector's salary plus costs for each hour of overtime work. Overtime shall be rounded up to the nearest whole hour. This amount shall include the inspector's salary at overtime rate, labor additive, which includes insurance, social security, workmen's compensation, sick pay, paid holidays, vacation pay and his vehicle and equipment. Payment to the CITY shall be made by a deduction from the CONTRACTOR'S monthly payment invoice for any overtime worked.

2.3 **Payments on Account/Payments Withheld/Retainage**: Upon presentation of a verified application for payment, which shall include a “CONTRACTOR’S Affidavit of Payment of Debts and Claims,” then usually by the fifteenth (15th) day of each calendar month or as soon thereafter as is practical, as the Project progresses, the CITY shall make partial payments to the CONTRACTOR of the billable work performed less payments already made and less deductions for any incomplete, unaccepted or defective work. In making partial payments to the CONTRACTOR, there shall be retained five (5%) percent of the estimated amount of work done and value of materials stored on the site or suitably stored and insured off-site. Provided; however, after fifty (50%) percent of the Project has been satisfactorily completed, no further retainage will be withheld.

2.3.1 Retainage shall be held until final completion and acceptance of all work covered by the Contract Documents unless escrow or deposit arrangements are agreed to by the CITY. When maintenance periods are included in the Contract Documents covering highways, bridges or similar structures, such period shall be considered a component part of the contract and retainage will be held until the expiration of such periods.

2.3.2 On completion and acceptance of each separate building, public work or other separately identifiable and complete division of the Project in regard to which a separate price has been stated in the Contract Documents or can be separately ascertained, payment may be made in full including retainage but less deductions. Provided; however, the CITY will not consider making such payment on any such item of work if it is an integral part of a complete project.

2.3.3 All materials and work covered by partial payments as provided for herein shall become the sole property of the CITY; provided, however, the CONTRACTOR shall not be relieved from the sole responsibility for the care and protection of materials and work upon which payments have been made and for the restoration of any damaged work.

2.3.4 The CITY may also withhold from time to time from payment to the CONTRACTOR such an amount or amounts as may be necessary to pay and fully satisfy all claims and demands for labor and services rendered in and about the Project, including any such amount or amounts due to be paid to or by any subcontractor or supplier, amounts for CITY'S or Engineer of Record's observers or inspectors for CONTRACTORS’ overtime as herein provided, or for Engineering or Design services associated with CONTRACTOR initiated change orders or submittals in excess of that permitted herein. The CONTRACTOR hereby authorizes the CITY as its agent, to apply such amounts so withheld to the

payment of any amount so due to be paid and all other just and lawful claims other than claims for damages for tort. In case of disagreement with reference to any such claim or claims, the CITY may keep such amounts so withheld on account of such claim or claims until such disagreement is finally settled and determined.

2.4.5 In addition, the CITY may also withhold payment of the whole or any part of a verified or approved application for payment from the CONTRACTOR to such an extent as may be necessary to protect itself from loss on account of any of the following causes discovered subsequent to its verification or approvals:

2.4.5.1 Defective work.

2.4.5.2 Evidence indicating probable filing of claims by other parties against the CONTRACTOR.

2.4.5.3 Failure of the CONTRACTOR or subcontractor to promptly make payments to subcontractors or for materials, labor, food stuffs and supplies.

2.4.5.4 Damage to another contractor under separate contract with the CITY.

2.4.5.5 Assessment of liquidated damages.

2.4.6 When the above grounds are removed, applications for payment will then be verified and/or approved for amounts not previously verified and approved because of them.

2.4.7 The CONTRACTOR shall not attempt to withdraw at any time during the term of this Contract or any extensions thereof, without the expressed written consent of the CITY, the whole or any part of the amounts so retained by the CITY from payments due the CONTRACTOR by the establishment of an Escrow account or by depositing securities in lieu thereof, pursuant to Ala. Code §39-2-12(e), or(f), or any amendments thereto or any equivalent law, ordinance or regulation. It is expressly agreed between the parties hereto that should the CITY elect not to consent to the same, then the CONTRACTOR shall not elect to, attempt to or in any manner endeavor to withdraw such retained amounts.

2.5 **Claims for Extra Cost:** If the CONTRACTOR claims that any instructions by drawings or otherwise involve extra cost or any extension of time, he shall notify the CITY in writing within ten (10) days after the receipt of such instructions and in any event before proceeding to execute the Project , the procedure shall be the same as that for change orders. No such claim shall be valid unless made in accordance with the terms of this section. There shall be no damages for delay.

2.5.1 Except as otherwise herein provided, no charge for any extra work will be allowed unless the same has been duly authorized in writing by the CITY and the price stated in such order.

2.6 **Differing Site Conditions**: If, in the performance of the Contract, subsurface or latent conditions are found to be materially different from those indicated by the plans and specifications, or unknown conditions of an unusual nature are disclosed differing materially from conditions usually inherent in work of the character shown and specified, the CONTRACTOR shall immediately notify the Engineer/Architect in writing regarding such conditions but in no event later than forty-eight (48) hours after discovery of such conditions by the CONTRACTOR.

2.6.1 The written notice shall describe the conditions, and other pertinent information, in no event shall such notice be later than forty-eight (48) hours before such conditions are disturbed. Upon such notice, or upon such observation of conditions, the Engineer/Architect will promptly make such changes in the plans and/or Specifications as he finds necessary (if any are necessary) to conform to the different conditions, and any increase or decrease in the cost of the Project resulting from such changes may be adjusted as provided under Change Orders or Claims for Extra Cost as set forth in the Contract documents.

2.7 **Change Orders**: Change Orders shall be allowed only under the following conditions:

2.7.1 Minor changes for a total monetary amount less than that required for competitive bidding; or

2.7.2 Changes for matters incidental to the original Contract necessitated by unforeseeable circumstances

arising in the course of work under the contract; or

2.7.3 Changes due to emergencies; or

2.7.4 Changes provided for in the original bidding and original Contract Documents as alternates;

2.7.5 Changes of relatively minor items not contemplated when the plans and specifications were prepared and the Project was bid and which are in the public interest and generally do not exceed 10 percent of the Contract Price, subject to Alabama Bid Law exceptions.

2.7.6 The CONTRACTOR or successful bidder is expected to complete the Project as bid and specified within the financial parameters stated therein. However, if it shall be determined that a change order condition possibly exists in any given case during the performance of the contract, the CONTRACTOR shall promptly notify in writing the representative of the CITY and shall not implement such change until having notified the representative of the CITY. If the change is minor in the opinion of the representative of the CITY and does not involve,

2.7.6.1 an adjustment in the Contract sum or construction Bid Price, or

2.7.6.2 result in extension of the Contract time, or

2.7.6.3 a material change in the Contract Scope of Services, then the CITY representative may authorize the change in writing to the CONTRACTOR. The CONTRACTOR shall not perform such change until receipt of such written change order.

2.7.7 In the event the Change Order requested by the CONTRACTOR involves,

2.7.7.1 an increase in the Contract sum or construction Bid Price,
2.7.7.2 extending the Contract time, or
2.7.7.3 materially change the CONTRACTOR'S Scope of Work or services, then the CONTRACTOR shall request a Change Order in writing and present the same to the CITY representative.

2.7.8 The representative of the CITY shall determine whether this is a change order which can be allowed and, if so, what exception it would fall under. The representative of the CITY shall then document the same, attach the same to the CONTRACTOR'S request for a change order and submit the same with his recommendation to the CITY Council at its next or any subsequent regularly scheduled Council meeting for approval.

2.7.9 The CITY reserves the right to institute Change Orders as the OWNER pursuant to the aforesaid terms and conditions.

2.7.10 In no event is a Change Order to be executed by the CONTRACTOR prior to approval thereof by the CITY, except for emergencies.

2.8 Determination of Adjustment of the Contract Sum: The adjustment of the Contract Sum resulting from a change in the Work shall be determined by one of the following methods as determined by OWNER:

2.8.1. By mutual agreement to a lump sum based on or negotiated from an itemized cost proposal from the CONTRACTOR.

2.8.2. Additions to the Contract Sum shall include the CONTRACTOR'S direct costs plus a maximum 15% markup for overhead and profit. Where subcontract work is involved, the total mark-up for the CONTRACTOR and a subcontractor shall not exceed 25%. No allowance for overhead and profit shall be figured on a change which involves a net credit to the OWNER. For the purposes of this method of determining an adjustment of the Contract Sum, "overhead" shall cover the CONTRACTOR'S indirect costs of the change, such as the cost of bonds, superintendent and other job office personnel, watchman, job office, job office supplies and expenses, temporary facilities and utilities, and home office expenses.

2.9 Construction Schedule and Periodical Estimates**:** Immediately after execution and delivery of the

Contract and before the first partial payment is made, the CONTRACTOR shall deliver to the CITY and Engineer of Record and/or Construction Manager, a construction schedule in a form satisfactory to the CITY or Construction Manager, which may include CPM for all major trades, showing the proposed dates of commencement and completion of each of the various activities, of work required under the Contract documents, the interrelationship of each activity, sequences, resources for each and the anticipated amount of each monthly payment that will become due the CONTRACTOR in accordance with the progress schedule. The CONTRACTOR shall also furnish (1) a detailed estimate giving a complete breakdown on the Contract price, and, (2) periodical itemized estimates of the work done for the purpose of making partial payments, however the same will not be considered as fixing a basis for additions to or deductions from the Contract price. Scheduling is particularly critical if CONTRACTOR is a trade CONTRACTOR and adherence to the Construction Manager progress schedule is required.

NOTE: Depending upon the complexity of the work the CITY may require CPM or equivalent meeting all criteria above.

ARTICLE III
TIME

3.0 Time for Completion/Delays: The CONTRACTOR hereby agrees to commence work under this Contract on the date to be specified in a written "Notice to Proceed" (NTP) or thirty (30) days from the date of Contract execution, if no notice is issued, and to fully complete within the time limits which he/she has established as part of his/her bid proposal. ~~Project within SIXTY (60) consecutive calendar days thereafter~~. The CONTRACTOR further agrees to pay to the CITY, Two Hundred Dollars ($200.00) liquidated damages for each consecutive calendar day thereafter that is in excess of his/her bid proposal ~~as hereinafter provided~~. Time is of the essence and a material element to this agreement.

3.0.1 NOTE: When maintenance periods are included in the Contract for highways, bridges or similar structures, such periods shall be considered component parts of the Contract. To the extent the construction schedule contains “float,” the parties agree that the same belongs to the Project and may be utilized by either party.

3.1 Delay: If the CONTRACTOR is delayed at any time in the progress of work by any of the following causes, the CONTRACTOR may be entitled to a reasonable extension of time as determined by the CITY in which to complete the Project. Provided, however, no such delay nor the extension of time if granted shall be grounds for a claim by the CONTRACTOR for damages or for additional cost, expenses, overhead or profit or other compensation:

3.1.1 Fires, abnormal floods, tornadoes or other cataclysmic phenomenon of nature.

3.1.2 Strikes, embargoes, lockouts, war, acts of public enemy.

3.1.3 Change Orders.

3.1.4 Acts of performance or delays in performance by other contractors employed by the CITY or their subcontractors.

3.1.5 Causes beyond the control of the CONTRACTOR.

3.1.6 Provided further, that the CONTRACTOR shall immediately give notice in writing to the CITY and follow extension of time procedures as provided for herein. The CITY expressly disclaims any liability to CONTRACTOR for any cost, expense or damage caused by other contractors, subcontractors or suppliers, including those engaged by the CITY. The CITY shall not be liable for damages or cost to the CONTRACTOR sustained due to any interference from utilities or appurtenances or from the operations of relocating the same.

3.2 Extensions of Time: All written requests for extensions of time must be submitted to Engineer of Record within ten (10) days after the occurrence of the cause for delay. The Engineer of Record shall ascertain the facts and the extent of the delay and shall recommend to the CITY Council whether it should extend the time for completing the Project. Any extension of time shall be in writing and processed as a change order.

3.2.1 For change orders requesting extensions of time due to rain, wind, flood or other natural phenomenon, the CONTRACTOR'S written request must be accompanied, at the CITY'S request, by a detailed report of weather at this site for the last ten (10) years with averages showing means and statistical deviations from mean averages to support request for extension.

3.2.2 No extension shall be made for delays due to rain, wind, flood or other natural phenomenon of normal intensity for the locality.

3.2.3 In the event any material changes, alterations, or additions are made as herein specified, which in the opinion of the Engineer of Record will require additional time for execution of any work under the Contract, then in that case, the time of the completion of the Project may be extended through change order. No extensions of time shall be given for any minor changes, alterations or additions. The CONTRACTOR shall not be entitled to any reparation or compensation on account of such additional time or extensions of time. To the extent that the construction schedule contains "float," the parties agree that the same belongs to the Project and may be utilized by either party.

3.3 **Right of the CITY to Terminate Contract**: If the CONTRACTOR should be adjudged as bankrupt, or if it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed for the CONTRACTOR or any of its property, or if it should persistently or repeatedly refuse or fail to supply enough properly skilled workmen or if it should refuse or fail to make prompt payment to persons supplying labor for the Project under the Contract, or persistently disregard instructions of the fail or neglect to promptly prosecute or perform the Project in accordance with the contract documents or otherwise be guilty of a substantial violation of any provision of the Contract documents, then the CITY may, on giving at least thirty (30) days' written notice to the CONTRACTOR, without prejudice to any other rights or remedies of the CITY in the premises, terminate the CONTRACTOR'S right to proceed with the Project. In such event, the CITY may take over the Project and prosecute the same to completion, by contract or otherwise, and the CONTRACTOR and its sureties shall be liable to the CITY for any and all excess cost occasioned to the CITY thereby, including attorney's fees; and in any such case, the CITY may take possession of and utilize in completing the Project such appliances and plant of the CONTRACTOR or its subcontractors as may be on the site work and necessary or useful thereof. In the event of termination, the same shall not relieve the CONTRACTOR, nor any of its sureties of their obligation pursuant to this agreement. In the event it becomes necessary for the CITY to maintain any legal action against the CONTRACTOR, to enforce its rights herein, the CONTRACTOR shall pay the CITY all expenses associated therewith including a reasonable attorney's fee.

3.3.1 OWNER may at any time and for any reason terminate CONTRACTOR'S services and work at OWNER'S convenience. Upon receipt of such notice, CONTRACTOR shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement. Upon such termination, CONTRACTOR shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement; plus, (2) such other costs actually incurred by CONTRACTOR as are permitted by the prime contract and approved by OWNER; (3) plus ten percent (10%) of the cost of the work referred to in subparagraph (1) above for overhead and profit.

3.4 **Liquidated Damages**: Should the work under this contract not be completed within the time specified, by the bidder within his/her bid, it is understood and agreed that there may be deducted by the CITY or **Engineer/**Architect from the partial and/or final payments to the CONTRACTOR or otherwise charged to the CONTRACTOR, a sum computed at the rate of **Two Hundred Dollars ($200.00) per day** beginning from the date on which the CONTRACTOR established within his/her bid that the project would be completed and continuing for so long as the Project remains incomplete. It is understood and agreed that the above deduction is not a penalty, but money due to reimburse the CITY/OWNER for inconvenience and damage to the general public, due to the delay in the completion of the Project and is reasonable. The collection of liquidated damages by the CITY shall not constitute an election or waiver by the CITY of recovery of additional delay or non-delay related damages from the CONTRACTOR, and the CITY expressly reserves the right to recover actual damages for other harms resulting from delay. The provisions of the liquidated damage clause shall apply and continue to apply even if the CONTRACTOR terminates or abandons the Project prior to the scheduled completion dates.

3.4.1 The amounts of such liquidated damages and actual damages incurred by reason of failure to complete the work stipulated in the Contract are hereby agreed upon as reasonable estimates of the costs which may be accrued by the CITY. It is expressly understood and agreed that these amounts are not to be considered in the nature of penalties, but as damages which have accrued against the CONTRACTOR. The CITY shall have the right to deduct such damages from any amount due, or that may become due the CONTRACTOR, or the amount of such damages shall be due and collectible from the CONTRACTOR or Surety.

ARTICLE IV
WORK AND MATERIALS

4.0 **Cooperation of CONTRACTOR**: The CONTRACTOR shall have available on the job site, at all times, at least one (1) copy of the plans and specifications, if prepared, for the Project.

4.0.1 He shall give the Project the constant attention necessary to facilitate the progress thereof and shall cooperate with the CITY, Engineer of Record and with other contractors in every way possible. The CONTRACTOR shall at all times have a superintendent, capable of acting as his agent on the Project, who shall receive communications from the Engineer of Record or his authorized representatives or, the CITY'S authorized representative. The superintendent shall have full authority to give and execute orders relating to the Project without delay and to promptly supply such tools, plant equipment, materials and labor as may be required.

4.0.2 The CITY reserves the right to utilize its own forces on the site or those of another contractor and to communicate through its representative directly with the CONTRACTOR.

4.1 **Superintendence**: The CONTRACTOR shall assign to and keep at the Project site competent supervisory personnel. The CONTRACTOR shall designate, in writing, before starting work, an authorized representative who shall be an employee of the CONTRACTOR and shall have complete authority to represent, to receive notice for, and to act for the CONTRACTOR. The CONTRACTOR shall not permit or allow any work to be conducted upon the Project site without the presence of supervisory personnel. The Engineer of Record shall be notified in writing prior to any change in superintendent assignment. Using his best skill and attention, the CONTRACTOR shall give efficient supervision to the Project. The CONTRACTOR shall be solely responsible for all construction means, methods, techniques, and procedures, for providing adequate safety precautions, and for coordinating all portions of the Project under the Contract. It is specifically understood and agreed that neither the Engineer of Record nor the CITY shall not have control or charge of and shall not be responsible for the construction means, methods, techniques, or procedures, or for providing adequate safety precautions in connection with the Project under the Contract.

4.2 **CONTRACTOR'S Tools and Equipment**: The CONTRACTOR'S tools and equipment used on the Project shall be furnished in sufficient quantity and of a capacity and type that will adequately and safely perform the work specified, and shall be maintained and used in a manner that will not create a hazard to persons or property, or cause a delay in the progress of the Project.

4.3 **Furnishing Labor and Equipmen**t: The CONTRACTOR shall furnish and pay for all equipment, labor and supervision, and all such materials as required to be furnished in the Notice to Bidders and as may otherwise be necessary to the completion of the Project and the operation of each construction crew required.

4.4 **Employees**: The CONTRACTOR shall employ only competent, skillful workers on the Project, and whenever any person shall appear to be incompetent or to act in a disorderly, unsafe improper manner, such person shall promptly be removed from the Project by the CONTRACTOR.

4.5 **Materials and Appliances**: Unless otherwise stipulated, the CONTRACTOR shall provide and pay for all other materials, water, heating, lighting, fuel, power, transportation, machinery, appliances, telephone, sanitary facilities, temporary facilities and other facilities and incidentals necessary for the execution and completion of the Project.

4.5.1 The CONTRACTOR warrants to the CITY and the Engineer of Record that, unless otherwise specified, all

materials and equipment furnished under this contract shall be new, and both workmanship and materials shall be of good quality, free of faults and defects, and in conformance with the Contract Documents. The CONTRACTOR shall, if required, furnish satisfactory evidence as to the kind and quality of materials. In selecting and/or approving equipment for installation in the Project, neither the CITY nor Engineer of Record assume responsibility for injury or claims resulting *from failure of the equipment to comply with applicable federal, state, and local safety codes or* requirements, or the safety requirements of a recognized agency, or failure due to faulty design concepts, or defective workmanship and materials. Material and/or equipment damaged by flooding or other causes during the construction period shall be subject to rejection by the Engineer of Record; reconditioning and/or repairing material and/or equipment is not acceptable.

4.6 Asbestos and Hazardous Materials**:** Unless specifically authorized and instructed to the contrary by the CITY, the CONTRACTOR shall not permit, allow, place, install or incorporate into the Project or upon the work site, any hazardous material(s), including, but not limited to, any products or materials that contain asbestos in any quantity. It shall be the responsibility of the CONTRACTOR to inspect all materials and products delivered for incorporation or installation in the Project to ensure that they contain no hazardous materials or asbestos. Where the CONTRACTOR or any subcontractor has or should have a reasonable suspicion that any product or material contains asbestos or other hazardous material, the CONTRACTOR shall immediately inspect the material or product, obtain a product or material data sheet, and notify the CITY'S representative prior to installation or incorporation of the same into the Project. Any product or material determined to contain asbestos or other hazardous material shall be removed from the Project immediately and properly disposed of as required by law. Products or material to which the CONTRACTOR should pay particular attention to avoid the presence of asbestos incorporated therein include, but are not limited to the following: concrete, batt insulation, roof insulation, building felts, mastics, water proofing products, adhesives, resilient flooring products, ceiling tiles, interior coatings, exterior coatings, roofing, pipe installation, duct installation and pre-assembled items of equipment.

4.6.1 At the completion of the Project, the CONTRACTOR shall submit a duly executed Asbestos Affidavit in the form as attached hereto prior to final payment.

4.6.2 The CONTRACTOR is responsible for insuring that all of its employees and subcontractors are adequately trained to handle hazardous materials in accordance with 49 CFR §172(g).

4.7 Protection of Work and Property**:** The CONTRACTOR shall furnish and install all necessary temporary works for the protection of the Project. The CONTRACTOR shall at all times adequately maintain, guard and protect his own work from damage, and safely guard and protect private, commercial, industrial, the CITY'S and others' property from injury or loss arising in connection with this Contract. He shall make good any such damage, injury or loss, except such as may be directly due to errors in the plans or specifications or caused by agents or employees of the CITY.

4.7.1 The CONTRACTOR shall protect all existing vegetation such as trees, shrubs, and grass on or adjacent to the site which are not required to be removed or do not unreasonably interfere with construction, as may be determined by the Engineer of Record, and be responsible for all cutting or damaging of trees and shrubs or grassed areas, including damage due to careless operation of equipment, stockpiling of materials or equipment.

4.7.2 Care shall be taken by the CONTRACTOR in felling trees that are to be removed to avoid any unnecessary damage to vegetation or other trees that are to remain in place. Any limbs or branches unavoidably broken during such operations shall be trimmed with a clean cut and painted with an approved tree priming compound. The CONTRACTOR may be required to replace or restore at his own expense all vegetation not protected and preserved, as above required, that may be destroyed or damaged.

4.7.3 The CONTRACTOR shall provide and maintain all passageways, guard fences, lights, and other facilities required for protection by federal, state or municipal laws and regulations or local conditions.

4.7.4 The CONTRACTOR shall comply with local and state regulations governing the operation of premises which are occupied and shall perform the contract in such a manner as not to interrupt or interfere with the operation of other facilities.

4.7.5 The CONTRACTOR shall store his apparatus, materials, supplies, and equipment in such orderly fashion

at the site of the Project as will not unduly interfere with the progress of his work or the work of any other contractor.

4.7.6 Necessary crossings of curbings, sidewalks, roadways or parkways shall be protected against and any damage shall be repaired by or at the expense of the CONTRACTOR.

4.7.7 The CONTRACTOR shall not place upon the Project or any part thereof, loads inconsistent with the design or safety of that portion of the Project.

4.7.8 The CONTRACTOR shall provide and maintain access to all public and private properties at all times and be responsible for any damage caused by his operation to existing driveways, yards, streets, parking lots, utilities, railroads, etc., and such damage shall be corrected at the CONTRACTOR'S expense. Roadways authorized closed by State or Local authorities shall be maintained to provide access to all fire, police, and other emergency vehicles and all individuals having private property in the closed area. The CONTRACTOR shall notify at least 24 hours in advance the Fire, Police, and Transportation Departments having local jurisdiction, the OWNER and any other individuals, businesses, or agencies that may be affected.

4.8 Protection of Existing Utilities. CONTRACTOR shall be responsible for any damage to existing structures or the interruption of any utility services which shall be repaired or restored promptly by and at the expense of the CONTRACTOR.

4.8.1 To that extent, the CONTRACTOR shall provide whatever measures are necessary to properly protect and maintain all existing utilities encountered in the course of the work. The CONTRACTOR shall be exclusively responsible to the utility owner for any and all damages to the various utilities caused by the CONTRACTOR'S actions or lack of actions to adequately protect the same.

4.8.2 The CONTRACTOR shall determine the exact location of all existing utilities before commencing work and agrees hereby to be fully responsible and liable for any and all damages which might occur by his failure to exactly locate and/or preserve the location of any and all underground or overhead utilities. The CONTRACTOR shall be solely and directly responsible to the utility owner for any and all damages to the various utilities, caused by the CONTRACTOR'S actions or lack of actions to adequately protect such utilities. If any utilities are to be affected during the course of construction, the CONTRACTOR shall so notify the OWNER thereof at least seventy-two (72) hours prior to any such construction activity. The CONTRACTOR shall fully cooperate and coordinate with all utility owners in the event of an interruption to any utility service. The cost for locating, uncovering and protecting underground and/or overhead utilities is included within the CONTRACTOR'S bid price for various other items of work.

4.8.3 The CONTRACTOR shall maintain all storm sewers, drains and/or ditches so that flow is not disturbed or impeded. The CONTRACTOR shall protect storm drains, inlets and/or ditches, lawns, landscaping and other facilities, from damage during the testing, and flushing.

4.9 Limiting Exposures: The CONTRACTOR shall prosecute the work on the Project to insure that no part of the construction, complete or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to the following:

Excessive static or dynamic loading	Chemicals	Improper lubrication
Excessive internal or external pressures	Light	Unusual wear or other misuse
Excessively high or low temperatures	Puncture	Contact between incompatible materials
Thermal shock	Abrasions	Destructive testing
Excessively high or low humidity	Heavy traffic	Misalignment
Air contamination or pollution	Soiling, staining & corrosion	Excessive weathering
Water or ice	Bacteria	Unprotected storage
	Rodent and insect infestation	Improper shipping or handling
	Combustion	Theft
	Electrical current	Vandalism
	High speed operation	

Solvents

4.9.1 The CONTRACTOR shall minimize dust and air pollution through the use of water or other devices, require the use of properly operating combustion emission control devices and by encouraging the shutdown of construction vehicles when not in use.

4.10 **Safety:** The completed Project shall include all necessary permanent safety devices, such as machinery guards and similar ordinary safety items as may be appropriate or required by law. Further, any feature of the Project (including CITY-furnished or CITY-selected equipment) subject to such safety regulations shall be fabricated, furnished, and installed in compliance with these requirements. Contractors and manufacturers of equipment shall be held responsible for compliance with the requirements included herein. CONTRACTOR shall notify all equipment suppliers and subcontractors of the provisions of this Article.

4.10.1 In selecting and/or accepting equipment for installation in the Project, neither the CITY nor Engineer/Architect assume responsibility for any personal injury, property damage, or any other damages or claims resulting from failure of the equipment to comply with applicable safety codes or requirements, or the safety requirements of a recognized agency, or failure due to manufacturer's faulty design concepts, or defective workmanship and materials. The CONTRACTOR shall indemnify and hold the CITY, Program Coordinator, and Engineer/Architect harmless against any and all liability, claims, suits, damages, costs, or expenses without limitation arising out of the installation or use of such equipment.

4.10.2 The CONTRACTOR shall take all necessary precautions for the safety of employees on the Project and shall comply with all applicable provisions of federal, state, and municipal safety laws and building codes to prevent accidents or injury to persons on or about or adjacent to the premises where the Project is being performed. He shall erect and properly maintain at all times, as required by conditions, and progress of the Project, all necessary safeguards for the protection of workmen and the public and shall post danger signs warning against the hazards created by features of construction and the site.

4.10.3 Machinery, equipment and all hazards shall be guarded or eliminated in accordance with the State Accident Prevention in Construction provisions to the extent that such provisions are not in contravention with applicable laws.

4.10.4 The CONTRACTOR shall do whatever work is necessary for safety and be solely and completely responsible for conditions of the jobsite, including safety of all persons (including but by no means limited to the public, site personnel, visitors, or employees) and property during the Contract period. The contract period shall include any subsequent warranty or other period associated with Project deficiency or repair and all hours including, and in addition to, normal working hours.

4.10.5 Safety provisions shall conform to the Federal and State Departments of Labor and the Occupational Safety and Health Act (OSHA), and all other applicable federal, state, county, and local laws, ordinances, codes, the requirements set forth herein, and any regulations that may be specified in other parts of these Contract Documents. Where any of these are in conflict, the more stringent requirement shall be followed. The CONTRACTOR'S failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth therein.

4.10.6 The CONTRACTOR shall at all times provide proper facilities for safe access to the work by authorized government officials (federal, state, county and local) and representatives of the OWNER.

4.11 Traffic Control: The CONTRACTOR shall be responsible for traffic control, including plan and devices to the extent the same is required due to work in, upon or in proximity to public right-of- way, streets, roads or vehicular traffic. The traffic control plan and all traffic control devices shall conform at a minimum to the Manual on Uniform Traffic Control Devices for Streets and Highways, Latest Edition, Federal Highway Administration. A copy of which is on file in the office of the CITY of Fairhope Director of the Department of Transportation for examination. Copies may be obtained from the Alabama Department of Transportation. Should the appropriate public authority determine a greater degree of traffic control is required, then the CONTRACTOR shall promptly provide same. The CONTRACTOR shall submit a plan to the Engineer of Record for approval before commencing construction.

4.13.1 Reasonable means of ingress and egress by vehicular and/or pedestrian traffic to property adjacent to the Project shall be maintained at all times. The CONTRACTOR shall indemnify and hold the CITY harmless for any claims or causes of action including but not limited to those for inverse condemnation and/or lost profits arising out of or in any manner associated with access to or the restriction or prevention thereof to adjoining property. Traffic control and erosion control is of paramount importance during the construction of this Project and the terms and conditions in the contract documents in regard to these matters must be strictly adhered to.

4.14 **Responsibility to Act in Emergency:** In case of an emergency which threatens loss or damage to property, and/or safety, the CONTRACTOR shall act, without previous instructions from the CITY or Engineer of Record, as the situation may warrant. The CONTRACTOR shall notify the Engineer of Record thereof immediately thereafter. Any claim for compensation by the CONTRACTOR, together with substantiating documents in regard to expense, shall be submitted to the CITY through the Engineer of Record. The claim will be handled in accordance with the provisions for extra work. However, if the emergency is created or aggravated by the CONTRACTOR, he shall be liable for the resulting damages. If the CONTRACTOR fails to take necessary action as required by such an emergency, the CITY may assign another CONTRACTOR or use his own forces to perform the emergency work. Costs or damages arising from the failure of the CONTRACTOR to act in an emergency may be deducted from the CONTRACTOR'S request for payment.

4.15 **Sanitary Regulations**: The CONTRACTOR shall provide and maintain such sanitary accommodations for the use of his employees and those of his subcontractors as may be necessary to comply with the requirements and regulations of the local and State Department of Health. At a minimum, necessary sanitary conveniences for the use of the laborers on the work shall be erected and maintained by the CONTRACTOR, in such a manner and at such points as shall be approved by the Engineer of Record. Their use shall be strictly enforced. In the Construction Manager format, the CITY may provide sanitary accommodations through the Construction Manager.

4.16 **Cutting, Patching, etc.:** Unless otherwise stated in the contract documents, the CONTRACTOR shall do all necessary cutting, fitting and patching of the Project that may be required to properly receive the work, to make its several parts join together properly, receive and provide for the work of various trades, and be received by the work of other contractors, or as required by drawings and specifications to complete the Project. After such cutting, he shall replace or restore or repair and make good all defective or patched work as required by the Engineer of Record. He shall not cut, excavate or otherwise alter any work in any manner or by a method or methods that will endanger the Project, adjacent property, workmen, the public or the work of any other contractor. The CONTRACTOR shall check the location of all sleeves, openings, slots, etc., for the piping, ducts, breeching, conduits, louvers, grills, fans, etc., as they are laid out on the job.

4.16.1 Provisions for openings, holes and clearances through walls, beams, floors, ceilings and partitions shall be made and checked by the CONTRACTOR and/or his subcontractor in advance of constructing such parts of the Project and unnecessary, superfluous or dangerous cutting shall be avoided.

4.16.2 Pipes passing through concrete or masonry walls shall be protected by pipe sleeves two sizes larger than the pipe, plus its installation to provide free movement.

4.16.3 Under no condition shall structural, framing or other parts or members subjected to computed stress be cut or disturbed without the approval of the Engineer of Record. Any plates, studs or joists, and/or rafters that are approved to be cut to execute necessary work shall be securely strapped and braced to restore their strength by approved methods.

4.16.4 Unless otherwise indicated in Supplemental Conditions, all road crossings and/or driveways cut by the CONTRACTOR during the performance of the Project shall be returned to service as soon as possible and replaced or repaired within seven (7) calendar days.

4.16.5 All major thoroughfares must be repaired the same day as cut. The CONTRACTOR shall be responsible for the safety and welfare of the traveling public while construction work is being done and until the CITY accepts the Project.

4.16.6 The CONTRACTOR will replace at his own expense, all pipe and accessories that may be broken, damaged, stolen or lost and all materials that may become damaged, lost, stolen or misused.

4.16.7 The Engineer of Record's approval shall be obtained before cutting or drilling holes in concrete or masonry that tend to damage or weaken the load capacity.

4.17 Trailers: With the approval of the CITY or Engineer of Record, the CONTRACTOR may park trailers or other structures for housing men, tools, machinery and supplies, but they will be permitted only at approved places and their surroundings shall be maintained at all times in a sanitary and satisfactory manner by the CONTRACTOR. On or before the completion of the Project, all such trailers or structures shall be removed, unless the CITY authorizes their abandonment without removal, together with all rubbish and trash, at the expense of the CONTRACTOR.

4.18 **Construction Staking:** If necessary, the Engineer or the CITY will furnish initial lines and grades to establish the initial horizontal and vertical control points and define the beginning and ending points of the Project. The CONTRACTOR is responsible for engaging the services of a qualified Engineer or land surveyor to replace and/or re-establish in accordance with the Construction plans and/or specs, all construction stakes that are disturbed, displaced or destroyed during construction.

4.18.1 If the CONTRACTOR finds any errors or discrepancies with the construction staking or the criteria upon which it is based, he/she shall promptly notify the OWNER'S representative.

4.19 **Periodic Cleanup**: The CONTRACTOR shall periodically, at least weekly**,** or as requested during the progress of the Project, clean up and remove from the premises, all refuse, rubbish, scrap materials and debris caused by its employees or its subcontractors resulting from its work, to the end that all times the premises are sanitary, safe, reasonably clean, orderly and workmanlike. Trash and combustible materials shall not be allowed to accumulate inside buildings or elsewhere on the premises. At no time shall any rubbish be thrown from window openings, except during renovations with adequate precautions and into proper receptacles. The CONTRACTOR shall comply with all municipal litter and construction site ordinances.

4.19.1 Before the Project is considered as complete, all rubbish created by or in connection with the construction must be removed by the CONTRACTOR and the premises left in a condition by the CONTRACTOR satisfactory to the CITY. Street, curbs, crosswalks, pavements, sidewalks, fences and other public and private property disturbed shall be restored to their former condition or better, and final payment will be withheld until such work is finished by CONTRACTOR

4.19.2 CONTRACTOR shall conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws. No burning or burying of rubbish or waste materials is permitted on the Project site. The CONTRACTOR shall dispose of any hazardous material in a safe manner, off site, in accordance with applicable laws and regulations and shall not dispose of volatile or hazardous waste in storm or sanitary sewer drainage ditches, streams or waterways.

4.19.3 CONTRACTOR shall periodically wet down dry materials and rubbish to lay dust and prevent blowing dust; and shall provide adequate and approved containers for collection and disposal of waste material, debris and rubbish, removing grease, dust, dirt, stains, labels, fingerprints and other foreign materials from exposed and semi-exposed surfaces.

4.20 Termite Control. If the Project involves construction of a building or if otherwise specifically required by the CITY, then the CONTRACTOR shall provide soil treatment for termite control under all interior slabs on grade and foundation walls, and as herein specified. CONTRACTOR shall also comply with manufacturer's instructions and recommendations for work, including preparation of substrate and application and shall engage a professional pest control operator, licensed in accordance with regulations of governing authorities for application of soil treatment solution and doing business in the state where the Project is located for a minimum of five (5) years.

4.20.1 CONTRACTOR shall not apply soil treatment solution until excavating, filling and grading operations are completed, except as otherwise required in construction operations. To insure penetration, the soil treatment will not be applied to frozen or excessively wet soils or during inclement weather. CONTRACTOR shall comply with all handling and application instructions of the soil toxicant

manufacturer. The type of materials to be used for soil poisoning shall first be submitted to the CITY for approval.

4.20.2 The soil treatment solution shall be an emulsible concentrate insecticide for dilution with water, specially formulated to prevent infestation by termites. Fuel oil will not be permitted as a dilutant.

4.20.3 CONTRACTOR shall strictly comply with the Environmental Protection Agency's (EPA) rules and regulations governing chemicals and their use. Only soil treatment solutions which are not injurious to planting shall be used. Other solutions may be used as recommended by Applicator when acceptable to the EPA, local governing authorities, and the Engineer of Record.

4.20.4 CONTRACTOR shall comply with the following requirements when applying the soil treatment solution:

4.20.4.1 **Surface Preparation**: 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. Toxicants may be applied before placement of compacted fill under slabs if recommended by toxicant manufacturer.

4.20.4.2. Under slab-on-grade structures, treat soil before concrete slabs are placed using either power sprayer or tank type garden sprayer.

4.20.4.2.1 Apply 4-gallons of chemical solution per 10 linear feet to soil in critical areas under slab, including entire inside perimeter inside of foundation walls, along both sides at interior partition walls, around plumbing pipes and electric conduit penetrating slab, and around interior column footings.

4.20.4.2.2 Apply one gallon of chemical solution per 10 sq. ft. as an overall treatment under slab and attached where fill is washed gravel or other coarse absorbent materials.

4.20.4.2.3 Apply 4 gallons of chemical solution per 10 linear feet of trench for each foot of depth from grade to footing, along outside edge of building. Dig a trench 6" to 8" wide along outside of foundation to a depth of not less than 12". Punch holes to top of footing at not more than 12" o. c. and apply chemical solution. Mix chemical solution with the soil as it is being replaced in trench.

4.20.4.3. Post signs in areas of application warning workers that soil poisoning has been applied. Remove signs when areas are covered by other construction.

4.20.4.4 Reapply soil treatment solution to areas disturbed by subsequent excavation or other construction activities following application.

4.21 **Erosion Control**

4.21.1 To the extent there has been issued by the City of Fairhope Building Department a land disturbance permit in accordance with applicable ordinances, the CONTRACTOR shall conform to, and abide by all terms and conditions of such permit.

4.21.2 Erosion control measures shall be performed on all disturbed areas in accordance with Section 665, Alabama Highway Department Specifications. The CONTRACTOR will perform all erosion control measures necessary to prevent silt and soil from leaving construction area and entering private property or the "Waters of the State." Erosion control measures shall be in strict accordance with Alabama Non-Point Source Management Program Document and EPA Storm Water Pollution Prevention for Construction Activities.

4.21.3 Prior to issuance of City of Fairhope permits for site work, CONTRACTOR will be required to submit an Erosion and Sediment Control Plan for the project, as per the City of Fairhope Erosion and Sediment Control Ordinance, #1398.

4.21.4 Awarded Vendor is responsible for complying with all State, Federal and CITY ordinances, Including, but not limited to local ordinances: Erosion and Sediment Control Ordinance #1398; Wetland Ordinance # 1370; and Red Soil & Clay Ordinance # 1423.

4.21.3 In accordance with Section 665 of Alabama Highway Department Specifications, temporary erosion control work shall involve the construction of temporary berms, dikes, drains, fences, dams, etc. with the use of temporary seeding, mulching, erosion control netting, hay bales, sandbags, check dams, etc., as necessary in order to prevent silt and soil from leaving rights-of-way and entering private property or from washing into drainage structures located on State or County rights-of-way.

4.21.4 Erosion control measures shall be maintained by the CONTRACTOR through the warranty period of the contract. If additional measures are required to correct problems which might occur, these shall be performed by the CONTRACTOR at no additional cost to the OWNER.

4.21.5 Materials used for erosion control measures shall be in accordance with Section 665.02 of Alabama Highway Department Specifications and shall include hay bales, sandbags, silt fencing rip rap, crushed stone, mulch or other materials necessary in order to accomplish erosion control.

4.22 **Wastewater Containment and Management Plan.** To the extent that construction activity by the CONTRACTOR involves any wastewater infrastructure or construction activities in close proximity to any wastewater infrastructure and/or to any CITY sanitary sewer assets the CONTRACTOR shall submit to the Engineer of Record, prior to commencing construction, a wastewater containment and management plan (the Plan"). The Plan shall adequately address the means, methods and techniques to be employed by the CONTRACTOR for containing and transporting wastewater in a sanitary manner without, at any time, permitting the discharge of wastewater into the environment or creating the necessity of a State required sanitary sewer overflow report. The Plan shall be submitted by the CONTRACTOR to the Engineer for review and approval before commencing any construction activity. The Engineer of record may waive the requirement of submitting a Plan if he/ she determines that the construction activity to **which the Plan would relate does not involve any potential for the discharge of wastewater into the environment or creating the** potential for the necessity of a State required sanitary sewer overflow report.

4.23 **Environmental Clause/Covenant**. CONTRACTOR shall not allow any toxic, hazardous or contaminated substances or gases (including, but not limited to, asbestos and raw materials which include hazardous constituents or any other similar substances or materials which are included under or regulated by any local, state, or federal law, rule or regulation pertaining to environmental regulations, contamination, clean-up or disclosure such as, without limitation, the Comprehensive Environmental Response Compensation and Liability Act of 1980 ("CERCLA"); the Clean Air Act (42 U.S.C. Sec. 7401 et seq.); the Clean Water Act (33 U.S.C. §1251 et seq.); the Resource Conservation and Recovery Act (42 U.S.C. §6901 et seq.); and the Toxic Substances Control Act (42 U.S.C. §2601 et seq.) or state environmental clean-up or disclosure acts and statutes as all such acts and statutes exist now or are hereafter amended (such acts and statutes referred to herein as "Environmental Laws") (such substances or gases referred to herein as 'Hazardous Substances') to be stored, located, or discharged on the premises without specific prior written consent of the CITY. CONTRACTOR shall comply with all Environmental Laws affecting the premises. CONTRACTOR covenants to hold the CITY, its officers, agents and employees harmless from and against any loss, costs, damage or expenses (including attorney's fees and expenses) arising out of the presence of Hazardous Substances (as hereinbefore described) on or about the premises or the violation of any Environmental Laws with respect thereto, the occurrence of which Hazardous Substances on the premises or the violation of any Environmental Laws shall have arisen solely from the acts or omissions of CONTRACTOR, its subcontractors, agents, invitees and employees. This indemnity shall survive the termination of this contract and shall inure to the benefit of the City of Fairhope, its successors and assigns.

ARTICLE V
INSURANCE, LIABILITY, ETC.

5.0 **CONTRACTOR's Insurance (**Generally):

5.0.1 **Insurance Required**. The CONTRACTOR shall not commence work under this Contract until it has obtained all insurance required by the Contract documents and such insurance has been accepted by the CITY. The CONTRACTOR shall maintain the required insurance during the term of the Contract including

any extensions of the term.

5.0.1.1 Insurance shall be written in comprehensive form by insurance companies rated A- or better by A. M. BEST and shall protect the CONTRACTOR and the CITY against claims for injuries to members of the public (including City employees) or damages to property of others (including City property) arising out of any act of the CONTRACTOR or any of its agents, employees or subcontractors and shall cover both on-site and off-site operations under this contract and insurance coverage shall extend to any motor vehicles or other related equipment, irrespective of whether the same is owned, non-owned or hired.

5.0.1.2 The obtaining and maintaining by CONTRACTOR and subcontractors of the insurance required herein does not relieve the CONTRACTOR of any responsibilities, obligations or duties to the CITY pursuant to this Contract.

5.0.2 Additional Insurance. The CONTRACTOR shall have an insurance professional review the CONTRACTOR'S activities in regard to the performance of this contract, and the CONTRACTOR shall obtain any further or additional insurance or greater limits as recommended by the insurance professional.

5.0.3 Insurance Limits. Neither the setting of insurance limits or requirements nor the acceptance or approval of the same by the CITY imply or represent that the limits or the insurance carrier is sufficient or that such insurance actually has been obtained, that being the responsibility of the CONTRACTOR.

5.0.4 Subcontractors. The CONTRACTOR shall require all subcontractors to take out and maintain the type of insurance required herein to the extent of their involvement in the Project so as to be adequate to protect against liability. In the event any work under this Contract is performed by a subcontractor(s), the CONTRACTOR shall remain responsible for any liability directly or indirectly arising out of the work performed under this Contract, regardless of whether or not such work is covered by the subcontractor's insurance. The CONTRACTOR shall not allow any subcontractor to commence work on the project until all similar insurance required of the subcontractor has been obtained. All subcontractors shall maintain required insurance during the term of the contract including any extensions of the term.

5.0.5 CITY'S Right to Review Coverage. The CITY shall have the right to inspect and approve CONTRACTOR'S insurance coverage herein required. Should the CITY deem it advisable to modify the coverage in any way, it shall so request of the CONTRACTOR in writing and should the

CONTRACTOR fail to modify the, then the CITY may pay the cost of any increased coverage or take credit for any decreases as may be appropriate. Review or acceptance of insurance by the CITY or representatives of the CITY shall not relieve or decrease the responsibility of the CONTRACTOR hereunder.

5.0.6. Waiver of Subrogation. To the extent that the CONTRACTOR is required to maintain insurance coverage for loss or damage to property or bodily injury, the insurance must waive and the CONTRACTOR hereby waives subrogation of claims against the CITY, its officers, agents and employees.

5.0.7 CITY as Additional Insured. The CITY shall be named as additional insured, for ongoing and completed operations for up to two (2) years, on the CONTRACTOR'S and any subcontractor's policies for any claims arising out of work performed under this Contract. The CONTRACTOR shall provide the CITY with a Certificate of Insurance naming the CITY as an additional insured using ACORD form 25 (2014/01) (or a substitute form providing equivalent coverage) naming the CITY as an additional insured, giving all parties a 30 notice of cancellation or intent not to renew the insurance, a waiver of subrogation and list any and all exclusions. The coverage available to the CITY as an additional insured shall be as specified in Item IV of the bid packet. Additional insured coverage shall apply as primary, non- contributory, insurance with any other insurance afforded to the CITY and the CONTRACTOR.

5.0.8. Elevators, Hoist and Cranes. If the CONTRACTOR or a subcontractor will utilize in connection with the performance of the work pursuant to this Contract an elevator, material hoist, crane or other equipment, or conveyor, then the CONTRACTOR shall take out and maintain or require the subcontractor

to take out and maintain insurance that shall protect the CONTRACTOR and the CITY against claims for injuries to members of the public (including CITY employees) or damages to property of others (including CITY property) arising out of any act of the CONTRACTOR or any of its agents, employees or subcontractors resulting from the operation of such elevator, material hoist, crane or other equipment, or conveyor.

5.1 **Insurance:**

5.1.1 Workmen's Compensation Insurance:
The CONTRACTOR shall take out and maintain during the term or any extensions of this Contract Workmen's Compensation Insurance as required by Alabama law for all of its employees employed at the site of the Project or off-sites related to the Project and, in case any work is sublet, the CONTRACTOR shall require the subcontractor similarly to provide Workmen's Compensation Insurance for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR.

5.1.1.1 In case any class of employees engaged in any work under this contract at the site of the Project is not protected under the Workmen's Compensation statute, the CONTRACTOR shall provide, and shall cause each subcontractor to provide, adequate accident insurance for the protection of its employees not otherwise protected.

5.1.1.2 Water or Navigational Exposure; Where work under this Contract may trigger the requirement for Federal Longshoreman's and Harbor Worker's Act and Federal Jones Act or insurance required by other applicable law or regulations, the CONTRACTOR shall obtain the same if required.

5.1.2. Comprehensive Automobile and Vehicle Liability Insurance:
The CONTRACTOR shall maintain during the term or any extensions of this Contract comprehensive automobile and vehicle liability insurance. The limits of liability shall be as specified in Item IV of the Bid packet

5.1.3. Commercial General Liability Insurance:
The CONTRACTOR shall maintain during the term or any extensions of this Contract, Commercial General Liability Insurance, including officers, agents and employees.

5.1.3.1 The limits of liability shall be as specified in **ITEM IV** of the bid packet.

5.1.4 Miscellaneous Insurance:
The CONTRACTOR shall provide whatever insurance may be required of the CITY or the CONTRACTOR by permits or agreements, etc., with the railroad, highways, or other utilities. The CONTRACTOR shall familiarize himself with all insurance requirements contained in easements, permits, and agreements associated with this Project. The CONTRACTOR shall provide any Railroad Protective Liability and other General Liability Insurance in the amounts contained in the agreements, permits or easements or in greater amounts if higher limits are appropriate or required elsewhere. The CONTRACTOR shall bear the cost of all required Insurance and shall include in his bid a sufficient amount to cover the cost of all required insurance. To the extent the CITY obtains permits or licenses for railroad or highway bores, crossings or other work involved in the Project, the CONTRACTOR shall obtain adequate insurance to protect itself and the CITY.

5.1.5. Proof of Carriage of Insurance:
The CONTRACTOR shall furnish the CITY with satisfactory proof of carriage of the insurance required herein, in the form of an insurance certificate or if the CITY elects in the form of a policy. Insurance shall be in a form satisfactory to the CITY.

5.1.5.1 The CONTRACTOR'S and any subcontractor's general liability and automobile liability insurance shall endorse the OWNER (City of Fairhope), its officers, agents and employees, as additional insured's for any claims arising out of work performed under this contract.

5.1.5.2 The CONTRACTOR'S insurance endorsing the OWNER and others as additional insured's shall be "primary" and non-contributory as to such endorsed insured's.

5.1.5.3 Cancellation: The certificate and policy, as the case may be, shall state that the CITY shall be given ten

(10) days' written notice of cancellation or any change in the insurance coverage.

5.1.5.4 There shall be a statement that the CONTRACTOR and any subcontractors waive subrogation as to the CITY, its officers, agents, employees and Program Coordinator.

5.1.5.5 There shall be a statement that full aggregate limits apply per job or contract.

5.1.5.6 Agents verification of CONTRACTOR'S insurance on form provided by the CITY or equivalent.

5.1.5.7 Insurance shall contain no exclusions for X, C or U.

5.1.5.8 Full aggregate limits must apply per job or contract.

5.2 No Personal Liability of Public Officials
In carrying out any of the provisions hereof in exercising any authority granted by the Contract, there will be no personal liability upon any public official.

5.3 Indemnity
To the maximum extent permitted by law, the CONTRACTOR shall save harmless, indemnify and defend the CITY, its officers, agents and employees from and against any and all claims and losses, cost, expense or liability including attorney's fees and litigation costs caused by, arising out of, resulting from, or occurring in connection with the performance of the work by the CONTRACTOR or any subcontractor, regardless of the fault, breach of contract, or negligence of the CITY, its officers, agents or employees excepting only such claims or losses that have been adjudicated to have been caused solely by the negligence of the CITY and regardless of whether or not the CONTRACTOR is or can be named a party in a litigation.

5.3.1 CONTRACTOR agrees to indemnify and/or reimburse the CITY for any fines, violations, charges, suits, or sums of money imposed by the Alabama Department of Environmental Management (ADEM), Environmental Protection Agency (EPA), or any administrative agency on the CITY of Fairhope for any sewage or contaminate discharged or Wetlands regulations violation as a result of or arising out of the work by the CONTRACTOR pursuant to this agreement.

5.4 Exclusion of CONTRACTOR Claims
In performing its obligations, the Engineer of Record and its Consultants may cause expense for the CONTRACTOR or its subcontractors and equipment or material suppliers. However, those parties and their sureties shall maintain no direct action against the CITY or its officers, employees, agents and program coordinator for any claim arising out of, in connection with, or resulting from the Engineering services performed or required to be performed where such services are performed in good faith to protect the CITY or the Public.

5.5 Inadequate Surety/Insurance
It is further mutually agreed between the parties hereto that if, at any time after the execution of this agreement, any of the surety bonds of the CONTRACTOR or subcontractors relating to the Project for its faithful performance shall be deemed by the CITY to be unsatisfactory, or if for any reason such bond(s) ceases to be adequate to cover the performance of the work or the surety ceases to do business by agent in Baldwin County, Alabama, the CONTRACTOR shall, at its expense, within five (5) days after the receipt of notice from the CITY so to do, furnish an additional bond or bonds in such form and amount and with such surety or sureties as shall be satisfactory to the CITY. In such event, no further payment to the CONTRACTOR shall be deemed to be due under this agreement until such new or additional security for the faithful performance of the work shall be furnished in manner and form satisfactory to the CITY.

5.6 Changes
When changes in the Scope of Work by written order, or Change Orders, aggregate in an amount equal to 10 percent (10%) of the total contract, including the Change Order or Change Orders, the insurance coverage included under this heading shall be increased accordingly by the CONTRACTOR. Proof of coverage shall be established by endorsement to the original policy or by re-issue of the original policy to include the added coverage, or in accordance with any other acceptable policy with the insuring company for increasing the coverage.

ARTICLE VI
OBSERVATION OF THE PROJECT

6.0 Generally: The CONTRACTOR shall furnish the Engineer of Record and/or the CITY'S observer with every reasonable facility for ascertaining whether or not the work performed is in accordance with the requirements and intent of the Specifications and Contract Documents. No work shall be done without suitable inspection by the Engineer of Record's Inspector or the CITY'S observer. Payment for work or failure to reject any defective work shall not in any way prevent later rejection when such defect is discovered, nor obligate the CITY to final acceptance. All work done when not in accordance with the Plans, specifications and contract will be rejected and, without cost to the CITY, shall immediately be removed and other work done in accordance therewith by the CONTRACTOR. If the CONTRACTOR fails to remove the work as above ordered, then the Engineer of Record shall have the right and authority to stop the CONTRACTOR and his work at once and the CITY may correct the work as herein provided at the cost and expense of the CONTRACTOR.

6.0.1 Inspection is not acceptance and shall not constitute acceptance by the CITY.

6.0.2 The work shall also be subject to inspection by representatives of the City of Fairhope Building Inspection Department.

6.1 Observation of the Project: The Engineer of Record, the CITY and its observers, agents, any agency having jurisdiction, and their representatives shall have access at all times to the Project for inspection whenever it is in preparation or progress, and the CONTRACTOR shall provide proper facilities for such access and inspection. The CITY or the Engineer of Record may appoint or assign observers, with designated duties and restricted authority, to inspect the Project as may be directed, or to make special observations requested in advance by the CONTRACTOR, and to report progress of the Project, and manner of procedure, quality of the material and workmanship, and compliance with the Contract Documents. Inspection or observation is not acceptance and shall not constitute acceptance by the CITY.

6.1.1 All materials, workmanship, equipment, processes of manufacture, and methods of construction, shall be subject to inspection, examination, and test by such persons at any and all places where such manufacture and/or construction are being carried on. The Engineer of Record shall have the right to reject material, workmanship and/or equipment that are defective or otherwise not in accordance with the drawings and Specifications and require its correction by the CONTRACTOR. Rejected workmanship shall be satisfactorily corrected, and rejected material shall be satisfactorily replaced with proper material by the CONTRACTOR without charge therefore, and the CONTRACTOR shall promptly segregate and remove the rejected material from the premises. Provided; however, neither the presence or absence of such observers nor the giving or failure to give such advice, direction or instruction shall in any manner relieve the CONTRACTOR from any contract requirement.

6.1.2 Upon rejection of material and/or workmanship by the Engineer of Record or the CITY, there may be occasion where such deficiencies may be corrected more economically and timely through modification of the design versus removal and replacement. In such instances, the Engineer of Record shall provide design services on behalf of the CITY necessary for analysis and correction of the rejected work. Costs associated with hourly fees for these professional services shall be paid by the CITY and deducted from payment to the CONTRACTOR based on the actual costs incurred. Prior to beginning any analysis and accrual of associated professional service fees, the Engineer of Record shall provide the CONTRACTOR and CITY notice in writing of the intent to begin, summary of the scope of work, estimated time to complete, and estimated total fees. Any costs associated with corrective work performed by the CONTRACTOR to remedy such deficiencies shall be the sole responsibility of the CONTRACTOR.

6.1.3 Neither the CITY observers nor the Engineer of Record, will be authorized to revoke, alter, relax, or waive any requirements of the Contract Documents; to issue instructions contrary to the drawings and Specifications; nor shall they direct work for the CONTRACTOR, nor unreasonably interfere with the CONTRACTOR's operations beyond the extent necessary to make certain that the Project is being carried out according to the contract requirements.

6.1.4 Any advice which they may give the CONTRACTOR shall not be construed as binding the CITY in any way, nor as releasing the CONTRACTOR from any of the contract requirements.

6.1.5 If the CONTRACTOR considers any work demanded of it to be outside the contract requirements, or any ruling of the Engineer of Record or an inspector to be unfair, it may immediately, upon such work being demanded or ruling made, request written instructions from the Engineer / Architect, or inspector, or within ten days file an appeal to the Engineer of Record or the CITY, stating clearly and in detail the basis of its objections. However, pending the decision on such appeal no work shall be done in disregard of the rulings of the Engineer of Record or inspector or his instructions on items of work affected by such appeal.

6.1.6 The CONTRACTOR shall furnish promptly, without extra compensation, all reasonable facilities, labor, and material necessary for safe and convenient access, inspection, and tests that may be required by the Engineer of Record.

6.2 Authority and Duties of Observers: If CITY or consultant inspectors, whether for the Engineer of Record or Construction Manager, are being utilized, they shall be authorized and permitted to inspect all work done. The Inspector shall not be authorized to alter or waive any requirements of the Specifications. He shall have authority to call the attention of the CONTRACTOR to failure of the work to conform to the specifications and Contract. He may suspend the Project until any questions at issue can be referred to and decided by the Engineer of Record or the CITY.

6.2.1 Neither the Engineer of Record, Inspector, the CITY or other representatives for the CITY shall be responsible in any way for construction means, methods or techniques, nor for the safety of the construction work, progress, or employees of the CONTRACTOR or any subcontractors, except as set forth in the Construction Manager contract, if applicable.

6.2.2 The presence of the Inspector shall not in any manner lessen the responsibility of the CONTRACTOR pursuant to this agreement.

6.3 Defective Work/Correction of Work by the CITY: The inspection of the work shall not relieve the CONTRACTOR of any of its obligations to fulfill its contract and defective work shall be made good, notwithstanding that such work has been previously inspected by the Engineer of Record and accepted or estimated for payment. The failure of the Engineer of Record or inspector to condemn improper workmanship shall not be considered as a waiver of any defect, whether known at the time or discovered later, or as preventing the CITY at any time subsequently from recovering damages for work actually defective. All work shall be guaranteed by the CONTRACTOR against defects in workmanship for a period of one year from date of final payment.

6.3.1 Upon failure and/or neglect by the CONTRACTOR to promptly prosecute or perform the work in accordance with the contract documents, including any requirements with respect to the construction schedule, plans or specifications, the CITY may, without prejudice to any other remedy it may have, correct such deficiencies and may deduct the actual cost thereof from payment, then or thereafter due to the CONTRACTOR.

6.4 Disagreement: Should any disagreement or difference arise as to the estimated quantities or classifications or as to the meaning of the drawings or specifications, or any point concerning the character, or acceptability or nature of the several kinds of work, or construction thereof, the decision of the Engineer of Record shall be final and conclusive and binding on the CONTRACTOR.

6.5 Stop Work Orders: During unseasonable weather all work must stop when the Engineer of Record so directs and all work must be suitably protected by CONTRACTOR at all times. However, the Engineer/Architect shall be under no obligation to stop work on the Project. If the Project is stopped, the CONTRACTOR shall not be entitled to extra compensation for delays or problems associated with the stoppage.

6.6 Progress Meetings: The CONTRACTOR shall conduct regular progress meetings during the course of the Project at least once a month or more often if requested by the CITY or Engineer of Record. The meetings shall be held at a site convenient to all parties and if a site cannot be agreed upon, the CITY will designate a site.

6.6.1 The CONTRACTOR or designated representative, the CONTRACTOR'S Superintendent, all

subcontractors, engineers, inspectors, and the CITY'S representative shall attend.

6.6.2 The CONTRACTOR shall keep accurate written minutes of the meetings and forward copies thereof to the Engineer of Record and the CITY's representative before the next scheduled meeting.

6.6.3 If a trade contract, progress meetings will be conducted by the Construction Manager, who will keep minutes. All trade contractors shall attend unless excused by the Construction Manager.

ARTICLE VII
PROJECT COMPLETION

7.0 Substantial Completion: "Substantial completion" shall be that degree of completion of the Project or a defined portion of the Project, as evidenced by the Engineer of Record's written notice of Substantial Completion, sufficient to provide the CITY, at its discretion, the full-time use of the Project or defined portion of the work for the purposes for which it was intended. "Substantial Completion" of an operating facility or operating component of the Project shall be that degree of completion that has provided a minimum of seven (7) continuous days of successful, trouble-free operation in a "fully automatic" manner acceptable to the CITY and Engineer of Record and with all redundant systems fully operational. All equipment contained in the Project, plus all other components necessary to enable the OWNER to operate the facility in the manner that was intended, shall be complete on the substantial completion date.

7.0.1 When the CONTRACTOR considers that the Project, or where acceptable to the CITY, a designated portion thereof is substantially complete, the CONTRACTOR shall prepare and submit to the Engineer of Record a list of items to be completed or corrected and request an inspection for Substantial Completion. The failure by the CONTRACTOR to include any items on such list does not alter the responsibility of the CONTRACTOR to complete all work in accordance with the Contract Documents. After inspection and/or if an operating facility, after a minimum of seven (7) continuous days of successful, trouble free operation has been achieved during startup, the Engineer of Record may, at his sole discretion, issue a written Notice of Substantial Completion for the purpose of establishing the starting date for specific equipment guarantees or warranties, and to establish the date that the CITY will assume the responsibility for the cost of operating such equipment.

7.0.2 Said Notice shall not be considered as final acceptance of any portion of the Project or relieve the CONTRACTOR from completing the remaining work, including any remaining performance or acceptance testing, within the specified time and in full compliance with the Contract Documents. Specifically, the issuance of a written notice of Substantial Completion shall not relieve the CONTRACTOR of his obligation to promptly remedy any omissions and latent or unnoticed defects in the Project covered by the written Notice of Substantial Completion.

7.1 Final Inspection: Upon notice from the CONTRACTOR that its work is complete, the Engineer of Record and/or other representatives of the CITY shall make a final inspection of the work or Project and conduct test or tests if applicable. The Engineer of Record shall notify the CONTRACTOR of all apparent and/or visible instances where the Project fails to comply with the plans and specifications and contract documents, as well as any defects he may discover (punch list). The CONTRACTOR shall immediately make such alterations as are necessary to make the Project comply with the plans and specifications and to the satisfaction of the Engineer of Record.

7.1.1 Upon completion of all such repairs in a satisfactory manner, and when the Engineer of Record has determined that the work or Project is acceptable under the contract, including this provision and after publication of final completion and all other requirements of final payment as provided for in this agreement, then he shall issue a final certificate of payment to the CITY stating that the balance is due the CONTRACTOR, less such amounts as may have been withheld by the CITY from time to time as provided in the contract documents. In recommending to the CITY that it make such final payment to the CONTRACTOR, the Engineer of Record shall also issue a certificate of final acceptance wherein he shall recommend to the CITY that it accept the Project and/or work as final and complete pursuant to the contract documents.

7.1.2 Verification, approval, inspection, final inspection, issuance of final acceptance, issuance of final

certificate of payment, action or approval by the CITY upon the final certificate of payment or final acceptance shall not in any way relieve the CONTRACTOR of responsibility for faulty materials or workmanship

7.1.3 All warranty or guarantee periods shall commence and start to run from the date of substantial completion.

7.2 "As Built" Drawings: Unless waived by the CITY representative, the CONTRACTOR must provide to the CITY a set of "as built" drawings acceptable to the CITY as a component part of the Project prior to final payment.

7.3 Final Cleanup: Before final completion and final acceptance, the CONTRACTOR shall remove from the CITY's property or rights-of-ways and from all public and private property, all tools, scaffolding, false work, temporary structures and/or utilities, including the foundations thereof (except such as the CITY permits in writing to remain); rubbish and waste materials resulting from its operation or caused by its employees; and shall remove all surplus materials, leaving the site clean and true to line and grade, and the Project in a safe and clean condition ready for use and operation. In addition to the above, the CONTRACTOR shall be responsible for the following special cleaning for all trades as the Project shall have been completed:

7.3.1 Cleaning of all painted, enameled, stained or baked enamel work: removal of all marks, stains, fingerprints and splatters from such surfaces.

7.3.2 Cleaning of all glass: cleaning and removing of all stickers, labels, stains and paint from all glass and the washing and polishing of the same on interior and exterior.

7.3.3 Cleaning or polishing of all hardware.

7.3.4 Cleaning of all tile, floor finishing of all kinds; removal of all splatters, stains, paint, dirt, and dust, the washing and polishing of all floors as recommended by the manufacturer or required by the Engineer of Record.

7.3.5 Cleaning of all manufactured articles, materials, fixtures, appliances and equipment; removal of all stickers, rust stains, labels (except instructional and/or safety labels) and temporary covers and cleaning and conditioning of all manufactured articles, materials, fixtures, appliances, electrical, heating and air conditioning equipment as recommended or directed by the manufacturers, unless otherwise required by the Engineer of Record; blowing out or flushing out of all foreign matter from all dust pockets, piping, tanks, pumps, fans, motors, devices, switches, panels, fixtures, boilers, similar features; and freeing identification plates on all equipment or excess paint and the polishing thereof.

7.3.6 In the case of failure to comply with the above requirements for any part of the Project within the time specified by the Engineer of Record, he may cause the work to be done and deduct the cost thereof from the contract price on the next or succeeding application for payment, or in the event that the cost exceeds the balance due the CONTRACTOR, bill the CONTRACTOR for the excess.

7.4 Notice of Completion: The CONTRACTOR shall, immediately after the completion of the Project and acceptance by the OWNER as provided for herein, give notice as required by Ala. Code §39-1-1(f) by an advertisement in some newspaper of general circulation published within the CITY or county where in the Project has been done for a period of four (4) successive weeks. The advertisement shall advise interested parties to contact both the CONTRACTOR and the specific CITY representative. The CITY'S representative shall be named along with his proper mailing address. In no instance shall a final payment be made upon the contract until the expiration of thirty (30) days after the completion of the notice. Proof of Publication of said notice shall be made by the CONTRACTOR to the City of Fairhope by affidavit of the Publisher and a printed copy of the notice published.

7.4.1 Provided, however, that the requirements hereinabove stated for notice and advertisement shall not apply to contractors performing contracts of less than Fifty Thousand Dollars ($50,000.00) in amount and the governing body of the City of Fairhope so as to expedite final payment, shall cause notice of final completion of such contract to be published one time in Baldwin County and shall post notice of final completion on the City of Fairhope's bulletin board for one (1) week and shall require the

CONTRACTOR to certify under oath that all bills have been paid in full. Final settlement with such CONTRACTOR may be made at any time after the notice shall have been posted for one (1) entire week.

7.4.2 **NOTE: When maintenance periods are included in the contract for highways, bridges or similar structures, such periods shall be considered component parts of the contract.**

7.5 Final Payment:
Upon completion of the Project by the CONTRACTOR and acceptance by the CITY'S representatives of all work required of the CONTRACTOR for the Project, but not until thirty (30) days after completion of the notice, the amount due the CONTRACTOR pursuant to the Contract Documents shall be paid upon the presentation by the CONTRACTOR to the CITY'S representative of the following:

7.5.1 A properly executed and duly certified voucher for payment, verified by Engineer of Record, or other CITY representative, including therewith evidence that all payrolls and all amounts due for labor and materials, other than claims for damages due to tort, have been fully paid and satisfied and there are no outstanding claims or demands associated with the work on the Project.

7.5.2 A release of all claims and claims of lien against the CITY from the CONTRACTOR and all major subcontractors (the CITY may waive the requirement for subcontractor releases) arising under and by virtue of the contract, on the form attached, duly executed by the CONTRACTOR and with the Consent of the Surety. The CONTRACTOR may specifically except claims of the CONTRACTOR from the operation of the release if specifically excepted therefrom in stated amounts and the reason therefor. The CONTRACTOR may with the consent of the CITY representative, if any subcontractor refuses to furnish such a release, furnish a Bond with Surety satisfactory to the CITY representative to indemnify against such claims.

7.5.3 **Proof of Publication of Notice of Completion including Affidavit of Publisher and a printed copy of the Notice so published, as provided by law.**

7.5.4 In accordance with Ala. Code §39-2-12(c), a non-resident Contractor shall satisfy the CITY that he or she has paid all taxes due and payable to the State, the CITY and all applicable political subdivisions.

7.6 Acceptance of Final Payment Constitutes Release: The acceptance by the CONTRACTOR of the final payment shall release the CITY, the Engineer of Record, as representatives of the CITY, and their officers, employees, agents, and sub-consultants from all claims and all liability to the CONTRACTOR for all things done or furnished in connection with the Project, and every act of the CITY and others relating to or arising out of the work except claims previously made in writing and still unsettled. No payment, however, final or otherwise, shall operate to release the CONTRACTOR or his Sureties from obligations under this Contract and the Performance Bond, Payment Bond, and other bonds, warranties and guarantees as herein provide.

ARTICLE VIII
WARRANTY AND GUARANTEES

8.0 Warranty and Guarantee:

8.1. Warranty: The CONTRACTOR warrants to the CITY and the Engineer of Record that all materials and equipment furnished under this Contract will be new unless otherwise specified and that all work, materials and equipment will be of good quality, free from fault and defects and in conformance with the contract documents. The work must be safe, substantial and durable construction in all respects. All work, materials and equipment not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. Warranties shall commence to run from the date of substantial completion.

8.1.1 The work furnished must be of first quality and the workmanship must be the best obtainable in the various trades. The CONTRACTOR hereby guarantees the Project and the work on the Project against defective materials or faulty workmanship for a minimum of one (1) year after final payment by the CITY and shall replace or repair any defective materials or equipment or faulty workmanship during the period of guarantee at no cost to the CITY.

8.2 Guarantee: If, within the designated warranty period or if not designated, within one (1) year from the date of substantial completion, any of the work, materials or equipment is found to be defective or not in accordance with the contract documents, the CONTRACTOR shall correct it promptly after receipt of written notice from the CITY to do so, unless the CITY has previously specifically given the CONTRACTOR a written acceptance of such specific condition. This obligation shall survive termination of the Contract. The CITY shall give such notice promptly after discovery of the condition.

8.3 Roofing Guarantee: If the Project involves a roof on a building or other structure, then the CONTRACTOR shall execute and provide the Roofing Guarantee in the form attached hereto. The guarantee shall be delivered to the CITY and Engineer of Record prior to final payment.

8.4 Termite Warranty: If the Project involves termite treatment as required in Article IV, then the CONTRACTOR shall furnish to the CITY a written warranty certifying that the applied soil poisoning treatment will prevent the infestation of subterranean termites and that if subterranean termite activity is discovered during the warranty period, CONTRACTOR shall re-treat the soil and repair or replace any damage caused by termite infestation. The warranty shall be for a period of five (5) years from the date of treatment signed by Applicator and CONTRACTOR.

8.5 Correction of Defective Work During Warranty/Guarantee Period: The CONTRACTOR hereby agrees to make, at his own expense and no cost to the CITY, all repairs or replacement necessitated by defects in materials or workmanship, provided under the terms of this Contract, and pay for any damage to other works resulting from such defects, which become evident within 1 year after the date of substantial completion unless substantial completion is established by the Engineer of Record only for specified items of equipment, or within 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 unless the CITY has previously given the CONTRACTOR a written acceptance of such defects. The CONTRACTOR shall promptly correct such defects upon receipt of a written notice from the CITY to do so. This obligation shall survive the termination of the Contract.

8.5.1 Un-remedied defects identified for correction during the warranty period described herein before, but remaining after its expiration, shall be considered as part of the obligations of the warranty. Defects in material, workmanship, or equipment which are remedied as a result of obligations of the warranty shall subject the remedied portion of the Project to an extended warranty period of 1 year after the defect has been remedied.

8.5.2 Repetitive malfunction of equipment shall be cause for equipment replacement and an extension of the guarantee period for the equipment to a date 1 year following acceptable replacement.

8.5.3 The CONTRACTOR further assumes responsibility for a similar guarantee for all work and materials provided by subcontractors or manufacturers of packaged equipment components. The CONTRACTOR also agrees to hold the CITY and the Engineer of Record and employees harmless from liability or damages, including the Engineer of Record's and attorneys' fees, and cost and expenses of litigation of any kind arising from damage due to said defects. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order for same from the CITY. If the CONTRACTOR fails to make the repairs and replacements promptly, or in an emergency where delay would cause serious risk, or loss, or damage, the CITY may have the defective work corrected or the rejected work removed and replaced, and the CONTRACTOR and his Surety shall be liable for the cost thereof. The CONTRACTOR during the warranty period shall repair/replace as rapidly as possible any and all equipment, materials, etc., which are found to be defective. Should any items not be repaired/replaced within thirty (30) days from the time it is reported to the CONTRACTOR by the CITY, then the warranty period shall be extended on that item for a period equal to the time that the item has remained defective, incomplete, or inoperable as determined by the CITY. The CONTRACTOR must certify that the item has been corrected.

8.5.4 The CITY'S rights under this Article shall be in addition to, and not a limitation of, any other rights and remedies available by law.

ARTICLE IX
LAWS, PERMITS, ETC.

9.0 Laws and Regulations/Royalties, Patents, Copyrights and Permits and Rights-of-Way: The CONTRACTOR shall comply with and keep itself fully informed of all laws, ordinances and regulations of federal, state, CITY and county in any manner effecting those engaged or employed in the Project, or the materials used in the Project, or in any way affecting the conduct of the Project, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over same. The CONTRACTOR shall possess all permits and licenses required by applicable law, rule or regulation for the performance of the Project. If any discrepancy or inconsistency should be discovered in this contract, or in the drawings or specifications herein referred to, in relation to any law, ordinance, regulation, order or decree, it shall forthwith report the same in writing to the Engineer of Record. It shall at all times, itself, observe and comply with all such existing and future laws, ordinances and regulations.

9.0.1 The CONTRACTOR shall protect and indemnify the CITY, Engineer of Record, and their respective employees, officers, sub-consultants, and agents against any claim or liability arising from or based on the violation of any such laws, ordinances, or regulations. All permits, licenses, and inspection fees necessary for prosecution and completion of the Project shall be secured and paid for by the CONTRACTOR, unless otherwise specified.

9.0.1.1 The CONTRACTOR shall obtain and pay for all licenses and permits and shall pay all fees and charges for connection to outside service and the use of property required for the execution and completion of the Project.

9.0.2 The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules, regulations, and code requirements applicable in or bearing on the conduct of the Project unless in conflict with Contract requirements. If the CONTRACTOR ascertains at any time that any requirements of the Contract is at variance with applicable laws, ordinances, regulations, or building code requirements, it shall promptly notify the Engineer of Record and any necessary adjustment of the Contract will be made as herein specified under change in orders.

9.0.3 The CONTRACTOR shall pay all applicable federal, state and local taxes and assessments on the Project. Wherever the law of the place of building requires a special tax, use, occupation, or other tax, the CONTRACTOR shall pay such tax.

9.0.4 The CONTRACTOR shall pay all royalties and license fees. The CONTRACTOR shall hold and save the CITY and its agents and employees harmless from liability of any nature or kind, including costs and expenses, for or on account of any patented or unpatented invention, process, article or appliance manufactured or used in the performance of the contract, including its use by the CITY.

9.0.5 To the extent that the Project has not been permitted or registered by the Engineer or CITY, CONTRACTOR shall register or obtain any and all necessary National Pollutant Discharge Elimination System (NPDES) Permits required by USEPA or the Alabama Department of Environmental Management (ADEM) as well as any applicable storm water permits or registration for the construction of the improvements specified in the Contract Documents. The CONTRACTOR shall abide by all regulations and conditions relative to the permit or registration and attachments to the permit or registration, including but not limited to sampling and monitoring. The CONTRACTOR shall fulfill for the CITY all the requirements made upon the CITY by the permit(s) or registration.

9.0.6 The CONTRACTOR shall be fully responsible for all aspects of erosion and sediment control. The CONTRACTOR shall utilize whatever measures are necessary to prevent pollution or siltation due to his activities. As a minimum, the CONTRACTOR shall strictly comply with the erosion control methods referenced in the Alabama Soil and Water Conservation Committee "Alabama Handbook for Erosion Control, Sediment Control, and Storm water Management on Construction Sites and Urban Areas," latest edition (referred to as the Alabama Handbook").

9.0.7 If the CONTRACTOR has information that any process, article or item specified or delineated by the Engineer of Record is an infringement of a patent or a copyright, it shall promptly give such information to the Engineer of Record.

9.1 Alabama Department of Transportation Rights-of-Way: If any portion of the Project involves work upon State right-of-way, the CONTRACTOR agrees to provide the Alabama Department of

Transportation with a bond or certified check in the amount required, made payable to the Alabama Department of Transportation, to guarantee the faithful performance of the provisions of a permit and to guarantee that the CONTRACTOR shall maintain the work in a manner suitable to the Alabama Department of Transportation for a period of one (1) year. The Alabama Department of Transportation Bond Form must be used. At the end of one (1) year from the completion of this work, the Department of Transportation will return the certified check or bond to the applicant provided all provisions of this permit have been complied with. Otherwise, the Department of Transportation shall apply the certified check or bond to the cost of repairing the rights-of-way with State forces.

9.2 Storm Water Permit and Monitoring:

9.2.1. To the extent that the Project has not been permitted or registered by the Engineer of Record or the CITY, and **if** the Project is defined as a NPDES Construction Site per ADEM Admin. Code Chapter 335-6-12 (the Rule), the CONTRACTOR shall submit to the Alabama Department of Environmental Management (ADEM) a Notice of Registration (NOR) under the Rule for Storm Water Discharges during construction activities.

9.2.1.1 The CONTRACTOR shall strictly adhere to all requirements of the NOR and the rule regardless of which party has obtained coverage.

9.2.2 Compliance with all provisions of ADEM Admin. Code Chapter 335-6-12 and this registration is required, including but not limited to, the preparation and implementation of a Construction Best Management Practices Plan (CBMPP) and any other plans as may be required, the regular maintenance of the Best Management Practices (BMPs) to the maximum extent practicable and the submittal of required reports. As required by the Rule, the CONTRACTOR shall retain a Qualified Credentialed Professional (QCP) to prepare the CBMPP and to certify that it was prepared in accordance with the requirements of the "Alabama Handbook" and the Rule.

9.2.3 Payment

9.2.3.1 Payment will be made to the CONTRACTOR for obtaining the storm water NOR, as specified herein for the lump sum amount as shown in the bid schedule. If there is no line item for registration, obtaining the NOR shall be considered a subsidiary obligation of mobilization.

9.2.3.2 Individual erosion and sediment control items shall be paid for at the unit prices as shown in the Bid Response Form. Routine inspections will be performed by the OWNER'S representative or Engineer to verify compliance with the CBMPP and the Rule shall be the CONTRACTOR'S responsibility and shall be incidental to the storm water registration.

9.2.3.3 If no individual erosion and sediment control items are included in the bid schedule the cost of these items shall be incidental to the lump sum amount as shown in the bid schedule for Storm Water Monitoring and Temporary Erosion and Sediment Control and payment shall be made prorata as the Project progresses.

9.2.4 The CONTRACTOR shall perform all work in compliance with and as required by any State, Federal or Local registration, permit or license, the terms and conditions of which are adopted herein by reference. The CONTRACTOR agrees to indemnify and hold harmless the CITY, Engineer of Record, and their respective officers, agents and employees from any fines, penalties, damages, claims, liability or judgment arising out of or in any manner associated with the CONTRACTOR'S failure to perform work on the Project in strict accordance with all storm water registration, permit or license requirements.

ARTICLE X. MISCELLANEOUS CLAUSES

10.0 Notice and Service Thereof:

10.01 All notices, demands, requests, change orders, instructions, approvals and claims shall be in writing. Unless expressly otherwise provided in this agreement, any election, notice or other communication required or permitted to be given under this agreement shall be in writing and deemed to have been duly given if provided in accordance with the provisions hereof.

10.02 Any Notice to or demand upon the CONTRACTOR shall be in writing and shall be sufficiently given

if addressed to the CONTRACTOR at the address stated herein and deposited in the United States mail in a sealed envelope with sufficient postage prepaid or delivered with charges prepaid to any telegraph company for transmission to the CONTRACTOR at such address. It shall also be sufficient if such Notice or demand be served upon the CONTRACTOR personally or its local representative in charge of the Project or delivered at his local office. The CONTRACTOR shall, from time to time, designate to the CITY in writing any change of address to which such notice or demand shall be sent.

10.03 Any Notice to or demand upon the CITY shall be in writing and shall be sufficiently given if delivered to the office of the CITY's representative or if addressed to the CITY representative and deposited in the United States mail in a sealed envelope with sufficient postage prepaid or delivered with charges prepaid to any telegraph company for transmission to such representative of the CITY.

10.1 CITY Representative: The CITY's representative as Project Manager on this Project is hereby designated as _____

10.1.1 CONTRACTOR Representative**:** The CONTRACTOR'S representative on this Project is hereby designated as _____

10.1.2 ENGINEER of RECORD Representative: The CONTRACTOR'S representative on this Project is hereby designated as _____

10.3 Capacity: Each party to this agreement represents and warrants to the other as follows:

10.3.1 That it is an individual of the age of majority or otherwise a legal entity duly organized and in good standing pursuant to all applicable laws, rules and regulations.

10.3.2 That each has full power and capacity to enter into this agreement, to perform and to conclude the same including the capacity, to the extent applicable, to grant, convey and/or transfer; areas, assets, facilities, properties, (both real and personal), permits, consents and authorizations and/or the full power and right to acquire and accept the same.

10.3.3 That to the extent required, each party has obtained the necessary approval of its governing body or board and a resolution or other binding act has been duly and properly enacted by such governing body or board authorizing this agreement and said approval has been reduced to writing and certified or attested by the appropriate official of the party.

10.3.4 That each party has duly authorized and empowered a representative to execute this agreement on their respective behalf and the execution of this agreement by such representative fully and completely binds the party to the terms and conditions hereof.

10.3.5 That absent fraud, the execution of this agreement by a representative of the party shall constitute a certification that all such authorizations for execution exist and have been performed and the other party shall be entitled to rely upon the same. To the extent a party is a partnership, limited liability company or joint venture, the execution of this agreement by any member thereof shall bind the party and to the extent that the execution of agreement is limited to a manager, managing partner or specific member then the person so executing this agreement is duly authorized to act in such capacity for the party.

10.3.6 That each party represents and warrants to the other that there is no litigation, claim or administrative action threatened or pending or other proceedings to its knowledge against it which would have an adverse impact upon this transaction or upon either's ability to conclude the transaction or perform pursuant to the terms and conditions of this agreement.

10.3.7 That each party has obtained any and all required permits, approvals and/or authorizations from third parties to enable it to fully perform pursuant to this agreement.

10.4 **Ownership of Contract Documents:** the Contract documents, and copies of parts thereof, are furnished and owned by the CITY. All portions of the Contract Documents, and copies of parts

thereof, are the instruments of service for this Project. They are not to be used on other work and are to be returned to the CITY on request at the completion of the Project. Any reuse of these materials without specific written verification or adaptation by the CITY will be at the risk of the user and without liability or legal expense to the CITY or Engineer of Record. Such user shall hold the CITY, its officers, agents and employees harmless from any and all damages, including reasonable attorneys' fees, from any and all claims arising from any such reuse. Any such verification and adoption shall entitle the CITY to further compensation at rates to be agreed upon by the user and the CITY.

10.5 No Waiver of Rights: Neither the inspection by the CITY or the Engineer of Record or any of their officers, employees, agents, or sub-consultants, nor any order by the CITY for payment of money, nor any payment for, or acceptance of, the whole or any part of the Project by the CITY or Engineer of Record, nor any extension of time or change order, nor any possession taken by the CITY or its employees, or non-enforcement of any provision of this agreement by either party shall operate as a waiver of any provision of this agreement, or any power herein reserved to the CITY, or any right to damages, nor shall any waiver of any breach in this agreement be held to be a waiver of any other or subsequent breach. Acceptance or final payment shall not be final and conclusive with regards to latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the CITY'S rights under any warranty.

10.6. Subletting or Assigning of Contract:

10.6.1 Limitations: The CONTRACTOR shall not sublet, assign, transfer, convey, sell or otherwise dispose of any portion of the agreement, his obligations, right, or interest therein, or its power to execute such agreement, to any person, firm or corporation without written consent of the CITY and such written consent shall not be construed to relieve the CONTRACTOR of any duty or responsibility for the fulfillment of the agreement. A sale, conveyance or transfer of 50% or more of the stock or ownership of the CONTRACTOR shall be considered an assignment. Provided; however, in no event shall any portion of this agreement be assigned to an unsuccessful Bidder whose bid was rejected because he or she was not a responsible or responsive Bidder. Use of subcontracts up to a combined (total) value of 50 percent of the value of all work will not be construed as an assignment. Unless otherwise stipulated in the proposal or general conditions, the CONTRACTOR shall perform, with its own organization, work with the value not less than fifty (50) percent of the value of all work embraced in the contract.

10.6.2 Sub-Contractor's Status: A subcontractor shall be recognized only in the capacity of an employee or agent of the CONTRACTOR

10.7 Third Party Beneficiaries: It is the intent of the parties hereto that there shall be no third party beneficiaries to this agreement.

10.7.1. Final Integration: This Agreement constitutes the entire agreement of the parties, as a complete and final integration thereof with respect to its subject matter. All written or oral understandings and agreements heretofore had between and among the parties are merged into this Agreement, which alone fully and completely expresses their understandings. No representation, warranty, or covenant made by any party which is not contained in this Agreement or expressly referred to herein has been relied on by any party in entering into this Agreement.

10.7.2 Force Majeure**:** Neither party to this Agreement shall hold the other party responsible for damages or delay in performance caused by acts of God, strikes, lockouts or other circumstances beyond the reasonable control of the other or the other party's employees, agents or contractors.

10.7.3 Amendment in Writing**:** This Agreement may not be amended, modified, altered, changed, terminated, or waived in any respect whatsoever, except by a further agreement in writing, properly executed by all of the parties.

10.7.4 Binding Effect**:** This agreement shall bind the parties and their respective personal representatives, heirs, next of kin, legatees, distributees, successors, and assigns.

10.7.5 Captions: The captions of this Agreement are for convenience and reference only, are not a part of this Agreement, and in no way define, describe, extend, or limit the scope or intent of this Agreement.

10.7.6 Construction**:** This Agreement shall be construed in its entirety according to its plain meaning and shall not be construed against the party who provided or drafted it.

10.7.7 Mandatory and Permissive**:** "Shall", "will", and "agrees" are mandatory; "may" is permissive.

10.7.8 Governing Laws**:** The laws of the State of Alabama shall govern the validity of this Agreement, the construction of its terms, the interpretation of the rights, the duties of the parties, the enforcement of its terms, and all other matters relating to this Agreement.

10.7.9 Liability of the CITY or CITY Officials**.** Notwithstanding any provision hereof to the contrary, the parties agree and acknowledge that the liability and obligations of the CITY, CITY officials or CITY employees as set forth herein are subject to the limitations imposed on municipalities by the Constitution and laws of the State of Alabama. No present or future official, officer or employee of the CITY shall ever be personally liable for the performance of any obligations hereunder.

10.7.10 Non Discrimination: The CONTRACTOR agrees that in performing the work and services as required herein under this agreement, not to discriminate against any person on the basis of race color, religion, sex, age or disability. (The CONTRACTOR shall fully comply with the Americans with Disabilities Act), the Fair Labor Standards Act and all other applicable laws and regulations).

10.7.11 Fines and Penalties**:** The CONTRACTOR shall be solely liable for any and all fines or penalties which may be levied by any governmental authority against the OWNER and/or CONTRACTOR which are related to the CONTRACTOR's operations. The OWNER shall deduct the amount of the levied fine or penalty from the Contract amount.

10.7.12 Agreement Date/Counterparts**:** The date of this Agreement is intended as and for a date for the convenient identification of this Agreement and is not intended to indicate that this Agreement was necessarily executed and delivered on said date. This instrument may be executed in any number of counterparts, each of which so executed shall be deemed an original, but all such counterparts shall together constitute but one and the same instrument.

10.7.13 Use of Words and Phrases**.** The following words and phrases, where used in this document, shall be given the following and respective interpretations: "Herein," "hereby," "hereunder," "hereof," and other equivalent words refer to this document as an entirety and not solely to the particular portion hereof in which any such word is used.

10.7.13.1The definitions set forth in any portion of this Agreement unless the text or context indicates differently shall be deemed applicable whether the words defined are herein used in the singular or the plural. Wherever used herein any pronoun or pronouns shall be deemed to include both singular and plural and to cover all genders.

10.7.14 Severability. Each provision of this agreement shall be considered to be severable and, if for any reason, any such provision or any part thereof, is determined to be invalid and contrary to any existing or future applicable law, such invalidity shall not impair the operation of or affect those portions of this agreement that are valid, but this agreement shall be construed and enforced in all respects as if the invalid or unenforceable provision or part thereof had been omitted.

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the day and year

first above written.

THE CITY OF FAIRHOPE, ALABAMA

_____ ATTEST:_____
KARIN WILSON, Mayor LISA A. HANKS, MMC
City Clerk

NOTARY FOR OWNER (CITY OF FAIRHOPE)

STATE OF ALABAMA}
COUNTY OF BALDWIN}

I, the undersigned authority in and for said State and County, hereby certify that KARIN WILSON as Mayor of the City of Fairhope whose name is signed to the foregoing document and who is known to me, acknowledged before me on this day, that, being informed of the contents of the document he executed the same voluntarily on the date the same bears date.

Given under my hand and Notaries Seal on this _____ day of _____, 2017.

NOTARY PUBLIC_____

MY COMMISSION EXPIRES:_____

Individual or Partnership

_____ _____
(Individual or Partnership) (Print Name of Partner)

_____ _____
(**Print** Name of Representative Authorized to sign Bids and Contracts for the firm) (Print Name of Partner)

_____
(**Signature** of Representative Authorized to sign Bids and Contracts for the firm)

_____
(Address)

_____
(Address)

_____
(Address)

Phone Number ( )_____ Fax Number ( )_____

Primary e-mail address _____

Alabama Contractor's License No. (If required)_____ Foreign Corporation Entity ID_____

NOTARY FOR INDIVIDUAL

STATE OF _____}

COUNTY OF _____}

I the undersigned authority in and for the said State and County, hereby certify that

_____ as _____of _____

PRINT name of Bid signer Title PRINT Company name

whose name is signed to the foregoing document and who is known to me, acknowledged before me on this day, that, being informed of the contents of the document they executed the same voluntarily on the day the same bears date.

Given under my hand and Notary Seal on this _____day of _____, 2017.

Notary Public_____

My Commission Expires _____/___ / _____

If Corporation or LLC

Company_____ State of Incorporation _____

Company Representative_____
(**Print** Name of Representative Authorized to sign Bids and Contracts for the firm)

Company Representative_____
(**Signature** of Representative Authorized to sign Bids and Contracts for the firm)

Address _____

_____

Phone Number ( )_____Fax Number( )_____

Primary e-mail address _____

Alabama Contractor's License No. (If Required)_____ Foreign Corporation Entity ID_____

Notary for Corporation

STATE OF _____}
COUNTY OF _____}

I, the undersigned authority in and for said State and County, hereby certify that _____

as_____ respectively, of_____
title company name

whose name is signed to the foregoing document and who is known to me, acknowledged before me on this day, that, being informed of the contents of the document they executed the same voluntarily on the day the same bears date.

Given under my hand and Notary Seal on this ___day of _____, 2017

Notary Public _____

My Commission expires ___/___/____

[END OF CONTRACT AGREEMENT]

ITEM XI
Sales Tax Exemption Requirements and Procedure

At the time of Bid, provide an accounting of sales tax on the form provided in ITEM III BID RESPONSE FORM. Failure to provide an accounting of sales tax shall render the bid non-responsive. Other than **determining responsiveness**, sales tax shall accounting shall not affect the bid pricing nor be considered in the determination of the lowest responsible and responsive Bidder.

1.0 BACKGROUND

Legislative Act 2013-205, Code of Alabama (1975) Section 40-9-14.1, is applicable to certain construction contracts with the City of Fairhope, Alabama. This law allows a sales and use tax exemption When applicable, all business entities entering into construction contracts with the City of Fairhope, Alabama, will comply with the requirements of Section 40-9-14.1.

Code of Alabama (1975) Section 40-9-14.1

Certificates of exemption to governmental entities, contractors, etc., for certain tax exempt projects.

(a) For the purposes of this section, the term governmental entity means the State of Alabama and its political subdivisions, including a county, a municipality, and an industrial or economic development board or authority. A governmental entity shall also include an educational institution of any of the foregoing Alabama political subdivisions including a public college or university, a county or city board of education, and the State Board of Education.

(b)(1) The Department of Revenue shall issue a certificate of exemption to the governmental entity for each tax exempt project.

(2) The Department of Revenue shall grant a certificate of exemption from state and local sales and use taxes to any contractor licensed by the State Licensing Board for General Contractors, or any subcontractor working under the same contract, for the purchase of building materials, construction materials and supplies, and other tangible personal property that becomes part of the structure that is the subject of a written contract for the construction of a building or other project, not to include any contract for the construction of any highway, road, or bridge, for and on behalf of a governmental entity which is exempt from the payment of sales and use taxes.

(c) The use of a certificate of exemption for the purchase of tangible personal property pursuant to this section shall include only tangible personal property that becomes part of the structure that is the subject of the construction contract. Any contractor or subcontractor purchasing any tangible personal property pursuant to a certificate of exemption shall maintain an accurate cost accounting of the purchase and use of the property in the construction of the project.

(d) A contractor who has an exemption from sales and use tax for the purchase of materials to use on a government project shall file, in a manner as prescribed by the department, reports of all exempt purchases. The reports shall be filed as a prerequisite to renewal of a certificate of exemption.

(e)(1) The department may assess any contractor or subcontractor with state and local sales or use taxes on any item purchased with a certificate of exemption not properly accounted for and reported as required.

(2) Any contractor or subcontractor who intentionally uses a certificate of exemption in violation of this section shall, in addition to the actual sales or use tax liability due, be subject to a civil penalty levied by the department in the amount of not less than a minimum of two thousand dollars ($2,000) or two times any state and local sales or use tax due for the property and, based on the contractor's or subcontractor's willful misuse of the certificate of exemption, may be barred from the use of any certificate of exemption on any project for up to two years.

(f) The department may adopt rules to implement this section in order to effectuate the purposes of this section

and to provide for accurate accounting and enforcement of this section.

(g) In bidding the work on a tax exempt project, the bid form shall provide for an accounting for the tax savings.

(h) The intent of this section is to lower the administrative cost for the governmental entity, contractor, and subcontractor for public works projects. It is not the intent of this section to change the basis for determining professional services from fair market value, which may include sales and use taxes.

(i) This section shall be operative for contracts entered into January 1, 2014, or thereafter, and shall not apply to any contract entered into prior to January 1, 2014. In addition, this section shall not apply to any contract change orders or contract extensions, including revised, renegotiated, or altered contracts, when the original contract was entered into prior to January 1, 2014. The Department of Revenue may adopt rules to implement this section after October 1, 2013. *(Act 2013-205, §1.)*

2.0 PROCEDURE

2.0.1 Each contractor and subcontractor must make application for qualification of the Sales and Use Tax exemption using Alabama Dept. of Revenue Form ST: EXC-01 for each tax-exempt project. The application is available on the Alabama Dept. of Revenue's website at http://revenue.alabama.gov/salestax/ST-EXC-0l.pdf. Applications should be submitted directly to the Sales and Use Tax Division Central Office, P.O Box 327710, Montgomery, AL 36132-7710.

2.0.2 Legislative Act 2013-205 requires the Department of Revenue to issue Form STC-1, *Sales and Use Tax Certificate of Exemption for Government Entity Projects,* to all contractors and subcontractors working on qualifying governmental entity projects once the Form ST: EXC-01 is approved.

2.0.3 Contractors and sub-contractors for qualifying projects will be required to file monthly consumers use tax returns and report all exempt purchases for ongoing projects, as well as all taxable purchases on one return. These returns are required to be filed through the Alabama Dept. of Revenue's online tax return filing and payment portal, My Alabama Taxes (https://myalabamataxes.alabama.gov).

ACCOUNTING OF SALES TAX
Attachment to Bid Response

To: **City of Fairhope** **Date:**_____

Project: **GOLF003-17 Repairs to Quail Creek Clubhouse**

Sales Tax Accounting

Pursuant to **Code of Alabama (1975) Section 40-9-14.1**, the Contractor accounts for the sales tax NOT included in the bid proposal form as follows:

	ESTIMATED SALES TAX AMOUNT
BASE BID:_____	**$**_____
Alternate No. 1 (……) Insert keyword for alternate	(add)(deduct) $_____
Alternate No. 2 (……)	(add)(deduct) $_____
Alternate No. 3 (……)	(add)(deduct) $_____
Alternate No. 4 (……)	(add)(deduct) $_____
Alternate No. 5 (……)	(add)(deduct) $_____
Alternate No. 6 (……)	(add)(deduct) $_____

Failure to provide an accounting of Sales Tax shall render the bid non-responsive. Other than determining responsiveness, sales tax accounting shall not affect the bid pricing nor be considered in the determination of the lowest responsible and responsive Bidder.

Legal Name of Bidder _____

Mailing Address _____

***By (Legal Signature)** _____

*Name (type or Print) _____ (Seal)

*Title _____

*Telephone _____

State of Alabama
Department of Revenue
(www.revenue.alabama.gov)
50 North Ripley Street
Montgomery, Alabama 36132

JULIE P. MAGEE
Commissioner

MICHAEL E. MASON
Assistant Commissioner
JOE W. GARRETT, JR.
Deputy Commissioner
CURTIS E. STEWART
Deputy Commissioner

Alabama Department of Revenue
NOTICE

Tax Guidance for Contractors, Subcontractors and Alabama Governmental Entities Regarding Construction-related Contracts

Legislative Act 2013-205 requires the Department of Revenue to issue Form STC-1, *Sales and Use Tax Certificate of Exemption for Government Entity Projects*, to all contractors and subcontractors working on qualifying governmental entity projects once the Form ST: EXC-01 is approved.

Each exempt entity, contractor and subcontractor must make application for qualification of the exemption using Form ST: EXC-01 for each tax-exempt project. The application is available on the department's website at http://revenue.alabama.gov/salestax/ST-EXC-01.pdf. Applications should be submitted directly to the Sales and Use Tax Division Central Office, P.O Box 327710, Montgomery, AL 36132-7710.

The sales and use tax exemption provided for in Act 2013-205 applies to the purchase of building materials, construction materials and supplies, and other tangible personal property that become part of the structure pursuant to a qualifying contract entered into on or after January 1, 2014. Qualifying projects and contracts are those generally entered into with the following governmental entities, unless otherwise noted: the State of Alabama, a county or incorporated municipality of Alabama, an Alabama public school, or an Alabama industrial or economic development board or authority already exempt from sales and use taxes. **Please note that contracts entered into with the federal government and contracts pertaining to highway, road, or bridge construction or repair do not qualify for the exemption provided for in Act 2013-205**. [Reference: Sales and Use Tax Division Administrative Rule 810-6-3-.77 *Exemption for Certain Purchases by Contractors and Subcontractors in Conjunction with Construction Contracts with Certain Governmental Entities.*]

The Alabama Department of Revenue will assign each contractor and sub-contractor a consumers use tax account, if one is currently not in place, at the time the Form STC-1, Sales *and Use Tax Certificate of Exemption for Government Entity Projects*, is issued.

Contractors and sub-contractors for qualifying projects will be required to file monthly consumers use tax returns and report all exempt purchases for ongoing projects, as well as all taxable purchases on one return. These returns are required to be filed through the department's online tax return filing and payment portal, My Alabama Taxes (https://myalabamataxes.alabama.gov).

As another option for these types of contracts, as well as with other contracts entered into with other types of exempt entities, the Form ST:PAA1, *Purchasing Agent Appointment*, may be used. However, please be advised that the use of the Form ST:PAA1 option will require the exempt entity to be invoiced directly and pay for directly from their funds any construction and building material and supply purchases.

For additional information concerning this guidance, taxpayers should contact Sales and Use Tax Division representative Thomas Sims at 334-242-1574 or by email at Thomas.Sims@revenue.alabama.gov.

ALABAMA DEPARTMENT OF REVENUE
SALES AND USE TAX DIVISION
P.O. Box 327710 • Montgomery, AL 36132-7710

Application For
Sales and Use Tax Certificate of Exemption

FOR GOVERNMENT ENTITY PROJECT

This Certificate of Exemption will be limited to purchases which qualify for an exemption of sales and use taxes pursuant to Rule No. 810-6-3-.77

ST: EXC-01 10/14

PROJECT INFORMATION:

PROJECT NAME		PROJECT OWNER'S FEIN (EXEMPT ENTITY)

STREET ADDRESS OF PROJECT (CITY AND COUNTY INCLUDED)	CITY	ZIP	COUNTY
	Fairhope	36532	Baldwin

APPLICANT'S INFORMATION:

RELATION: *(CHOOSE ONE)*

☐ Government Entity ☐ General Contractor ☐ Sub-Contractor

APPLICANT'S LEGAL NAME	FEIN
DBA	CONSUMER'S USE TAX ACCOUNT NUMBER

MAILING ADDRESS: STREET	CITY	STATE	ZIP	COUNTY

CONTACT PERSON	BUSINESS TELEPHONE NUMBER

EMAIL ADDRESS

PROJECT START DATE (PROVIDED BY GENERAL CONTRACTOR)	PROJECT COMPLETION DATE (PROVIDED BY GENERAL CONTRACTOR)
ESTIMATED START DATE (FOR APPLICANT)	ESTIMATED COMPLETION DATE (FOR APPLICANT)
WILL THE APPLICANT HAVE ANY SUB-CONTRACTORS ON THIS JOB?	NAME OF PARTY WITH WHOM YOUR CONTRACT IS WITH
☐ Yes ☐ No If yes, please attach list.	

JOB DESCRIPTION

WILL ANY POLLUTION CONTROL EXEMPTION BE APPLICABLE?	Estimated POLLUTION CONTROL COST
☐ Yes ☐ No	

TOTAL PROJECT BID AMOUNT (APPLICANT'S PORTION OF PROJECT)	LABOR COST (APPLICANT'S PORTION OF PROJECT)	MATERIAL COST (APPLICANT'S PORTION OF PROJECT)
$	$	$

PROJECT NAME	PROJECT OWNER'S FEIN (EXEMPT ENTITY)
REC003-15 Improvements to Stimpson Park Tennis Courts	63-6001254

FORM OF OWNERSHIP:

☐ Individual ☐ Partnership ☐ Corporation ☐ Multi member LLC ☐ Single member LLC ☐ Government Entity

If applicant is a corporation, a copy of the certified certificate of incorporation, amended certificate of incorporation, certificate of authority, or articles of incorporation should be attached. If the applicant is a limited liability company or a limited liability partnership, a copy of the certified articles of organization should be attached.

OWNERSHIP INFORMATION:

Corporations- give name, title, home address, and Social Security Number of each officer.

Partnerships – give name, home address, Social Security Number or FEIN of each partner.

Sole Proprietorships – give name, home address, Social Security Number of owner.

LLC- give name, home address, and Social Security Number or FEIN of each member.

LLP – give name, home address, and Social Security Number or FEIN of each partner.

NAME *(PLEASE PRINT)* SIGNATURE

TITLE DATE

REVENUE DEPARTMENT USE ONLY

Examiner's Remark_____

Examiner _____ Date _____

Supervisor's Recommendation _____

Supervisor _____ Date_____

ITEM XII

Alabama Immigration Act Contract Requirements

1.0 Background

The **Beason-Hammon Alabama Taxpayer and Citizen Protection Act, Act No 2011-535**, **as amended by Act No 2012-491, *Code of Alabama* (1975) Section 31-13-1** through **Section 31-13-30** (also known as and hereinafter referred to as "the Alabama Immigration Act") is applicable to contracts with the City of Fairhope, Alabama. All business entities entering into contracts with the City of Fairhope, Alabama will comply with the Alabama Immigration Act.

2.0 Definitions

ALIEN. Any person who is not a citizen or national of the United States, as described in 8 U.S.C. § 1101, et seq., and any amendments thereto.

BUSINESS ENTITY. Any person or group of persons employing one or more persons performing or engaging in any activity, enterprise, profession, or occupation for gain, benefit, advantage, or livelihood, whether for profit or not for profit. Business entity shall include but not be limited to the following:
Self-employed individuals, business entities filling articles of incorporation, partnerships, limited partnerships, limited liability companies, foreign corporations, foreign limited partnerships, foreign liability companies authorized to transact business in this state, business trusts, and any business entity that registers with the Secretary of State.
Any business entity that possesses a business license, permit, certificate, approval, registration, charter, or similar form of authorization issued by the state, any business entity that is exempt by law from obtaining such a business license, an any business entity that is operating unlawfully without a business license.

CONTRACTOR. A person, employer, or business entity that enters into an agreement to perform any service or work or to provide a certain product in exchange for valuable consideration. This definition shall include, but not be limited to, a general contractor, subcontractor, independent contractor, contract employee, project manager, or a recruiting or staffing entity.

EMPLOYEE. Any person directed, allowed, or permitted to perform labor or service of any kind by an employer. The employees of an independent contractor working for a business entity shall not be regarded as the employees of the business entity, for the purposes of this chapter. This term does not include any inmate in the legal custody of the state, a county, or a municipality.

EMPLOYER. Any person, firm, corporation, partnership, joint stock association, agent, manager, representative, foreman, or other person having control or custody of any employment, place of employment, or of any employee, including any person or entity employing any person for hire within the State of Alabama, including a public employer. This term shall not include the occupant of a household contracting with another person to perform casual domestic labor within the household.

E-VERIFY. The electronic verification of federal employment authorization program of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, P.L. 104-208, Division c, Section 403 (a); 8 U.S.C. §1324(a), and operated by the United States Department of Homeland Security, or its successor program.

STATE-FUNDED ENTITY. Any governmental entity of the state or a political subdivision thereof or any other entity that receives any monies from the state or a political subdivision thereof; provided, however, an entity that merely provides a service or a product to any governmental entity of the state or a political subdivision thereof, and receives compensation for the same, shall not be considered a state-funded entity.

SUBCONTRACTOR. A person, business entity, or employer who is awarded a portion of an existing contract by a contractor, regardless of its tier.

UNAUTHORIZED ALIEN. An alien who is not authorized to work in the United States as defined in 8 U.S.C. § 1324a (h) (3).

3.0 Mandatory Clause

All contracts or agreements to which the state, a political subdivision, or state-funded entity are a party shall include the following clause:

"By signing this contract, the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the state of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom."

For purposes of this section, "contract" shall mean a contract awarded by the state, any political subdivision thereof, or any state-funded entity that was competitively bid or would, if entered into by the state or an agency thereof, be required to be submitted to the Contract Review Permanent Legislative Oversight Committee.

4.0 Contracts Involving Business Entity, or Employer

As a condition for the award of any contract, grant, or incentive by the state, any political subdivision thereof, or any state-funded entity to a business entity or employer that employs one or more employees, the business entity or employer shall not knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama.

As a condition for the award of any contract, grant, or incentive by the state, any political subdivision thereof, or any state-funded entity to a business entity or employer that employs one or more employees within the state of Alabama, **the business entity or employer shall provide documentation establishing that the business entity or employer is enrolled in the E-Verify program.** During the performance of the contract, the business entity or employer shall participate in the E-Verify program and shall verify every employee that is required to be verified according to the applicable federal rules and regulations.

5.0 Contracts Involving Subcontracting

Any subcontractor on a project paid for by contract, grant, or incentive by the state, any political subdivision thereof, or any state-funded entity shall not knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama and shall also enroll in the E-Verify program prior to performing any work on the project. Furthermore, during the performance of the contract, the subcontractor shall participate in the E-Verify program and shall verify every employee that is required to be verified according to the applicable federal rules and regulations. This subsection shall only apply to subcontractors performing work on a project subject to the provisions of this section and not to collateral persons or business entities hired by the subcontractor.

6.0 Proof of E-Verify documentation will be in the form of a copy of the signed Memorandum Of Understanding (MOU) generated upon completion of the E-Verify program.

EXHIBITS

INVITATION SUMMARY

Bid No. 003-18 Repairs to Quail Creek Clubhouse

Issue Date:	**11/22/2017**
Bid Bond Requirements:	**Bid Bond 5% and no more than $50,000**
Certificate of Insurance Requirements:	**See Item VI, Standard Terms and Conditions and Item IV, Insurance Requirements**
MANDATORY Pre-Bid Meeting Representative must attend to be eligible!	**November 28, 2017 Tuesday 9:00 A.M. City Hall 161 N. Section Street, Fairhope, AL**
Deadline for Questions Date:	**11/15/2017, Thursday**
IFB Closing Date (bids opened):	**12/01/2017, Tuesday, 9:00 A.M. at City Hall, 161 N. Section Street, Fairhope, AL**
City Internet Site: (for bid advertisement)	**www.fairhopeal.gov**
Bid Packet available at:	**EDT, Inc., 9786 - B Timber Circle, Spanish Fort, AL 36527**
Cost of Plans, Specs and Drawings	**$75.00**
Bid Copies: (to submit)	**One (1)**
Purchasing Department Contact:	**Daniel P Ames, Purchasing Manager** dan.ames@fairhopeal.gov **(251) 928-8003**

CONTRACTOR INFORMATION

Bid No 003-18 2017

Please print this section and turn in with your response

Business Organization

Name of Bidder (exactly as it appears on W-9):

_____

Doing-Business-As Name of Bidder:

_____

Principal Office Address:

_____

_____

_____

Form of Business Entity [check one ("X")]

Corporation ____
Partnership ____
Individual ____
Joint Venture ____
Other (describe): ____ _____

Corporation Statement

If a corporation, answer the following:
Date of incorporation: _____
Location of incorporation: _____

The corporation is held: Publicly ___
Privately ___

Partnership Statement

If a partnership, answer the following:
Date of organization: _____
Location of organization: _____

The partnership is: General ___
Limited ___

Joint Venture Statement

If a Joint Venture, answer the following:
Date of organization: _____
Location of organization: _____

JV Agreement recorded? Yes ___
No ___

Primary Contact _____Title_____
Telephone Number _____Fax_____

Email Address: _____

CITY OF FAIRHOPE

ROOFING GUARANTEE

If applicable

Project No. _____

Name of Project _____

Location _____

OWNER City of Fairhope

General Contractor _____

Address _____

Date of Acceptance _____ Date of Expiration _____

1. The General Contractor does hereby certify to the City of Fairhope that the roofing work included in this contract was installed in strict accordance with all requirements of the plans and specifications.

2. The General Contractor does hereby guarantee the roofing and associated work including all flashing, both composition and metal, against leaks due to faulty workmanship for a period of five (5) years and against leaks due to faulty or defective materials for fifteen (15) years, starting on the date of acceptance of the Project by the CITY.

3. Subject to the terms and conditions listed below, the General Contractor guarantees that during the Guarantee Period he will at his own cost and expense, make or cause to be made such repairs to, or replacements of said work, as are necessary to correct faulty and defective work and materials as are necessary to maintain said work in watertight conditions, and further, to respond on or within three (3) calendar days upon proper notification of leaks or defects by the CITY or Architect.

A. Specifically excluded from this Guarantee are damages to the work, other parts of the building and building contents caused by:

Lightning, windstorm, hail storm and other unusual phenomena of elements; and, Fire. When the work has been damaged by any of the foregoing causes, the Guarantee shall be null and void until such damage has been repaired by the General Contractor, and until the cost and expense thereof has been paid by the CITY or by the responsible party so designated.

B. During the Guarantee Period, if the CITY allows alteration of the work by anyone other than the General Contractor, including cutting, patching and maintenance in connection with penetrations, and positioning of anything on the roof, this Guarantee shall become null and void upon the date of said alterations. If the CITY engages the General Contractor to perform said alterations, the Guarantee shall not become null and void, unless the General Contractor, prior to proceeding with said work, shall have notified the CITY In writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the work, thereby reasonably justifying a termination of this Guarantee.

C. Future building additions will not void this guarantee, except for that portion of the future addition that might affect the work under this contract at the point of connection of the roof

areas, and any damage caused by such addition. If this contract is for roofing of an addition to an existing building, then this guarantee covers the work involved at the point of connection with the existing roof.

D. During the Guarantee Period, if the original use of the roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray cooled surface, flooded basin, or other use of service more severe than originally specified, this Guarantee shall become null and void upon the date of said change.

E. The **CITY** shall promptly notify the General Contractor of observed, known or suspected leaks, defects or deterioration, and shall afford reasonable opportunity for the General Contractor to inspect the work, and to examine the evidence of such leaks, defects or deterioration.

IN WITNESS THEREOF, this instrument has been duly executed this the_____ day of _____, 20__.

_____
General Contractor's Authorized Signature

_____
Typed Name and Title

CITY OF FAIRHOPE

ASBESTOS AFFIDAVIT

If applicable

Project No._____

DATE: _____

BUILDING OWNER: _____

_____

_____

PROJECT: _____

_____

TO WHOM IT MAY CONCERN:

The undersigned certifies that to the best of his knowledge, no products containing asbestos have been included in the construction of the captioned Project. Special care was exercised to avoid asbestos-containing products, including reviewing product data sheets, reviewing product labels, and visually verifying products in the field. Special care to avoid asbestos has been used in the selection, purchase, and installation of products, including, but not limited to, the following: concrete, batt insulation, roof insulation, building felts, mastics, waterproofing products, adhesives, resilient flooring products, ceiling tiles, interior coatings, exterior coatings, roofing, pipe insulation, duct insulation, and pre-assembled items of equipment.

Respectfully submitted,

_____

Signature

_____ _____

Typed Name Title

_____

Firm Name

_____

Address

Notary

Sworn to and subscribed before me on this the ____day of _____, 20__.

_____

Notary Public

My Commission Expires;_____

CITY OF FAIRHOPE

CHANGE ORDER REQUEST

OWNER: CITY OF FAIRHOPE

ARCHITECT/ENGINEER: Lawrence Wilson, PE, Engineering Design Technologies, Inc.

CONTRACTOR: _____

PROJECT: GOLF003-17 Repairs to Quail Creek Clubhouse

CHANGE ORDER REQUEST NO. _____ **DATE:** _____

---

1. DESCRIPTION OF CHANGE:

2. CHANGE ORDER COSTS: _____

Proposal Attached _____ **Cost Estimated/Proposal Required**

Item	*Quantity*	*Material Unit Price*	*Labor (Hours)*	*Labor Unit Price*	*Sub-Total Cost*
a.					
b.					
c.					
d.					
e.					
f.*					
				TOTAL:	

*****If more than 6 items, provide attachments.

3. INSTITUTED BY:

4. JUSTIFICATION OF NEED:

5. JUSTIFICATION OF CHANGE ORDER VERSUS COMPETITIVE BIDDING:

6. COSTS REVIEW:

7. THIS CHANGE ORDER IS SUBMITTED FOR REVIEW AND APPROVAL AND IS CLASSIFIED AS THE FOLLOWING TYPE:

- ☐ Minor change of a total monetary value less than required for competitive bidding.
- ☐ Changes for matters relatively minor and incidental to the original contract necessitated by unforeseeable circumstances arising during the course of work.
- ☐ Emergencies arising during the course of work.
- ☐ Change or alternates provided for in the original bidding where there is no difference in price of the Change Order from the original best bid on the Alternate.
- ☐ Change of relatively minor terms not contemplated when the plans and specifications were prepared and the Project was bid and which are in the public interest and do not exceed 10% of the Contract Price.

8. EXTENSION OF TIME REQUESTED: Calendar Days:

RECOMMENDED:

BY: _____
Fairhope's Consulting Engineer

BY: _____
City Representative

APPROVED:

BY: _____
Contractor

BY: _____
OWNER's Legal Advisor

BY: _____
OWNER's Authorized Representative

CONTRACT CHANGE ORDER NO. _____

City of Fairhope, Alabama

DATE: ___/___/____

PROJECT: GOLF003-17 Repairs to Quail Creek Clubhouse

TO: _____
(Contractor)

TERMS: You are hereby authorized, subject to the provisions of your Contract for this Project, to make the following changes thereto in accordance with the attached Change Order Request and supporting documents and to:

FURNISH the necessary labor, materials and equipment to:

_____
_____
_____
_____
_____

TOTAL ADDITION OR REDUCTION TO CONTRACT PRICE:

(Note: Numbers in parentheses are deductions).

ORIGINAL CONTRACT PRICE	$_____
LESS CONTINGENCY/ALLOWANCE	$_____
NET ORIGINAL CONTRACT PRICE	$_____
Net total of previous Change Orders	$_____
Previous revised Contract Price	$_____
This Change Order No. _____ ☐Add ☐Deduct	$_____
Revised Contract Price this date	$_____

Extension of time resulting from this Change Order _____ (Indicate number of calendar days).

The amount of this Change Order will be the responsibility of _____

This Contract Modification constitutes full and mutual accord and satisfaction for all time and all cost related to this change. By acceptance of this Contract Modification, the Contractor hereby agrees that the modification represents an equitable adjustment to the Contract, and further, agrees to waive all right to file any further claims or changes arising out of or as a result of this change, or the accumulation of executed Contract Modifications on this Contract.

The Contractor and OWNER(s) hereby agree to the terms of this Change Order as contained herein.

CONSENT OF SURETY

_____
(Company)

By: _____

CONTRACTING PARTIES

_____
(Contractor)

By: _____
(Authorized Representative)

RECOMMENDED

By: _____

_____
(Design Engineer)

CITY OF FAIRHOPE

By: _____
(Mayor)

_____
(City Clerk)

CITY OF FAIRHOPE

CLOSEOUT DOCUMENTS

CONSENT OF SURETY COMPANY TO FINAL PAYMENT

CONTRACTOR'S AFFIDAVIT OF PAYMENT

FINAL RELEASE OF LIENS

NOTICE OF COMPLETION ADVERTISEMENT

CITY OF FAIRHOPE

CONSENT OF SURETY COMPANY TO FINAL PAYMENT

PROJECT NO: **GOLF003-17**

PROJECT NAME: **Repairs to Quail Creek Clubhouse**

OWNER: **City of Fairhope**
P.O. Box 429
Fairhope, Al 36533

CONTRACTOR: _____

_____

_____

In accordance with the provision of the Contract between the OWNER and the CONTRACTOR as indicated above, the _____, Surety Company on bond of _____CONTRACTOR, hereby approved the final payment to the CONTRACTOR and agrees that final payment to the CONTRACTOR shall not relieve the Surety Company of any of its obligations to the City of Fairhope as set forth in said Surety Company's bond dated the ____day of_____, 20__.

IN WITNESS WHEREOF
The Surety Company has hereunto set its hand this ___ day of _____, 201__.

ATTEST:
(Seal)

Surety Company

_____
Signature of Authorized Representative

_____
Title

CITY OF FAIRHOPE

CONTRACTOR'S AFFIDAVIT OF PAYMENT OF CLAIMS & DEBTS

PROJECT NUMBER: **GOLF003-17**
PROJECT NAME: **Repairs to Quail Creek Clubhouse**

OWNER: City Of Fairhope, Alabama
P.O. Drawer 429
Fairhope, Al 36533

CONTRACTOR:

STATE OF: _____

COUNTY OF: _____

The undersigned hereby certified that, except as listed below, he has paid in full or otherwise satisfied all obligations for all materials and equipment furnished, for all work, Labor and services performed, and for all known indebtedness and claims against the CONTRACTOR for damages arising in any manner in connection with the performance of the Contract referenced above for which the OWNER or his property might in any way be held responsible.

EXCEPTION: (If none, write NONE) _____

_____
CONTRACTOR

_____ _____
By: Title:

Subscribed and sworn to and before me this _____day of _____, 20__.
.

Notary _____

My Commission expires ___/_____/_____

City of Fairhope

FINAL RELEASE OF LIENS

KNOW ALL MEN BY THESE PRESENTS: In consideration of, and contingent upon the receipt of total payments in the amount of _____

Under and pursuant to the following contract:

BID NO: **003-18 Repairs to Quail Creek Clubhouse**
PROJECT NO: **GOLF003-17 Repairs to Quail Creek Clubhouse**

The undersigned hereby releases _____its officers, agents and employees, of and from all liabilities, obligations, and claims whatsoever in law and in equity under or arising out of said contract. We do hereby certify that all labor, materials, equipment, supplies and etc. for this project have been paid in full and there is no outstanding indebtedness.

IN WITNESS WHEREOF, this release has been executed this _____day of _____, 20__.

_____
CONTRACTOR

_____ _____
By: SIGNATURE PRINTED NAME

_____
TITLE

STATE OF ALABAMA
COUNTY OF BALDWIN

I. the undersigned authority, a Notary Public in and for said County and State, hereby certify that

_____, whose name is signed to the foregoing instrument and who is known to me, acknowledged before me on this day that, being informed of the contents of the within instrument, he executed the same voluntarily on the day the same bears date.

Given under my hand and seal on this the _____day of_____, 20__.

_____
NOTARY PUBLIC

My Commission Expires:____/____/____

CITY OF FAIRHOPE

NOTICE OF COMPLETION LEGAL NOTICE

Project No: **GOLF003-17**
Project Name: **Repairs to Quail Creek Clubhouse**

In accordance with Chapter 1, Title 39, Code of Alabama, 1975, for contracts over $50,000 and less than $500,000, Notice is hereby given that _____, CONTRACTOR, has completed the Contract for **Bid No. 003-18 Repairs to Quail Creek Clubhouse, Project No. GOLF003-17 Repairs to Quail Creek Clubhouse** for the City of Fairhope, Alabama, OWNER, and has made request for final settlement of said Contract. Any claims for labor, materials or otherwise in connection with this project should be itemized, notarized, and presented to:

OWNER:

CITY OF FAIRHOPE
555 South Section Street
P.O. Drawer 429
Fairhope, AL 36533

On or before (30 days) or same will be barred.

Contractor:

Dates ad was run: (once a week for 4 weeks)

Newspapers in which ad run: (dates)

The Courier _____

Contractor to provide Proof of Publication of the Notice to the City by affidavit of the publisher and a printed copy of the Notice published.

SECTION 00 4322

UNIT PRICES FORM

PARTICULARS

1.01 THE FOLLOWING IS THE LIST OF UNIT PRICES REFERENCED IN THE BID SUBMITTED BY:

1.02 (BIDDER) TO BE DETERMINED

1.03 TO (OWNER): CITY OF FAIRHOPE

A. Client Project No. GOLF003-17

B. Bid No.: 003-18

1.04 DATED _____ AND WHICH IS AN INTEGRAL PART OF THE BID FORM.

UNIT PRICE LIST

2.01	**ITEM DESCRIPTION**	**UNIT**	**QUANTITY**	**UNIT VALUE**
2.02	**FIBER CEMENT LAP SIDING**	**S.F.**	_____	_____
2.03	**IPE WOOD DECK**	**S.F.**	_____	_____
2.04	**HANDRAIL SYSTEM / SPEC**	**L.F.**	_____	_____

END OF SECTION

SECTION 00 4323

ALTERNATES FORM

PARTICULARS

1.01 THE FOLLOWING IS THE LIST OF ALTERNATES REFERENCED IN THE BID SUBMITTED BY:

1.02 (BIDDER) _____

1.03 TO (OWNER): CITY OF FAIRHOPE

A. Client Project No. GOLF003-17

B. Bid No.: 003-18

1.04 DATED _____ AND WHICH IS AN INTEGRAL PART OF THE BID FORM.

ALTERNATES LIST (IF LISTED OR OTHERWISE ADDED BY ADDENDUM)

2.01 THE FOLLOWING AMOUNTS SHALL BE ADDED TO OR DEDUCTED FROM THE BID AMOUNT. REFER TO SECTION 01 2300 - ALTERNATES.

ALTERNATE # 1: ADD / (DEDUCT) $ _____

ALTERNATE # 2: ADD / (DEDUCT) $ _____

ALTERNATE # 3: ADD / (DEDUCT) $ _____

END OF SECTION

SECTION 00 4333

PROPOSED PRODUCTS FORM

PARTICULARS

1.01 THE FOLLOWING IS THE LIST OF EQUIPMENT REFERENCED IN THE BID SUBMITTED BY:

1.02 (BIDDER) _____

1.03 TO (OWNER): CITY OF FAIRHOPE _____

1.04 DATED _____ AND WHICH IS AN INTEGRAL PART OF THE BID FORM.

LIST

	COMPONENT OR ITEM	**MANUFACTURER**
A.	_____	_____
B.	_____	_____
C.	_____	_____
D.	_____	_____
E.	_____	_____

END PROPOSED PRODUCTS FORM

SECTION 00 4336

PROPOSED SUBCONTRACTORS FORM

PARTICULARS

1.01 HEREWITH IS THE LIST OF SUBCONTRACTORS REFERENCED IN THE BID SUBMITTED BY:

1.02 (BIDDER) _____

1.03 TO (OWNER): CITY OF FAIRHOPE

1.04 DATED _____ AND WHICH IS AN INTEGRAL PART OF THE BID FORM.

1.05 THE FOLLOWING WORK WILL BE PERFORMED (OR PROVIDED) BY SUBCONTRACTORS AND COORDINATED BY US:

LIST OF SUBCONTRACTORS

WORK / SUBJECT / SUBCONTRACTOR / NAME

A. _____

B. _____

C. _____

D. _____

E. _____ _____

F. _____ _____

G. _____ _____

H. _____ _____

I. _____ _____

J. _____ _____

K. _____ _____

L. _____ _____

M. _____ _____

END OF SECTION

SECTION 00 4373

PROPOSED SCHEDULE OF VALUES FORM

PARTICULARS

1.01 THE FOLLOWING IS A COST BREAKDOWN REFERENCED IN THE BID SUBMITTED BY:

1.02 (BIDDER) _____

1.03 TO (OWNER): CITY OF FAIRHOPE

1.04 DATED _____ AND WHICH IS AN INTEGRAL PART OF THE BID FORM.

1.05 ALL BIDDERS MUST PURCHASE AND SUBMIT AN AIA FORM G-703 (1992) WITH BID. (AVAILABLE ONLINE AT WWW.AIACONTRACTS.ORG)

A. Each section shall be listed based on Specification Section Format.

END OF SECTION

SECTION 00 6325

SUBSTITUTION REQUEST FORM - DURING CONSTRUCTION

1.01 SUBSTITUTION REQUEST FORM:

A. THE GENERAL CONTRACTOR AND/OR SUBMITTING SUBCONTRACTOR OR VENDOR SHALL BE RESPONSIBLE FOR PURCHASE OF A LEGAL COPY OF THE FOLLOWING FORM:
   1. CSI FORM 1.5C SUBSTITUTION REQUEST FORM.

B. THIS FORM MUST BE FULLY EXECUTED AND APPROVED WITHIN THE SPECIFIED LIMITS PRIOR TO BID IN ORDER TO BE CONSIDERED.

C. FORMAL APPROVAL BY THE ARCHITECT SHALL BE SET FORTH BY ADDENDUM ADVISING ALL PROSPECTIVE BIDDERS PRIOR TO THE CUT OFF LIMITS ESTABLISHED ELSEWHERE IN THESE SPECIFICAITONS.

D. ANY SUBMISSIONS REQUESTING SUBSTITUTION THAT ARE RECEIVED BY THE ARCHITECT THAT ARE NOT SUBMITTED USING THIS FORM, OR ARE NOT PROPERLY COMPLETED, WILL BE RETURNED WITHOUT REVIEW.

END OF SECTION

SECTION 01 1000

SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: Repairs to Quail Creek Clubhouse

B. Owner's Name: City of Fairhope

C. Architect's Name: New South Architects, Inc..

D. Additional Project contact information is specified in Section - 000103 - Project Directory.

E. The Project consists of the alteration of the project Scope and as noted below and as defined within the drawings and other sections of the Specifications.

1.02 CONTRACT DESCRIPTION

A. Contract Type: See ITEM X

1.03 DESCRIPTION OF ALTERATIONS WORK

A. Scope of alterations work is indicated on drawings.

B. Demolition of the following areas, complete exterior finishes:
   1. Exterior Insulation Finishing System (EIFS).
   2. Remove, supplement or replace existing structurally damaged wood framing.
   3. Remove existing handicapped ramp, wooden stairs, wood deck, railing and certain exterior doors as noted.
   4. Portions of existing sidewalk where noted.

C. Refinish all surface areas of the following, as specified:
   1. Provide new wood deck, handrails and steps as indicated.
   2. Provide new fiber cement siding on new air barrier and wood furring, trim and new sheathing and other materials where noted.
   3. New concrete handicapped ramp and sidewalks where noted.
   4. New canopy structure, columns, footings and exterior finishes.
   5. Interior finishes to be provided to match existing adjacent finishes.

D. Plumbing: Restore existing system and equipment to operational condition.

E. Electrical Power and Lighting: Restore existing system and equipment to operational condition.

1.04 WORK BY OWNER

A. Some Items, including those noted NIC (Not in Contract) will be supplied and installed by Owner before Substantial Completion. Some items include:
   1. Furnishings.
   2. Rugs.
   3. Artwork.
   4. Owner supplied door and room signage.

B. Owner will supply the following for installation by Contractor:
   1. Owner supplied exterior signage.
   2. Owner supplied interior signage.

1.05 OWNER OCCUPANCY

A. Owner intends to continue to occupy adjacent portions of the existing building during the entire construction period.

B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

C. Schedule the Work to accommodate Owner occupancy and other requirements.

1.06 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to site boundaries with general protection provided for the public..

B. Provide access to and from site as required by law and by Owner:
   1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
   2. Do not obstruct roadways, sidewalks, or other public ways without permit.

C. Existing building spaces may not be used for storage.

D. Utility Outages and Shutdown:
   1. Limit shutdown of utility services to after hours of operations at a time, arranged at least 24 hours in advance with Owner.
   2. Prevent accidental disruption of utility services to other facilities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 2000

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

NOTE: IN THE EVENT THAT THE INSTRUCTIONS CONTAINED WITHIN THIS SECTION IS IN CONFLICT WITH OWNER SUPPLIED INSTRUCTIONS CONTAINED WITHIN ITEM I-XII - OWNER'S INSTRUCTIONS SHALL GOVERN.

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Change procedures.

D. Correlation of Contractor submittals based on changes.

E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

A. ITEMS III - XII - Contracting Forms and Supplements: Use Owner Supplied Forms as follows.
   1. Bid Response
   2. Insurance Requirements
   3. Bid Bond
   4. Performance Bond
   5. Labor and Materials Bond
   6. Standard Terms and Conditions
   7. Scope and Specs
   8. Contract Agreement
   9. Sales Tax Exemption Requirements and Procurement
   10. Alabama Imigration Act Contract Requirements

B. Section 01 7800 - Closeout Submittals: Project record documents.

1.03 SCHEDULE OF VALUES

A. Form to be used: AIA G703.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.

C. Forms filled out by hand will not be accepted.

D. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.

E. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification section. Identify site mobilization.

F. Include in each line item, the amount of each cost of each Specification section.

G. Include within each line item, a direct proportional amount of Contractor's overhead and profit.

H. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Form to be used: AIA G702 and G703.

C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

D. Forms filled out by hand will not be accepted.

E. For each item, provide a column for listing each of the following:
   1. Item Number.
   2. Description of work.

3. Scheduled Values.
4. Previous Applications.
5. Work in Place and Stored Materials under this Application.
6. Authorized Change Orders.
7. Total Completed and Stored to Date of Application.
8. Percentage of Completion.
9. Balance to Finish.
10. Retainage.

F. Execute certification by signature of authorized officer.

G. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.

H. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.

I. Submit one electronic and three hard-copies of each Application for Payment.

J. Include the following with the application:
1. Transmittal letter as specified for submittals in Section 01 3000.
2. Construction progress schedule, revised and current as specified in Section 01 3000.
3. Partial release of liens from major subcontractors and vendors.
4. Partial lien waivers.
5. Affidavits attesting to off-site stored products.

K. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 MODIFICATION PROCEDURES

A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.

B. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
2. Promptly execute the change.

C. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the changewith a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 10 days.

D. Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation. Document any requested substitutions in accordance with Section 01 6000.

E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect.
3. For pre-determined unit prices and quantities, the amount will based on the fixed unit prices.

F. Substantiation of Costs: Provide full information required for evaluation.
1. On request, provide the following data:
a. Quantities of products, labor, and equipment.

b. Taxes, insurance, and bonds.
c. Overhead and profit.
d. Justification for any change in Contract Time.
e. Credit for deletions from Contract, similarly documented.

2. Support each claim for additional costs with additional information:
   a. Origin and date of claim.
   b. Dates and times work was performed, and by whom.
   c. Time records and wage rates paid.
   d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

G. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

H. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

I. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

J. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
1. All closeout procedures specified in Section 01 7000.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 2100

ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Lump Sum allowances.

B. Contingency allowance.

1.02 RELATED REQUIREMENTS

A. Section 01 2000 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 LUMP SUM ALLOWANCES

A. Costs Included in Allowances: Cost of product to Contractor or subcontractor, less applicable trade discounts, and shall include taxes, freight, and delivery to Project site..

B. Costs Not Included in Allowances: Product handling at the site, including unloading, uncrating, and storage; protection of products from elements and from damage; and labor for installation and finishing.

C. Architect Responsibilities:
   1. Consult with Contractor for consideration and selection of products, suppliers, and installers.
   2. Select products in consultation with Owner and transmit decision to Contractor.
   3. Prepare Change Order.

D. Contractor Responsibilities:
   1. Assist Architect in selection of products, suppliers, and installers.
   2. Obtain proposals from suppliers and installers and offer recommendations.
   3. On notification of which products have been selected, execute purchase agreement with designated supplier and installer.
   4. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
   5. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.

E. Differences in costs will be adjusted by Change Order.

1.04 CONTINGENCY ALLOWANCE

A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

B. Funds will be drawn from the Contingency Allowance only by Change Order.

C. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.05 ALLOWANCES SCHEDULE

A. Unforseen conditions: (Lump Sum Allowance) Include the stipulated sum of $5,000 for labor and materials to remove and replace water damaged conditions not uncovered prior to bid.

B. General contingency allowance: Include the stipulated sum of $1,500 for general contingency conditions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 2200

UNIT PRICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. List of unit prices, for use in preparing Bids.

B. Measurement and payment criteria applicable to Work performed under a unit price payment method.

C. Defect assessment and non-payment for rejected work.

1.02 RELATED REQUIREMENTS

A. Document 00 2113 - Instructions to Bidders: Instructions for preparation of pricing for Unit Prices.

B. Document 00 4322 - Unit Prices Form: List of Unit Prices as supplement to Bid Form

C. Section 01 2000 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 COSTS INCLUDED

A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.04 UNIT QUANTITIES SPECIFIED

A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

B. If no Unit Prices are listed or added by Addendum, then this Section may not be applicable.

1.05 MEASUREMENT OF QUANTITIES

A. Measurement methods delineated in the individual specification sections complement the criteria of this section.

B. Take all measurements and compute quantities. Measurements and quantities will be verified by Architect.

C. Assist by providing necessary equipment, workers, and survey personnel as required.

D. Measurement Devices:
   1. Weigh Scales: Inspected, tested and certified by the applicable state Weights and Measures department within the past year.
   2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.
   3. Metering Devices: Inspected, tested and certified by the applicable state department within the past year.

E. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.

F. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.

G. Measurement by Area: Measured by square dimension using mean length and width or radius.

H. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.

I. Stipulated Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

J. Perform surveys required to determine quantities, including control surveys to establish measurement reference lines. Notify Architect prior to starting work.

K. Contractor's Engineer Responsibilities: Sign surveyor's field notes or keep duplicate field notes, calculate and certify quantities for payment purposes.

1.06 PAYMENT

A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Architect, multiplied by the unit price.

B. Payment will not be made for any of the following:
   1. Products wasted or disposed of in a manner that is not acceptable.
   2. Products determined as unacceptable before or after placement.
   3. Products not completely unloaded from the transporting vehicle.
   4. Products placed beyond the lines and levels of the required Work.
   5. Products remaining on hand after completion of the Work.
   6. Loading, hauling, and disposing of rejected Products.

1.07 DEFECT ASSESSMENT

A. Replace Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct one of the following remedies:
   1. The defective Work may remain, but the unit price will be adjusted to a new unit price at the discretion of Architect.
   2. The defective Work will be partially repaired to the instructions of the Architect, and the unit price will be adjusted to a new unit price at the discretion of Architect.

C. The authority of Architect to assess the defect and identify payment adjustment is final.

1.08 SCHEDULE OF UNIT PRICES

A. Item: Interior drywall including paint and reinstallation of base and adjacent finishes to match existing, where portion is required to be removed due to moisture damages.; Section 07 4646.
   1. Unit: Per Square Foot

B. Item: Provide 2x4 wood stud where existing stud or base plate has deteriorated.; Section 06 1000.
   1. Unit: Per linear foot of stud or base plate.

C. Item: P.T. 4x4 wood post for deck support to exend from bottom of joist to 2' below existing grade with 1' diameter concrete awger drilled footing to 2'-6" below grade.; Section 06 1000.
   1. Unit: Per each.

D. Item: Remove and replace existing exterior sheathing.; Section 06 1000.
   1. Unit: Per square foot.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 2300

ALTERNATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Description of Alternates.

B. Procedures for pricing Alternates.

C. Documentation of changes to Contract Price and Contract Time.

1.02 RELATED REQUIREMENTS

A. Owner supplied procurement documents - ITEMS II-X

1.03 ACCEPTANCE OF ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.04 SCHEDULE OF ALTERNATES

A. Alternate No. 1 - IPE Wood Deck vs Pressure Treated Wood Deck:
   1. Base Bid Item: Section 061500 and Drawing number A 101 including Notes.
      a. Furnish and install IPE wood deck with grooved sides for concealed fasteners and self adhered membrane flashing between top of joist and bottom of decking.
      b. Furnish and install handrail per Custom Railing Notes on A102.
      c. IPE Wood deck does not require staining but only a seal coating.
   2. Alternate Item: Section 061500 and Drawing number A 101 including Notes.
      a. Furnish and install Pressure Treated wood deck with grooved sides for concealed fasteners and self adhered membrane flashing between top of joist and bottom of decking.
      b. Provide stain per Spec 09 9000.
      c. Furnish and install handrail per Custom Railing Notes on A102.

B. Alternate No. 2 - Fluid Applied Membrane Air Barrier vs Weather Barrier:
   1. Base Bid Item: Section 07 2726 Fluid Applied Membrane Air Barrier and Drawing number A102 & A501 including all notes and references.
   2. Alternate Item: Section 07 2500 Weather Barrier and Drawing number A102 & A501 including all notes and references.

C. Alternate No. 3 - Impact Resistant Composit Windows:
   1. Base Bid: Existing windows shall remain "as is".
   2. Alternate Item: Section 08 5400 Composit Windows and Drawings to be submitted by contractor as shop drawing including samples, details, rough opening modifications or adaptations required..

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 2500
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedural requirements for proposed substitutions.

1.02 RELATED REQUIREMENTS

A. Owner Furnished ITEMS I-XII

B. Section 00 6325 - Substitution Request Form - During Construction: Required form for substitution requests made after the Bidding/Negotiation Phase (During Construction).

C. Section 01 2200 - Unit Prices, for additional unit price requirements.

D. Section 01 2300 - Alternates, for product alternatives affecting this section.

E. Section 01 3000 - Administrative Requirements: Submittal procedures, coordination.

F. Section 01 6000 - Product Requirements: Fundamental product requirements, product options, delivery, storage, and handling.

1.03 DEFINITIONS

A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
   1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
      a. Unavailability.
      b. Regulatory changes.
   2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.
      a. Substitution requests offering advantages solely to the Contractor will not be considered.

1.04 REFERENCE STANDARDS

A. CSI/CSC Form 1.5C - Substitution Request (During the Bidding/Negotiating Stage); Current Edition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
   2. Agrees to provide the same warranty for the substitution as for the specified product.
   3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
   4. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
   5. Waives claims for additional costs or time extension that may subsequently become apparent.
   6. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.

B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.

C. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.

1. Specified form is required. Contractor's Substitution Request documentation must include the following:
    a. Project Information:
        1) Official project name and number, and any additional required identifiers established in Contract Documents.
        2) Owner's, Architect's, and Contractor's names.
    b. Substitution Request Information:
        1) Discrete and consecutive Substitution Request number, and descriptive subject/title.
        2) Indication of whether the substitution is for cause or convenience.
        3) Issue date.
        4) Reference to particular Contract Document(s) specification section number, title, and article/paragraph(s).
        5) Description of Substitution.
        6) Reason why the specified item cannot be provided.
        7) Differences between proposed substitution and specified item.
        8) Description of how proposed substitution affects other parts of work.
    c. Attached Comparative Data: Provide point-by-point, side-by-side comparison addressing essential attributes specified, as appropriate and relevant for the item:
        1) Physical characteristics.
        2) In-service performance.
        3) Expected durability.
        4) Visual effect.
        5) Warranties.
        6) Other salient features and requirements.
        7) Include, as appropriate or requested, the following types of documentation:
            (a) Product Data:
            (b) Samples.
            (c) Certificates, test, reports or similar qualification data.
            (d) Drawings, when required to show impact on adjacent construction elements.
    d. Impact of Substitution:
        1) Savings to Owner for accepting substitution.
        2) Change to Contract Time due to accepting substitution.

D. Limit each request to a single proposed substitution item.
    1. Submit an electronic document, combining the request form with supporting data into single document.

3.02 SUBSTITUTION PROCEDURES DURING BIDDING PHASE

A. Instructions to Bidders specifies time restrictions for submitting requests for substitutions during the bidding period, and the documents required.

3.03 SUBSTITUTION PROCEDURES AFTER BIDDING PHASE

A. Architect will consider requests for substitutions only within 15 days after date of Agreement.

B. Submit request for Substitution for Cause within 14 days of discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

C. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
    1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.

2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
3. Bear the costs engendered by proposed substitution of:
    a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.

D. Substitutions will not be considered under one or more of the following circumstances:
1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
2. Without a separate written request.
3. When acceptance will require revisions to the Contract Documents.

3.04 RESOLUTION

A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.

B. Architect will notify Contractor in writing of decision to accept or reject request.
1. Architect's decision following review of proposed substitution will be noted on the submitted form.

3.05 ACCEPTANCE

A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

3.06 CLOSEOUT ACTIVITIES

A. See Section 01 7800 - Closeout Submittals, for closeout submittals.

END OF SECTION

SECTION 01 3000

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

NOTE: IN THE EVENT THAT THE INSTRUCTIONS CONTAINED WITHIN THIS SECTION IS IN CONFLICT WITH OWNER SUPPLIED INSTRUCTIONS CONTAINED WITHIN ITEM I-XII - OWNER'S INSTRUCTIONS SHALL GOVERN.

2.01 SECTION INCLUDES

A. General administrative requirements.

B. Electronic document submittal service.

C. Preconstruction meeting.

D. Progress meetings.

E. Construction progress schedule.

F. Submittals for review, information, and project closeout.

G. Number of copies of submittals.

H. Requests for Interpretation (RFI) procedures.

I. Submittal procedures.

2.02 RELATED REQUIREMENTS

A. ITEMS III - XII - Contracting Forms and Supplements: Use Owner Supplied Forms as follows.
   1. Bid Response
   2. Insurance Requirements
   3. Bid Bond
   4. Performance Bond
   5. Labor and Materials Bond
   6. Standard Terms and Conditions
   7. Scope and Specs
   8. Contract Agreement
   9. Sales Tax Exemption Requirements and Procurement
   10. Alabama Imigration Act Contract Requirements

B. Section 01 6000 - Product Requirements: General product requirements.

C. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

D. Section 01 7800 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

2.03 REFERENCE STANDARDS

A. AIA G716 - Request for Information; 2004.

B. AIA G810 - Transmittal Letter; 2001.

2.04 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Conform to requirements of Section 01 7000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

B. Make the following types of submittals to Architect: (With copy to Project Management Consultant)
   1. Requests for Interpretation (RFI).
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Design data.
   6. Manufacturer's instructions and field reports.
   7. Applications for payment and change order requests.

8. Progress schedules.
9. Correction Punch List and Final Correction Punch List for Substantial Completion.
10. Closeout submittals.

2.05 PROJECT COORDINATOR

A. Project Coordinator: Project Management Person appointed by the General Contractor.

B. During construction, coordinate use of site and facilities through the Project Coordinator.

C. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

D. Coordinate field engineering and layout work under instructions of the Project Coordinator.

E. Design and develop a Safety Program to be implemented, enforced and maintained solely by the General Contractor and send a copy (for information only) to the Owner and Architect to keep on file.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

4.01 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.
   1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
   2. Contractor and Architect are required to use this service.
   3. It is Contractor's responsibility to submit documents in allowable format.
   4. Subcontractors, suppliers, and Architect's consultants are to be permitted to use the service at no extra charge.
   5. Users of the service need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software capability is provided by the service provider.
   6. Paper document transmittals will not be reviewed; emailed electronic documents will not be reviewed.
   7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.

B. Cost: The cost of the service is to be paid by Contractor; include the cost of the service in the Contract Sum.

C. Submittal Service: The selected service is:
   1. Submittal Exchange (tel: 1-800-714-0024): www.submittalexchange.com.

D. Project Closeout: Architect will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Owner.

4.02 PRECONSTRUCTION MEETING

A. Architect will schedule a meeting after Notice of Award.

B. Attendance Required:
   1. Owner.
   2. Architect.
   3. Contractor.

4. Major Subcontractors.

C. Agenda:
   1. Execution of Owner-Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.
   3. Distribution of Contract Documents.
   4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
   5. Designation of personnel representing the parties to Contract, Owner, Contractor, and Architect.
   6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   7. Scheduling.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

4.03 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work as needed to each specific phase of the work. The Owner and Architect will be available on at monthly or bi-monthly intervals, as required by progress of work.

B. Copy the Owner and Architect on meeting notes and memoranda regarding meetings in which neither the Owner nor the Architect were present.

C. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

D. Attendance Required:
   1. Contractor.
   2. Owner.
   3. Architect.
   4. Contractor's superintendent.
   5. Major subcontractors.

E. Agenda:
   1. Review minutes of previous meetings.
   2. Review of work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems that impede, or will impede, planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Review of RFIs log and status of responses.
   7. Review of off-site fabrication and delivery schedules.
   8. Maintenance of progress schedule.
   9. Corrective measures to regain projected schedules.
   10. Planned progress during succeeding work period.
   11. Coordination of projected progress.
   12. Maintenance of quality and work standards.
   13. Effect of proposed changes on progress schedule and coordination.
   14. Update of any and all Safety issues covered under the Contractor's Safety Plan.
   15. Advise Owner and Architect of any injuries of other issues related to the ongoing maintenance if the required Safety Plan for which the Contractor is solely responsible.
   16. Other business relating to work.

F. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

4.04 CONSTRUCTION PROGRESS SCHEDULE

A. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

B. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.

C. Within 10 days after joint review, submit complete schedule.

D. Submit updated schedule with each Application for Payment.

4.05 REQUESTS FOR INTERPRETATION (RFI)

A. Definition: A request seeking one of the following:
   1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in the Contract Documents.
   2. A resolution to an issue which has arisen due to field conditions and affects design intent.

B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.

C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of the Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
   1. Prepare a separate RFI for each specific item.
      a. Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
      b. Do not forward requests which solely require internal coordination between subcontractors.
   2. Prepare in a format and with content acceptable to Owner.
      a. Use AIA G716 - Request for Information .
   3. Prepare using software provided by the Electronic Document Submittal Service.
   4. Combine RFI and its attachments into a single electronic file. PDF format is preferred.

D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
   1. Include in each request Contractor's signature attesting to good faith effort to determine from the Contract Documents information requiring interpretation.
   2. Unacceptable Uses for RFIs: Do not use RFIs to request the following::
      a. Approval of submittals (use procedures specified elsewhere in this section).
      b. Approval of substitutions (see Section - 01 6000 - Product Requirements)
      c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
      d. Different methods of performing work than those indicated in the Contract Drawings and Specifications (comply with provisions of the Conditions of the Contract).
   3. Improper RFIs: Requests not prepared in conformance to requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response, with an explanatory notation.
   4. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, the Contract Documents, with no additional input required to clarify the question. They will be returned without a response, with an explanatory notation.
      a. The Owner reserves the right to assess the Contractor for the costs (on time-and-materials basis) incurred by the Architect, and any of its consultants, due to processing of such RFIs.

E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
   1. Official Project name and number, and any additional required identifiers established in Contract Documents.
   2. Owner's, Architect's, and Contractor's names.
   3. Discrete and consecutive RFI number, and descriptive subject/title.

4. Issue date, and requested reply date.
5. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
6. Annotations: Field dimensions and/or description of conditions which have engendered the request.
7. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.

F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.

G. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
1. Indicate current status of every RFI. Update log promptly and on a regular basis.
2. Note dates of when each request is made, and when a response is received.
3. Highlight items requiring priority or expedited response.
4. Highlight items for which a timely response has not been received to date.
5. Identify and include improper or frivolous RFIs.

H. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.
1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.

I. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
3. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.
4. Notify Architect within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

4.06 SUBMITTAL SCHEDULE

A. Submit to Architect for review a schedule for submittals in tabular format.
1. Submit at the same time as the preliminary schedule specified in Section - 01 3216 - Construction Progress Schedule.
2. Coordinate with Contractor's construction schedule and schedule of values.
3. Format schedule to allow tracking of status of submittals throughout duration of construction.
4. Arrange information to include scheduled date for initial submittal, specification number and title, submittal category (for review or for information), description of item of work covered, and role and name of subcontractor.
5. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.

a. For assemblies, equipment, systems comprised of multiple components and/or requiring detailed coordination with other work, allow for additional time to make corrections or revisions to initial submittals, and time for their review.

4.07 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

4.08 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Design data.
   2. Certificates.
   3. Test reports.
   4. Inspection reports.
   5. Manufacturer's instructions.
   6. Manufacturer's field reports.

4.09 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in conformance to requirements of Section 01 7800 - Closeout Submittals:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

4.10 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

4.11 SUBMITTAL PROCEDURES

A. General Requirements:
   1. Use a single transmittal for related items.
   2. Submit separate packages of submittals for review and submittals for information, when included in the same specification section.
   3. Transmit using approved form.
      a. Use Form AIA G810.
   4. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.

5. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
6. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
    a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
7. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
    a. Deliver submittals to Architect at email address: dmugg@newsoutharchitects.com.
8. Schedule submittals to expedite the Project, and coordinate submission of related items.
    a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
    b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 7 days.
9. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
10. Provide space for Contractor and Architect review stamps.
11. When revised for resubmission, identify all changes made since previous submission.
12. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
13. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
14. Submittals not requested will not be recognized or processed.

B. Product Data Procedures:
1. Submit only information required by individual specification sections.
2. Collect required information into a single submittal.
3. Do not submit (Material) Safety Data Sheets for materials or products unless requested by Architect.

C. Shop Drawing Procedures:
1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related work.
2. Do not reproduce the Contract Documents to create shop drawings.
3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.

D. Samples Procedures:
1. Transmit related items together as single package.
2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.

E. For each submittal for review, allow 10 days excluding delivery time to and from the Contractor.

4.12 SUBMITTAL REVIEW

A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.

B. Submittals for Information: Architect will acknowledge receipt and review. See below for actions to be taken.

C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.

D. Architect's and his consultants' actions on items submitted for review:
1. Authorizing purchasing, fabrication, delivery, and installation:
    a. "Approved", or language with same legal meaning.

b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
    1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
    1) Resubmit corrected item, with review notations acknowledged and incorporated. Resubmit separately, or as part of project record documents.

2. Not Authorizing fabrication, delivery, and installation:
    a. "Revise and Resubmit".
        1) Resubmit revised item, with review notations acknowledged and incorporated.
    b. "Rejected".
        1) Submit item complying with requirements of Contract Documents.

E. Architect's and his consultants' actions on items submitted for information:
1. Items for which no action was taken:
    a. "Received" - to notify the Contractor that the submittal has been received for record only.
2. Items for which action was taken:
    "Reviewed" - no further action is required from Contractor.
    a.

END OF SECTION

SECTION 01 3216

CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

NOTE: IN THE EVENT THAT THE INSTRUCTIONS CONTAINED WITHIN THIS SECTION IS IN CONFLICT WITH OWNER SUPPLIED INSTRUCTIONS CONTAINED WITHIN ITEM I-XII - OWNER'S INSTRUCTIONS SHALL GOVERN.

2.01 SECTION INCLUDES

A. Preliminary schedule.

B. Construction progress schedule, bar chart type.

2.02 RELATED SECTIONS

A. Section 01 1000 - Summary: Work sequence.

2.03 REFERENCE STANDARDS

A. AGC (CPSM) - Construction Planning and Scheduling Manual; 2004.

2.04 SUBMITTALS

A. Within 10 days after date of Agreement, submit preliminary schedule.

B. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.

1. Include written certification that major contractors have reviewed and accepted proposed schedule.

C. Submit updated schedule with each Application for Payment.

D. Submit under transmittal letter form specified in Section 01 3000 - Administrative Requirements.

2.05 QUALITY ASSURANCE

A. Contractor's Administrative Personnel: 3 years minimum experience in using and monitoring CPM schedules on comparable projects.

2.06 SCHEDULE FORMAT

A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

B. Diagram Sheet Size: Maximum 11 x 17 inches.

C. Scale and Spacing: To allow for notations and revisions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

4.01 PRELIMINARY SCHEDULE

A. Prepare preliminary schedule in the form of a horizontal bar chart.

4.02 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

B. Identify each item by specification section number.

C. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

D. Provide legend for symbols and abbreviations used.

4.03 BAR CHARTS

A. Include a separate bar for each major portion of Work or operation.

B. Identify the first work day of each week.

4.04 REVIEW AND EVALUATION OF SCHEDULE

A. Participate in joint review and evaluation of schedule with Architect at each submittal.

B. Evaluate project status to determine work behind schedule and work ahead of schedule.

C. After review, revise as necessary as result of review, and resubmit within 10 days.

4.05 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

C. Annotate diagrams to graphically depict current status of Work.

D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

E. Indicate changes required to maintain Date of Substantial Completion.

F. Submit reports required to support recommended changes.

4.06 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Contractor's project site file, to subcontractors, suppliers, Architect, Owner, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

END OF SECTION

SECTION 01 4000

QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittals.

B. Quality assurance.

C. References and standards.

D. Testing and inspection agencies and services.

E. Control of installation.

F. Mock-ups.

G. Tolerances.

H. Manufacturers' field services.

I. Defect Assessment.

1.02 RELATED REQUIREMENTS

A. ITEMS III - XII - Contracting Forms and Supplements: Use Owner Supplied Forms as follows.
   1. Bid Response
   2. Insurance Requirements
   3. Bid Bond
   4. Performance Bond
   5. Labor and Materials Bond
   6. Standard Terms and Conditions
   7. Scope and Specs
   8. Contract Agreement
   9. Sales Tax Exemption Requirements and Procurement
   10. Alabama Imigration Act Contract Requirements

B. Section 01 4216 - Definitions.

C. Section 01 4219 - Reference Standards.

D. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCE STANDARDS

A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2014).

B. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2014.

C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2013.

D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2012a.

E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing; 2014a.

F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2013.

G. IAS AC89 - Accreditation Criteria for Testing Laboratories; 2010.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.

C. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of test/inspection.
      h. Date of test/inspection.
      i. Results of test/inspection.
      j. Conformance with Contract Documents.
      k. When requested by Architect, provide interpretation of results.
   2. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.

D. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
   1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
   2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

E. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

F. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
   1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

G. Erection Drawings: Submit drawings for Architect's benefit as contract administrator or for Owner.
   1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
   2. Data indicating inappropriate or unacceptable Work may be subject to action by Architect or Owner.

1.05 QUALITY ASSURANCE

A. Testing Agency Qualifications:
   1. Prior to start of Work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
   2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
   3. Qualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.

1.06 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

1.07 TESTING AND INSPECTION AGENCIES AND SERVICES

A. Owner will employ and pay for services of an independent testing agency to perform specified testing.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

A. Before installing portions of the Work where mock-ups are required, construct mock-ups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.

B. Accepted mock-ups establish the standard of quality the Architect will use to judge the Work.

C. Accepted mock-ups shall be a comparison standard for the remaining Work.

D. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Architect.

E. Where possible salvage and recycle the demolished mock-up materials.

3.03 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 TESTING AND INSPECTION

A. See individual specification sections for testing and inspection required.

B. Testing Agency Duties:
   1. Test samples of mixes submitted by Contractor.

2. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
3. Perform specified sampling and testing of products in accordance with specified standards.
4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
5. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or products.
6. Perform additional tests and inspections required by Architect.
7. Submit reports of all tests/inspections specified.

C. Limits on Testing/Inspection Agency Authority:
1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the Work.
3. Agency may not assume any duties of Contractor.
4. Agency has no authority to stop the Work.

D. Contractor Responsibilities:
1. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
2. Provide incidental labor and facilities:
   a. To provide access to Work to be tested/inspected.
   b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
   c. To facilitate tests/inspections.
   d. To provide storage and curing of test samples.
3. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
4. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
5. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect.

F. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

3.05 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.06 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 4216

DEFINITIONS

PART 1 GENERAL

1.01 SUMMARY

A. This section supplements the definitions contained in the General Conditions.

B. Other definitions are included in individual specification sections.

1.02 DEFINITIONS

A. Furnish: To supply, deliver, unload, and inspect for damage.

B. Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.

C. Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Not materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result. Products may be new, never before used, or re-used materials or equipment.

D. Project Manual: The book-sized volume that includes the procurement requirements (if any), the contracting requirements, and the specifications.

E. Provide: To furnish and install.

F. Supply: Same as Furnish.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 4219

REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements relating to referenced standards.

1.02 RELATED REQUIREMENTS

A. Document 00 7200 - General Conditions: Reference standards.

1.03 QUALITY ASSURANCE

A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue specified in this section, except where a specific date is established by applicable code.

C. Obtain copies of standards when required by the Contract Documents.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Date of Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from the Architect before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Architect shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

PART 2 CONSTRUCTION INDUSTRY ORGANIZATION DOCUMENTS

2.01 AAMA -- AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION

A. AAMA/NWWDA 101/I.S.2 - Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors; 1997.

B. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for windows, doors, and skylights; 2011.

C. AAMA 303 - Voluntary Specification for Polyvinyl Chloride (PVC) Exterior Profiles; 2012.

D. AAMA 501 - Methods of Test for Exterior Walls; 2005.

E. AAMA 701/702 - Combined Voluntary Specifications for Pile Weatherstrip and Replaceable Fenestration Weatherseals; 2011.

F. AAMA 800 - Voluntary Specifications and Test Methods for Sealants; 2007.

G. AAMA 804.3 - Sealants: Back Bedding Mastic Type Glazing Tapes (Part of AAMA 800); 2007.

H. AAMA 806.3 - Tape (Part of AAMA 800); 2007.

I. AAMA 807.3 - Glazing Tape (Part of AAMA 800); 2007.

J. AAMA 809.2 - Sealants: Non-Drying Sealant (Part of AAMA 800); 2007.

K. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; 2009.

L. AAMA 1504 - Voluntary Standard for Thermal Performance of Windows, Doors, and Glazed Wall Sections; 1997.

M. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2015.

N. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2013.

O. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2013.

P. AAMA CPD - Certified Products Directory; at www.aamanet.org.

Q. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; 2015.

R. AAMA CW-13 - Structural Sealant Glazing Systems; 1985 (R2006).

S. AAMA TIR-A15 - Overview of Design Wind Load Determination for Fenestration Systems; 2014.

2.02 ACI -- AMERICAN CONCRETE INSTITUTE INTERNATIONAL

A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; 2010.

B. ACI 201.2R - Guide to Durable Concrete; 2008.

C. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

D. ACI 211.2 - Standard Practice for Selecting Proportions for Structural Lightweight Concrete; 1998 (Reapproved 2004).

E. ACI 301 - Specifications for Structural Concrete; 2010 (Errata 2012).

F. ACI 302.1R - Guide for Concrete Floor and Slab Construction; 2004 (Errata 2007).

G. ACI 303R - Guide to Cast-in-Place Architectural Concrete Practice; 2012.

H. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete;.

I. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000.

J. ACI 305R - Hot Weather Concreting; 2010.

K. ACI 306R - Cold Weather Concreting; 2010.

L. ACI 308R - Guide to Curing Concrete; 2001 (Reapproved 2008).

M. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2011.

N. ACI 347 - Recommended Practice For Concrete Formwork;.

O. ACI 347R - Guide to Formwork for Concrete; 2014.

P. ACI 503R - Use of Epoxy Compounds with Concrete; 1993 (Reapproved 1998).

Q. ACI 506.2 - Specification for Materials, Proportioning, and Application of Shotcrete; 2013.

R. ACI 531.1 - Specification for Concrete Masonry Construction; 1976 (Reapproved 1983).

S. ACI SP-66 - ACI Detailing Manual; 2004.

2.03 ADC -- AIR DIFFUSION COUNCIL

A. ADC 1062: GRD - Test Code for Grilles, Registers & Diffusers; 1984.

2.04 AGA -- AMERICAN GALVANIZERS ASSOCIATION, INC.

A. AGA-89 - Hot Dip Galvanizing for Corrosion Protection of Steel Products; 1989.

2.05 AGA -- AMERICAN GAS ASSOCIATION

A. AGA (DIR) - Directory of Certified Appliances and Accessories; 1998.

B. AGA Z21.13 - See ANSI Z21.13.

C. AGA Z21.56 - See ANSI Z21.56.

2.06 AGC -- ASSOCIATED GENERAL CONTRACTORS OF AMERICA

A. AGC (CPSM) - Construction Planning and Scheduling Manual; 2004.

2.07 AHRI -- AIR-CONDITIONING, HEATING, AND REFRIGERATION INSTITUTE

A. AHRI 210/240 - Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment; 2008.

B. AHRI 270 - Sound Performance Rating of Outdoor Unitary Equipment; 2008.

C. AHRI 310/380 - Packaged Terminal Air-Conditioners and Heat Pumps; 2004.

D. AHRI 340/360 - Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment; 2007.

E. AHRI 365 - Commercial and Industrial Unitary Air-Conditioning Condensing Units; 2009.

F. AHRI 410 - Standard for Forced-Circulation Air-Cooling and Air-Heating Coils; 2001 (R2011).

G. AHRI 430 (I-P) - Performance Rating of Central Station Air-Handling Units; 2014.

H. ARI 650 - Air Outlets and Inlets.

I. AHRI 750 - Standard for Thermostatic Refrigerant Expansion Valves; 2007.

J. AHRI 760 - Standard for Performance Rating of Solenoid Valves for Use With Volatile Refrigerants; 2007.

K. AHRI 890 - Standard for Air Diffusers and Air Diffuser Assemblies; 2008.

L. ARI 1010 - Self-Contained, Mechanically-Refrigerated Drinking-Water Coolers; 2002.

M. ARI Guideline D - Application and Installation of Central Station Air-Handling Units; 1996.

2.08 AI -- THE ASPHALT INSTITUTE

A. AI SS-1 - Model Construction Specifications for Asphalt Concrete and Other Plant-Mix Types; Seventh Edition (reprinted 1992).

B. AI SS-2 - Specifications for Paving and Industrial Asphalts; 1995.

C. AI ES-1 - Asphalt Technology and Construction Practices: Instructors Guide; 1983.

D. AI MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types; 1997.

E. AI MS-3 - Asphalt Plant Manual.

F. AI MS-8 - Asphalt Paving Manual; 1987.

2.09 AIA -- THE AMERICAN INSTITUTE OF ARCHITECTS

A. AIA A101 - Standard Form of Agreement Between Owner and Contractor where the basis of Payment is a Stipulated Sum; 2007.

B. AIA A201 - General Conditions of the Contract for Construction; 2007.

C. AIA A305 - Contractor's Qualification Statement; 1986.

D. AIA A310 - Bid Bond; 2010.

E. AIA A312 - Performance Bond and Payment Bond; 2010.

F. AIA A503 - Guide for Supplementary Conditions; 2007.

G. AIA A701 - Instructions to Bidders; 2007.

H. AIA G612 - Owner's Instructions to the Architect; 2001.

I. AIA G701 - Change Order; 2001.

J. AIA G702 - Application and Certificate for Payment; 1992.

K. AIA G703 - Continuation Sheet; 1992.

L. AIA G704 - Certificate of Substantial Completion; 2000.

M. AIA G710 - Architect's Supplemental Instructions; 1992.

N. AIA G714 - Construction Change Directive; 2007.

O. AIA G810 - Transmittal Letter; 2001.

2.10 AISC -- AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC.

AISC (COMM) - Commentary on the Specification for Structural Steel Buildings; 2005.

A. AISC (AMAN) - ASD Manual of Steel Construction; 1989, Ninth Edition.

B. AISC (LMAN) - LRFD Manual of Steel Construction, Volume I - Structural Members, Specifications and Codes; 2001, Third Edition.

C. AISC (MAN) - Steel Construction Manual; 2011.

D. AISC 201 - AISC Certification Program for Structural Steel Fabricators, Standard for Steel Building Structures; 2006.

E. AISC 325 - Steel Construction Manual; 2014.

F. AISC 341 - Seismic Provisions for Structural Steel Buildings; 2010.

G. AISC 360 - Specification for Structural Steel Buildings; 2010.

H. AISC S303 - Code of Standard Practice for Steel Buildings and Bridges; 2010.

I. AISC S323 - Quality Criteria and Inspection Standards; 1988, Third Edition.

J. AISC S329 - Allowable Stress Design Specification for Structural Joints Using ASTM A325 or A490 Bolts; 1985, Reaffirmed 1994.

K. AISC S335 - Specification for Structural Steel Buildings--Allowable Stress Design, Plastic Design; 1989.

L. AISC S350L - Load and Resistance Factor Design Specification for Structural Steel Buildings; 1999, with Supplement No.1 in 2001.

M. AISC S345L - Load and Resistance Factor Design Specification for Structural Joints Using ASTM A325 or A 490 Bolts; 1994.

N. AISC S348 - Specification for Structural Joints Using ASTM A325 or A490 Bolts; 2004.

2.11 AISI -- AMERICAN IRON AND STEEL INSTITUTE

A. AISI SG-971 - Specification for the Design of Cold-Formed Steel Structural Members; 1996, with 2000 Supplement.

B. AISI SG02-1 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2001 with 2004 supplement.

C. AISI SG03-2 - 2002 edition of the Cold-Formed Steel Design Manual; 2006.

D. AISI SG-973 - Cold-Formed Steel Design Manual; 1996.

2.12 AIST -- ASSOCIATION FOR IRON AND STEEL TECHNOLOGY

A. AIST PB-229 - Stainless Steels: A Steel Products Manual; 2008.

2.13 ALSC -- AMERICAN LUMBER STANDARDS COMMITTEE

2.14 AMCA -- AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.

A. AMCA (DIR) - [Directory of] Products Licensed Under AMCA International Certified Ratings Program; http://www.amca.org/certified/search/company.aspx.

B. AMCA 99 - Standards Handbook; 2010.

C. AMCA 204 - Balance Quality and Vibration Levels for Fans; 2005.

D. AMCA 210 - Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating; 2007.

E. AMCA 211 - Certified Ratings Programme - Product Rating Manual for Fan Air Performance; 2005.

F. AMCA 220 - Laboratory Methods of Testing Air Curtains for Aerodynamic Performance Ratings; 2005.

G. AMCA 300 - Reverberant Room Method for Sound Testing of Fans; 2014.

H. AMCA 301 - Methods for Calculating Fan Sound Ratings from Laboratory Test Data; 2014.

I. AMCA 303 - Application of Sound Power Level Ratings for Fans; 1979 (Reaffirmed 2012).

J. AMCA 500-L - Laboratory Methods of Testing Louvers for Rating; 2012.

K. AMCA 500-D - Laboratory Methods of Testing Dampers for Rating; 2012.

L. AMCA 511 - Certified Ratings Program for Air Control Devices; 2010.

M. AMCA 611 - Certified Ratings Program for Airflow Measurement Stations; 2010.

2.15 ANSI -- AMERICAN NATIONAL STANDARDS INSTITUTE

A. ANSI/HI 9.1-9.5 - Pumps - General Guidelines for Types, Applications, Definitions, Sound Measurements and Documentation; 2000.

B. ANSI/Infocomm 10 - Audiovisual Systems Performance Verification; 2013.

C. ANSI A13.1 - Scheme for the Identification of Piping Systems; 1981 (R1993).

D. ANSI A14.3 - American National Standard for Ladders -- Fixed -- Safety Requirements; 2008.

E. ANSI A21.11 - American National Standard for Rubber Gasket Joints For Cast Iron and Ductile Iron Pressure Pipe and Fittings; current edition.

F. ANSI A108/A118/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2013.1.

G. ANSI A108.1 - American National Standard for Installation of Ceramic Tile; 2011.

H. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2014.

I. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar; 1999 (Reaffirmed 2010).

J. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive; 2009 (Revised).

K. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 1999 (Reaffirmed 2010).

L. ANSI A112.21.1M - Floor Drains; 1991.

M. ANSI A112.21.2M - American National Standard for Roof Drains; 1983.

N. ANSI A118.1 - American National Standard Specifications for Dry-Set Cement Mortar; 2012 (Revised).

O. ANSI A118.2 - American National Standard Specifications for Conductive Dry-Set Portland Cement Mortar; 1992.

P. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar; 2012 (Revised).

Q. ANSI A118.6 - American National Standard Specifications for Standard Cement Grouts for Tile Installation; 2010 (Revised).

R. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation; 2010 (Revised).

S. ANSI A118.8 - American National Standard Specifications for Modified Epoxy Emulsion Mortar/ Grout; 1999 (Reaffirmed 2010).

T. ANSI A135.4 - American National Standard for Basic Hardboard; 2012.

U. ANSI A136.1 - American National Standard for Organic Adhesives for Installation of Ceramic Tile; 2008 (Reaffirmed 2013).

V. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2013.1.

W. ANSI A137.2 - American National Standard Specifications for Glass Tile; 2013.

X. ANSI A156.10 - Power Operated Pedestrian Doors.

Y. ANSI A156.19 - Power Assist and Low Energy Power Operated Doors.

Z. ANSI A161.2 - Performance Standards for Fabricated High Pressure Decorative Countertops; 1998.

AA. ANSI A208.1 - American National Standard for Particleboard; 2009.

AB. ANSI A208.2 - American National Standard for Medium Density Fiberboard for Interior Use; 2009.

AC. ANSI A224.1 - American National Standard Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1990.

AD. ANSI/SDI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Coatings for Steel Doors and Frames; 2007 (R2011).

AE. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2011.

AF. ANSI A250.7 - Nomenclature: Standard Steel Doors and Frames; 1997 (R2002).

AG. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2014.

AH. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2011.

AI. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames; 2012.

AJ. ANSI/CEA 709.1.D - Control Network Protocol Specification; 2014.

AK. ANSI C57.12.28 - American National Standard for Switchgear and Transformers -- Pad-Mounted Equipment -- Enclosure Integrity; 1999.

AL. ANSI C78.379 - Classification of the Beam Patterns of Reflector Lamps; 2006.

AM. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); 2005.

AN. ANSI C80.3 - American National Standard for Steel Electrical Metallic Tubing (EMT); 2005.

AO. ANSI C80.5 - American National Standard for Electrical Rigid Aluminum Conduit (ERAC); 2005.

AP. ANSI C82.1 - American National Standard for Lamp Ballast - Line Frequency Fluorescent Lamp Ballast; 2004.

AQ. ANSI C135.1 - American National Standard for Zinc-Coated Steel Bolts and Nuts for Overhead Line Construction; 1999.

AR. ANSI C136.24 - American National Standard for Roadway and Area Lighting Equipment - Nonlocking (Button) Type Photocontrols; 2004 (R2010).

AS. ANSI E1.11 - Entertainment Technology - USITT DMX512-A - Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories; 2008 (Reaffirmed 2013).

AT. ANSI E1.20 - Entertainment Technology - RDM - Remote Device Management over USITT DMX512 Networks; 2010.

AU. ANSI S1.4 - American National Standard Specification for Sound Level Meters; 1983 (R2006) with Amd.S1.4A-1985.

AV. ANSI S1.8 - American National Standard Reference Quantities for Acoustical Levels; 1989 (R2011).

AW. ANSI S12.1 - American National Standard Guidelines for the Preparation of Standard Procedures to Determine the Noise Emission from Sources; 1983 (R2011).

AX. ANSI Z21.10.1 - Gas Water Heaters - Volume I - Storage Water Heaters with Input Ratings of 75,000 Btu per Hour or Less; 2011.

AY. ANSI Z21.10.3 - Gas-Fired Water Heaters - Volume III - Storage Water Heaters with Input Ratings Above 75,000 Btu per Hour, Circulating and Instantaneous; 2014.

AZ. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test; 2010.

BA. ANSI Z359.1 - Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components; 2007.

BB. ANSI Z400.1/Z129.1 - Hazardous Industrial Chemicals - Material Safety Data Sheets - Preparation; 2010.

BC. ANSI Z535.2 - American National Standard for Environmental and Facility Safety Signs; 2011.

BD. ANSI Z535.4 - American National Standard for Product Safety Signs and Labels; 2011.

BE. ANSI Z535.1 - American National Standard Safety Color Code; 2006.

2.16 APA -- APA - THE ENGINEERED WOOD ASSOCIATION

A. APA E30 - Engineered Wood Construction Guide; 2011.

B. APA PRP-108 - Performance Standards and Qualification Policy for Structural-Use Panels (Form E445); 2001.

C. APA J20 - Grades & Specifications; Current Edition.

D. APA Y510 - Plywood Design Specification; 1997.

2.17 APHA -- AMERICAN PUBLIC HEALTH ASSOCIATION

A. APHA (EWWW) - Standard Methods for the Examination of Water and Wastewater; 2012.

2.18 ARI -- AIR-CONDITIONING AND REFRIGERATION INSTITUTE (SEE AHRI)

2.19 ASA -- ACOUSTICAL SOCIETY OF AMERICA

A. ASA 16 - Survey Methods for Determination of Sound Power Levels of Noise Sources; current edition.

B. ASA 47 - Specification for Sound Level Meters;.

C. ASA 49 - Preparation of Standard Procedures to Determine the Noise Emission from Sources;.

2.20 ASCA -- ARCHITECTURAL SPRAY COATERS ASSOCIATION

A. ASCA 96 - Voluntary Specification for Superior Performance of Organic Coatings on Architectural Aluminum, Curtainwall, Extrusions, and Miscellaneous Aluminum Components; 1996.

2.21 ASCE -- AMERICAN SOCIETY OF CIVIL ENGINEERS

A. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2010, with 2013 Supplements and Errata.

2.22 ASHRAE -- AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.

A. ASHRAE (FUND) - ASHRAE Handbook - Fundamentals; 2013.

B. ASHRAE (HVACA) - ASHRAE Handbook - HVAC Applications; 2015.

C. ASHRAE (REFR) - ASHRAE Handbook - Refrigeration; 2014.

D. ASHRAE (HVACS) - ASHRAE Handbook - HVAC Systems and Equipment; 2012.

E. ASHRAE (LOADCALC) - Cooling and Heating Load Calculation Principles; 2005.

F. ASHRAE Guideline 1.1 - The HVAC Commissioning Process; 2012.

G. ASHRAE 14 - Methods of Testing for Rating Positive Displacement Condensing Units;.

H. ASHRAE Std 15 - Safety Standard for Refrigeration Systems; 2013.

I. ASHRAE Std 18 - Methods of Testing for Rating Drinking-Water Coolers with Self-Contained Mechanical Refrigeration; 2008.

J. ASHRAE Std 20 - Methods of Testing for Rating Remote Mechanical-Draft Air-Cooled Refrigerant Condensers; 1997 (R2006).

K. ASHRAE Std 23.1 - Methods of Testing for Rating Positive Displacement Refrigerant Compressors and Condensing Units; 2010.

L. ASHRAE Std 33 - Methods of Testing Forced Circulation Air Cooling and Air Heating Coils; 2000.

M. ASHRAE Std 34 - Designation and Safety Classification of Refrigerants; 2013.

N. ASHRAE Std 52.1 - Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter; 1992.

O. ASHRAE Std 52.2 - Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size; 2012, with 2015 amendments.

P. ASHRAE Std 55 - Thermal Environmental Conditions for Human Occupancy; 2013.

Q. ASHRAE Std 62.1 - Laboratory Method of Testing to Determine the Sound Power in a Duct; 2013.

R. ASHRAE Std 68 - Laboratory Method of Testing to Determine the Sound Power in a Duct; 1997.

S. ASHRAE Std 70 - Method of Testing the Performance of Air Outlets and Inlets; 2006 (R2011).

T. ASHRAE Std 84 - Method of Testing Air to Air Heat/Energy Exchangers; 2013.

U. ASHRAE Std 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings; 2013, Including All Addenda.

V. ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems; 2008.

W. ASHRAE Std 129 - Measuring Air-Change Effectiveness; 1997 (Reaffirmed 2002).

X. ASHRAE Std 130 - Methods of Testing Air Terminal Units; 2008 (R2014).

Y. ASHRAE Std 135 - BACnet - A Data Communication Protocol for Building Automation and Control Networks; 2012.

Z. ASHRAE Std 138 - Method of Testing for Rated Ceiling Panels for Sensible Heating and Cooling; 2013.

AA. ASHRAE Std 147 - Reducing the Release of Halogenated Refrigerants From Refrigerating and Air-Conditioning Equipment and Systems; 2002.

2.23 ASME -- THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

A. ASME A13.1 - Scheme for the Identification of Piping Systems; 2007.

B. ASME A112.6.3 - Floor and Trench Drains; 2001 (R2007).

C. ASME A112.18.1 - Plumbing Supply Fittings; 2012.

D. ASME A112.19.1 - Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures; 2013.

E. ASME A112.19.1M - Enameled Cast Iron Plumbing Fixtures; 2008 (R2011).

F. ASME A112.19.2 - Ceramic Plumbing Fixtures; 2013.

G. ASME A112.19.4M - Porcelain Enameled Formed Steel Plumbing Fixtures; 1994 (R2004).

H. ASME A112.19.5 - Flush Valves and Spuds for Water Closets, Urinals, and Tanks; 2011.

I. ASME A112.19.6 - Hydraulic Requirements for Water Closets and Urinals; 1995.

J. ASME A112.21.1 - Floor and Trench Drains; 2001.

K. ASME A112.26.1M - Water Hammer Arrestors; 1984.

L. ASME B1.1 - Unified Inch Screw Threads; 2003 (Reaffirmed 2008).

M. ASME B1.20.1 - Pipe Threads, General Purpose (Inch); 2013.

N. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300; 2011.

O. ASME B1.20.1 - Pipe Threads, General Purpose (Inch); 1983 (R2006).

P. ASME B16.15 - Cast Bronze Threaded Fittings; 2006.

Q. ASME B16.21 - Nonmetallic Flat Gaskets for Pipe Flanges; American Society of Mechanical Engineers; 2005.

R. ASME B16.24 - Cast Copper Alloy Pipe Flanges and Flanged Fittings, Class 150, 300, 400, 600, 900, 1500, and 2500; American Society of Mechanical Engineers; 2006.

S. ASME B16.39 - Malleable Iron Threaded Pipe Unions; 1998 (R2006).

T. ASME B16.4 - Gray Iron Threaded Fittings: Classes 125 and 250; 2011.

U. ASME B16.5 - Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24 Metric/Inch Standard; 2013.

V. ASME B16.9 - Factory-Made Wrought Buttwelding Fittings; 2012.

W. ASME B16.12 - Cast Iron Threaded Drainage Fittings; 2009.

X. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2012.

Y. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2013.

Z. ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings - DWV; 2011.

AA. ASME B16.24 - Cast Copper Alloy Pipe Flanges and Flanged Fittings Classes 150, 300, 600, 900, 1500, and 2500; 2011.

AB. ASME B16.25 - Buttwelding Ends; 2012.

AC. ASME B16.39 - Malleable Iron Threaded Pipe Unions Classes 150, 250, and 300; 2009.

AD. ASME B16.42 - Ductile Iron Pipe Flanges and Flanged Fittings, Classes 150 and 300; 2011.

AE. ASME B18.2.1 - Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series); 2010.

AF. ASME B18.2.2 - Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex Flange, and Coupling Nuts (Inch Series); 2010.

AG. ASME B18.5.2.1M - Metric Round Head Short Square Neck Bolts; 2006 (Reaffirmed 2011).

AH. ASME B18.5.2.2M - Metric Round Head Square Neck Bolts; 1982 (Reaffirmed 2010).

AI. ASME B18.21.1 - Washers: Helical Spring-Lock, Tooth Lock, and Plain Washer (Inch Series); 2009.

AJ. ASME B18.21.2M - Lock Washers (Metric Series); 1999 (Reaffirmed 2014).

AK. ASME B18.22 - Plain Washers; 1965 (Reaffirmed 2008).

AL. ASME B18.22M - Metric Plain Washers; 1981 (Reaffirmed 2010).

AM. ASME B18.6.4 - Thread Forming and Cutting Tapping and Metallic Drive Screws, Inch Series; 1999 (R2005).

AN. ASME B31.1 - Power Piping; 2014.

AO. ASME B31.2 - Fuel Gas Piping; 1968.

AP. ASME B31.3 - Process Piping; 2006.

AQ. ASME B31.5 - Refrigeration Piping and Heat Transfer Components; 2013.

AR. ASME B31.8 - Gas Transmission and Distribution Piping Systems; 2014.

AS. ASME B31.9 - Building Services Piping; 2014.

AT. ASME B36.10M - Welded and Seamless Wrought Steel Pipe; 2004.

AU. ASME B40.100 - Pressure Gauges and Gauge Attachments; 2013.

2.24 ASPA -- AMERICAN SOD PRODUCERS ASSOCIATION (SEE TURFGRASS PRODUCERS INTERNATIONAL)

2.25 ASSE -- AMERICAN SOCIETY OF SANITARY ENGINEERING

A. ASSE 1001 - Performance Requirements for Atmospheric Type Vacuum Breakers; 2008.

B. ASSE 1003 - Performance Requirements for Water Pressure Reducing Valves for Domestic Water Distribution Systems; 2009.

C. ASSE 1002 - Anti-Siphon Fill Valves (Ballcocks) for Gravity Water Closet Flush Tanks; 1999.

D. ASSE 1011 - Hose Connection Vacuum Breakers; 2004.

E. ASSE 1012 - Backflow Preventer with Intermediate Atmospheric Vent; 2009.

F. ASSE 1013 - Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers; 2011.

G. ASSE 1014 - Performance Requirements for Backflow Prevention Devices for Hand-Held Showers; 2005.

H. ASSE 1015 - Performance Requirements for Double Check Backflow Prevention Assemblies and Double Check Fire Protection Backflow Prevention Assemblies; 2009.

I. ASSE 1017 - Temperature Actuated Mixing Valves for Hot Water Distribution; 2003, and Errata 2004.

J. ASSE 1018 - Trap Seal Primer Valves - Water Supply Fed; 2001.

K. ASSE 1019 - Performance Requirements for Wall Hydrant with Backflow Protection and Freeze Resistance; 2011.

L. ASSE 1020 - Performance Requirements for Pressure Vacuum Breaker Assembly; 2004.

M. ASSE 1060 - Performance Requirements for Outdoor Enclosures for Fluid Conveying Components; 2006.

N. ASSE 1070 - Performance Requirements for Water Temperature Limiting Devices; 2004.

O. ASSE 1037 - Pressurized Flushing Devices for Plumbing Fixtures; 1990.

2.26 ASTM A SERIES -- ASTM INTERNATIONAL

A. ASTM A1 - Standard Specification for Carbon Steel Tee Rails; 2000 (Reapproved 2010).

B. ASTM A6/A6M - Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling; 2014.

C. ASTM A27/A27M - Standard Specification for Steel Castings, Carbon, for General Application; 2013.

D. ASTM A 29/A 29M - Standard Specification for Steel Bars, Carbon and Alloy, Hot-Wrought, General Requirements for; 2005.

E. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

F. ASTM A47/A47M - Standard Specification for Ferritic Malleable Iron Castings; 1999 (Reapproved 2014).

G. ASTM A48/A48M - Standard Specification for Gray Iron Castings; 2003 (Reapproved 2012).

H. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.

I. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings; 2015.

J. ASTM A82/A82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2007.

K. ASTM A 90/A 90M - Standard Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings; 2007.

L. ASTM A105/A105M - Standard Specification for Carbon Steel Forgings for Piping Applications; 2013.

M. ASTM A106/A106M - Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service; 2014.

N. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished; 2013.

O. ASTM A 116 - Standard Specification for Metallic-Coated, Steel-Woven Wire Fence Fabric; 2005.

P. ASTM A121 - Standard Specification for Metallic-Coated Carbon Steel Barbed Wire; 2013.

Q. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.

R. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings; 2004 (Reapproved 2014).

S. ASTM A135/A135M - Standard Specification for Electric-Resistance-Welded Steel Pipe; 2009 (Reapproved 2014).

T. ASTM A139/A139M - Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over); 2004 (Reapproved 2010).

U. ASTM A 148/A 148M - Standard Specification for Steel Castings, High Strength, for Structural Purposes; 2005.

V. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

W. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip; 1999 (Reapproved 2009).

X. ASTM A182/A182M - Standard Specification for Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service; 2014a.

Y. ASTM A183 - Standard Specification for Carbon Steel Track Bolts and Nuts; 2003 (Reapproved 2009).

Z. ASTM A184/A184M - Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement; 2006 (Reapproved 2011).

AA. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.

AB. ASTM A194/A194M - Standard Specification for Carbon and Alloy Nuts for Bolts for High Pressure or High Temperature Service, or Both; 2015.

AC. ASTM A216/A216M - Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service; 2012.

AD. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications; 2015b.

AE. ASTM A242/A242M - Standard Specification for High-Strength Low-Alloy Structural Steel; 2004 (Reapproved 2009).

AF. ASTM A252 - Standard Specification for Welded and Seamless Steel Pipe Piles; 2010.

AG. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes; 2016.

AH. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2013.

AI. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2014.

AJ. ASTM A312/A312M - Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes; 2015.

AK. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2014.

AL. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric); 2014.

AM. ASTM A358/A358M - Standard Specification for Electric-Fusion-Welded Austenitic Chromium-Nickel Stainless Steel Pipe for High-Temperature Service and General Applications; 2014a.

AN. ASTM A361/A361M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process for Roofing and Siding; 1994.

AO. ASTM A366/A366M - Standard Specification for Commercial Steel (CS) Sheet, Carbon, (0.15 Maximum Percent) Cold-Rolled; 1997.

AP. ASTM A 370 - Standard Test Methods and Definitions for Mechanical Testing of Steel Products; 2007b.

AQ. ASTM A392 - Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric; 2011a.

AR. ASTM A424/A424M - Standard Specification for Steel, Sheet, for Porcelain Enameling; 2009a.

AS. ASTM A444/A444M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process for Storm Sewer and Drainage Pipe; 1989.

AT. ASTM A446/A446M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality; 1993.

AU. ASTM A449 - Standard Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use; 2010.

AV. ASTM A463/A463M - Standard Specification for Steel Sheet, Aluminum-Coated, by the Hot-Dip Process; 2010.

AW. ASTM A475 - Standard Specification for Zinc-Coated Steel Wire Strand; 2003 (Reapproved 2014).

AX. ASTM A490 - Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength; 2014a.

AY. ASTM A490M - Standard Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints (Metric); 2014a.

AZ. ASTM A 496/A 496M - Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement; 2007.

BA. ASTM A497/A497M - Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete; 2007.

BB. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2014.

BC. ASTM A510/A510M - Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel; 2013.

BD. ASTM A513/A513M - Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing; 2015.

BE. ASTM A514/A514M - Standard Specification for High-Yield-Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding; 2014.

BF. ASTM A524 - Standard Specification for Seamless Carbon Steel Pipe for Atmospheric and Lower Temperatures; 1996 (Reapproved 2012).

BG. ASTM A526/A526M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality; 1990.

BH. ASTM A529/A529M - Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality; 2014.

BI. ASTM A530/A530M - Standard Specification for General Requirements for Specialized Carbon and Alloy Steel Pipe; 2012.

BJ. ASTM A536 - Standard Specification for Ductile Iron Castings; 1984 (Reapproved 2014).

BK. ASTM A 554 - Standard Specification for Welded Stainless Steel Mechanical Tubing; 2003.

BL. ASTM A555/A555M - Standard Specification for General Requirements for Stainless Steel Wire and Wire Rods; 2005 (Reapproved 2014).

BM. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts; 2007a (Reapproved 2014).

BN. ASTM A563M - Standard Specification for Carbon and Alloy Steel Nuts [Metric]; 2007.

BO. ASTM A564/A564M - Standard Specification for Hot-Rolled and Cold-Finished Age-Hardening Stainless Steel Bars and Shapes; 2015.

BP. ASTM A570/A570M - Standard Specification for Structural Steel, Sheet and Strip, Carbon, Hot-Rolled; 1998.

BQ. ASTM A580/A580M - Standard Specification for Stainless Steel Wire; 2015.

BR. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement; 2015.

BS. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

BT. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings; 2009 (Reapproved 2015).

BU. ASTM A786/A786M - Standard Specification for Hot-Rolled Carbon, Low-Alloy, High-Strength Low-Alloy, and Alloy Steel Floor Plates; 2015.

BV. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2010 (Reapproved 2015).

BW. ASTM A 924/A 924M - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process; 2007.

BX. ASTM A929/A929M - Standard Specification for Steel Sheet, Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe; 2001 (Reapproved 2013).

BY. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement; 2011.

BZ. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2011 (Reapproved 2015).

CA. 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 Hardenable; 2015.

CB. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.

CC. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2015.

2.27 ASTM B SERIES -- ASTM INTERNATIONAL

A. ASTM B1 - Standard Specification for Hard-Drawn Copper Wire; 2012.

B. ASTM B2 - Standard Specification for Medium-Hard-Drawn Copper Wire; 2013.

C. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013.

D. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2011.

E. ASTM B26/B26M - Standard Specification for Aluminum-Alloy Sand Castings; 2014.

F. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).

G. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes; 2015a.

H. ASTM B68/B68M - Standard Specification for Seamless Copper Tube, Bright Annealed; 2011.

I. ASTM B68M - Standard Specification for Seamless Copper Tube, Bright Annealed (Metric); 2011.

J. ASTM B75/B75M - Standard Specification for Seamless Copper Tube; 2011.

K. ASTM B75M - Standard Specification for Seamless Copper Tube (Metric); 2011.

L. ASTM B85/85M - Standard Specification for Aluminum-Alloy Die Castings; 2014.

M. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2014.

N. ASTM B210 - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes; 2012.

O. ASTM B210M - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes (Metric); 2012.

P. ASTM B211M - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold-Finished Bar, Rod, and Wire (Metric); 2012.

Q. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.

R. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2013.

S. ASTM B248 - Standard Specification for General Requirements for Wrought Copper and Copper Alloy Plate, Sheet, Strip, and Rolled Bar; 2012.

T. ASTM B248M - Standard Specification for General Requirements for Wrought Copper and Copper-Alloy Plate, Sheet, Strip, and Rolled Bar (Metric); 2012.

U. ASTM B302 - Standard Specification for Threadless Copper Pipe, Standard Sizes; 2012.

V. ASTM B306 - Standard Specification for Copper Drainage Tube (DWV); 2013.

W. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction; 2012.

X. ASTM B429/B429M - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube; 2010.

2.28 ASTM C SERIES -- ASTM INTERNATIONAL

A. ASTM C14 - Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe; 2015.

B. ASTM C28/C28M - Standard Specification for Gypsum Plasters; 2010.

C. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field; 2012.

D. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2013.

E. ASTM C36/C36M - Standard Specification for Gypsum Wallboard; 2001.

F. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2015a.

G. ASTM C55 - Standard Specification for Concrete Building Brick; 2011.

H. ASTM C56 - Standard Specification for Structural Clay Nonloadbearing Tile; 2013.

I. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale); 2013.

J. ASTM C73 - Standard Specification for Calcium Silicate Brick (Sand-Lime Brick); 2010.

K. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe; 2015.

L. ASTM C76M - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe (Metric); 2014.

M. ASTM C79/C79M - Standard Specification for Treated Core and Nontreated Core Gypsum Sheathing Board; 2001.

N. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2014.

O. ASTM C91/C91M - Standard Specification for Masonry Cement; 2012.

P. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2015.

Q. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2013.

R. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2011.

S. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2014.

T. ASTM C138/C138M - Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete; 2014.

U. ASTM C140/C140M - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2014.

V. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2012.

W. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2011.

X. ASTM C150/C150M - Standard Specification for Portland Cement; 2015.

Y. ASTM C165 - Standard Test Method for Measuring Compressive Properties of Thermal Insulations; 2007 (Reapproved 2012).

Z. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2007.

AA. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2014.

AB. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2013.

AC. ASTM C206 - Standard Specification for Finishing Hydrated Lime; 2014.

AD. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006 (Reapproved 2011).

AE. ASTM C208 - Standard Specification for Cellulosic Fiber Insulating Board; 2012.

AF. ASTM C209 - Standard Test Methods for Cellulosic Fiber Insulating Board; 2012.

AG. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale); 2014.

AH. ASTM C236 - Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box; 1989 (Reapproved 1993).

AI. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.

AJ. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2014a.

AK. ASTM C273/C273M - Standard Test Method for Shear Properties of Sandwich Core Materials; 2011.

AL. ASTM C330/C330M - Standard Specification for Lightweight Aggregates for Structural Concrete; 2014.

AM. ASTM C332 - Standard Specification for Lightweight Aggregates for Insulating Concrete; 2009.

AN. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2011.

AO. ASTM C412 - Standard Specification for Concrete Drain Tile; 2011.

AP. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2009a.

AQ. ASTM C425 - Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings; 2004 (Reapproved 2013).

AR. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete; 1999 (Reapproved 2014).

AS. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2015.

AT. ASTM C476 - Standard Specification for Grout for Masonry; 2010.

AU. ASTM C478 - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections; 2015.

AV. ASTM C478M - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections [Metric]; 2015.

AW. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2013.

AX. ASTM C514 - Standard Specification for Nails for the Application of Gypsum Board; 2004 (Reapproved 2014).

AY. ASTM C587 - Standard Specification for Gypsum Veneer Plaster; 2004 (Reapproved 2009).

AZ. ASTM C588/C588M - Standard Specification for Gypsum Base for Veneer Plasters; 1999.

BA. ASTM C591 - Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation; 2015.

BB. ASTM C592 - Standard Specification for Mineral Fiber Blanket Insulation and Blanket-Type Pipe Insulation (Metal-Mesh Covered) (Industrial Type); 2013.

BC. ASTM C610 - Standard Specification for Molded Expanded Perlite Block and Pipe Thermal Insulation; 2011.

BD. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014.

BE. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2015.

BF. ASTM C630/C630M - Standard Specification for Water-Resistant Gypsum Backing Board; 2000.

BG. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2013a.

BH. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2013.

BI. ASTM C642 - Standard Test Method for Density, Absorption, and Voids in Hardened Concrete; 2013.

BJ. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2014.

BK. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2006 (Reapproved 2011).

BL. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.

BM. ASTM C666/C666M - Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing; 2015.

BN. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2014.

BO. ASTM C719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement; 2013.

BP. ASTM C722 - Standard Specification for Chemical-Resistant Resin Monolithic Surfacings; 1994.

BQ. ASTM C726 - Standard Specification for Mineral Wool Roof Insulation Board; 2012.

BR. ASTM C728 - Standard Specification for Perlite Thermal Insulation Board; 2013.

BS. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2015.

BT. ASTM C755 - Standard Practice for Selection of Vapor Retarders for Thermal Insulation; 2010.

BU. ASTM C764 - Standard Specification for Mineral Fiber Loose-Fill Thermal Insulation; 2011.

BV. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2012.

BW. ASTM C793 - Standard Test Method for Effects of Laboratory Accelerated Weathering on Elastomeric Joint Sealants; 2005 (Reapproved 2010).

BX. ASTM C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants; 2015.

BY. ASTM C834 - Standard Specification for Latex Sealants; 2014.

BZ. ASTM C836/C836M - Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course; 2012.

CA. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.

CB. ASTM C841 - Standard Specification for Installation of Interior Lathing and Furring; 2003 (Reapproved 2013).

CC. ASTM C842 - Standard Specification for Application of Interior Gypsum Plaster; 2005 (Reapproved 2010).

CD. ASTM C843 - Standard Specification for Application of Gypsum Veneer Plaster; 1999 (Reapproved 2012).

CE. ASTM C844 - Standard Specification for Application of Gypsum Base to Receive Gypsum Veneer Plaster; 2015.

CF. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2011).

CG. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2014.

CH. ASTM C902 - Standard Specification for Pedestrian and Light Traffic Paving Brick; 2013.

CI. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2012.

CJ. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.

CK. ASTM C926 - Standard Specification for Application of Portland Cement-Based Plaster; 2015b.

CL. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2015.

CM. ASTM C955 - Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases; 2011c.

CN. ASTM C960/C960M - Standard Specification for Predecorated Gypsum Board; 1997.

CO. ASTM C984 - Standard Specification for Perlite Board and Rigid Cellular Polyisocyanurate Composite Roof Insulation; 1994.

CP. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2014.

CQ. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories; 2011a.

CR. ASTM C1013 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Roof Insulation; 1994.

CS. ASTM C1014 - Standard Specification for Spray-Applied Mineral Fiber Thermal and Sound Absorbing Insulation; 2008 (Reapproved 2013).

CT. ASTM C1015 - Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation; 2006 (Reapproved 2011).

CU. ASTM C1019 - Standard Test Method for Sampling and Testing Grout; 2013.

CV. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2014).

CW. ASTM C1029 - Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation; 2013.

CX. ASTM C1036 - Standard Specification for Flat Glass; 2011.

CY. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base; 2014a.

CZ. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.

DA. ASTM C1050 - Standard Specification for Rigid Cellular Polystyrene-Cellulosic Fiber Composite Roof Insulation; 1991.

DB. ASTM C1072 - Standard Test Method for Measurement of Masonry Flexural Bond Strength; 2013.

DC. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2014.

DD. ASTM C1085 - Standard Specification for Butyl Rubber-Based Solvent-Release Sealant; 1991.

DE. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2013.

DF. ASTM C1116/C1116M - Standard Specification for Fiber-Reinforced Concrete; 2010a (Reapproved 2015).

DG. ASTM C1142 - Standard Specification for Extended Life Mortar for Unit Masonry; 1995 (Reapproved 2013).

DH. ASTM C1148 - Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar; 1992a (Reapproved 2008).

DI. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass; 2014.

DJ. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2013.

DK. ASTM C1178/C1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel; 2013.

DL. ASTM C1184 - Standard Specification for Structural Silicone Sealants; 2014.

DM. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.

DN. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2008 (Reapproved 2012).

DO. ASTM C1262 - Standard Test Method for Evaluating the Freeze-Thaw Durability of Manufactured Concrete Masonry Units and Related Concrete Units; 2010.

DP. ASTM C1278/C1278M - Standard Specification for Fiber-Reinforced Gypsum Panel; 2007a (Reapproved 2011).

DQ. ASTM C1280 - Standard Specification for Application of Gypsum Sheathing Board; 2013.

DR. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2014.

DS. ASTM C1311 - Standard Specification for Solvent Release Sealants; 2014.

DT. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2014.

DU. ASTM C1325 - Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units; 2014.

DV. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2002 (Reapproved 2013).

DW. ASTM C1338 - Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings; 2014.

DX. ASTM C1355/C1355M - Standard Specification for Glass Fiber Reinforced Gypsum Composites; 1996 (Reapproved 2011).

DY. ASTM C1357 - Standard Test Methods for Evaluating Masonry Bond Strength ; 2009.

DZ. ASTM C1388 - Standard Test Method for Compressive Strength of Laboratory Constructed Masonry Prisms; 1997.

EA. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

EB. ASTM C1397 - Standard Practice for Application of Class PB Exterior Insulation and Finish Systems (EIFS) and EIFS with Drainage; 2013.

EC. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2008 (Reapproved 2013).

ED. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints; 2013.

EE. ASTM C1582/C1582M - Standard Specification for Admixtures to Inhibit Chloride-Induced Corrosion of Reinforcing Steel in Concrete; 2011.

EF. ASTM C1629/C1629M - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels; 2015.

EG. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels; 2013.

2.29 ASTM D SERIES -- ASTM INTERNATIONAL

A. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2014.

B. ASTM D41/D41M - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing; 2011.

C. ASTM D43/D43M - Standard Specification for Coal Tar Primer Used in Roofing, Dampproofing, and Waterproofing; 2000 (Reapproved 2012).

D. ASTM D173/D173M - Standard Specification for Bitumen-Saturated Cotton Fabrics Used in Roofing and Waterproofing; 2003 (Reapproved 2011).

E. ASTM D198 - Standard Test Methods of Static Tests of Lumber in Structural Sizes; 2015.

F. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.

G. ASTM D290 - Standard Practice for Bituminous Mixing Plant Inspection; 1991a.

H. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension; 2006a (Reapproved 2013).

I. ASTM D449/D449M - Standard Specification for Asphalt Used in Dampproofing and Waterproofing; 2003 (Reapproved 2014).

J. ASTM D522/D522M - Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings; 2013.

K. ASTM D549 - Standard Specification for Test Methods for Rosin in Paper and Paperboard; 1988.

L. ASTM D558 - Standard Test Methods for Moisture-Density (Unit Weight) Relations of Soil-Cement Mixtures; 2011.

M. ASTM D570 - Standard Test Method for Water Absorption of Plastics; 1998 (Reapproved 2010).

N. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers; 2000 (Reapproved 2012).

O. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics; 2010.

P. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2012.

Q. ASTM D709 - Standard Specification for Laminated Thermosetting Materials; 2013.

R. ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint; 2002 (Reapproved 2009).

S. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact; 2014.

T. ASTM D779 - Standard Test Method for Water Resistance of Paper, Paperboard, and Other Sheet Materials by the Dry Indicator Method; 2003.

U. ASTM D822/D822M - Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings; 2013.

V. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting; 2012.

W. ASTM D903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds; 1998 (Reapproved 2010).

X. ASTM D905 - Standard Test Method for Strength Properties of Adhesive Bonds in Shear by Compression Loading; 2008 (Reapproved 2013).

Y. ASTM D994/D994M - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type); 2011.

Z. ASTM D1014 - Standard Practice for Conducting Exterior Exposure Tests of Paints and Coatings on Metal Substrates; 2009.

AA. ASTM D1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber; 2014.

AB. ASTM D1073 - Standard Specification for Fine Aggregate for Bituminous Paving Mixtures; 2011.

AC. ASTM D1079 - Standard Terminology Relating to Roofing and Waterproofing; 2013.

AD. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.

AE. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2012.

AF. ASTM D1559 - Standard Test Method for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus; 1989.

AG. ASTM D1565 - Standard Specification for Flexible Cellular Materials--Vinyl Chloride Polymers and Copolymers (Open-Cell Foam); 1981 (Reapproved 1990).

AH. ASTM D1621 - Standard Test Method for Compressive Properties Of Rigid Cellular Plastics; 2010.

AI. ASTM D1622/D1622M - Standard Test Method for Apparent Density of Rigid Cellular Plastics; 2014.

AJ. ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments; 2008.

AK. ASTM D1667 - Standard Specification for Flexible Cellular Materials--Poly(Vinyl Chloride) Foam (Closed-Cell); 2005 (Reapproved 2011).

AL. ASTM D1668/D1668M - Standard Specification for Glass Fabrics (Woven and Treated) for Roofing and Waterproofing; 1997a (Reapproved 2014).

AM. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2013).

AN. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2004a (Reapproved 2013).

AO. ASTM D1760 - Standard Specification for Pressure Treatment of Timber Products; 2001.

AP. ASTM D1761 - Standard Test Methods for Mechanical Fasteners in Wood; 2012.

AQ. ASTM D1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds; 2011.

AR. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2015.

AS. ASTM D1925 - Standard Test Method for Yellowness Index of Plastics; 1970 (Reapproved 1988).

AT. ASTM D1929 - Standard Test Method for Determining Ignition Temperature of Plastics; 2014.

AU. ASTM D2041 - Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures; 2011.

AV. ASTM D2103 - Standard Specification for Polyethylene Film and Sheeting; 2015.

AW. ASTM D2243 - Standard Test Method for Freeze-Thaw Resistance of Water-Borne Coatings; 1995 (Reapproved 2014).

AX. ASTM D2244 - Standard Practice for Calculation of Color Differences from Instrumentally Measured Color Coordinates; 2011.

AY. ASTM D2247 - Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity; 2011.

AZ. ASTM D2370 - Standard Test Method for Tensile Properties of Organic Coatings; 1998 (Reapproved 2010).

BA. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40; 2013.

BB. ASTM D2467 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80; 2006.

BC. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2011.

BD. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 2012.

BE. ASTM D2628 - Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements; 1991 (Reapproved 2011).

BF. ASTM D2661 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings; 2014.

BG. ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings; 2014.

BH. ASTM D2666 - Standard Specification for Polybutylene (PB) Plastic Tubing; 1996a.

BI. ASTM D2837 - Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products; 2013.

BJ. ASTM D2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics; 2012.

BK. ASTM D2846/D2846M - Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems; 2014.

BL. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings; 1996 (Reapproved 2010).

BM. ASTM D2939 - Standard Test Methods for Emulsified Bitumens Used As Protective Coatings; 2003.

BN. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter; 2015.

BO. ASTM D3161 - Standard Test Method for Wind-Resistance of Steep Slope Roofing Products (Fan-Induced Method); 2014.

BP. ASTM D3405 - Standard Specification for Joint Sealants, Hot-Applied, for Concrete and Asphalt Pavements; 1997.

BQ. ASTM D3517 - Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pressure Pipe; 2014.

BR. ASTM D3676 - Standard Specification for Rubber Cellular Cushion Used for Carpet or Rug Underlay; 2013.

BS. ASTM D3840 - Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe Fittings for Nonpressure Applications; 2014.

BT. ASTM D3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings; 2005 (Reapproved 2013).

BU. ASTM D4145 - Standard Test Method for Coating Flexibility of Prepainted Sheet; 2010.

BV. ASTM D4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films; 2007.

BW. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating; 2005 (Reapproved 2012).

BX. ASTM D4260 - Standard Practice for Liquid and Gelled Acid Etching of Concrete; 2005 (Reapproved 2012).

BY. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2010.

BZ. ASTM D4434/D4434M - Standard Specification for Poly(Vinyl Chloride) Sheet Roofing; 2012.

CA. ASTM D4477 - Standard Specification for Rigid (Unplasticized) Poly(Vinyl Chloride) (PVC) Soffit; 2009.

CB. ASTM D4479/D4479M - Standard Specification for Asphalt Roof Coatings - Asbestos-Free; 2007 (Reapproved 2012).

CC. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012).

CD. ASTM D4601/D4601M - Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing; 2004 (Reapproved 2012).

CE. ASTM D4632/D4632M - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles; 2015a.

CF. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane; 2013.

CG. ASTM D4674 - Standard Practice for Accelerated Testing for Color Stability of Plastics Exposed to Indoor Office Environments; 2002a (Reapproved 2010).

CH. ASTM D4869/D4869M - Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing; 2015.

CI. ASTM D5197 - Standard Test Method for Determination of Formaldehyde and Other Carbonyl Compounds in Air (Active Sampler Methodology); 2009.

CJ. ASTM D5268 - Standard Specification for Topsoil Used for Landscaping Purposes; 2013.

CK. ASTM D5522 - Standard Specification for Minimum Requirements for Laboratories Engaged in Chemical Analysis of Soil, Rock, and Contained Fluid; 1999a.

CL. ASTM D6134 - Standard Specification for Vulcanized Rubber Sheets Used in Waterproofing Systems; 2007 (Reapproved 2013).

CM. ASTM D6226 - Standard Test Method for Open Cell Content of Rigid Cellular Plastics; 2010.

CN. ASTM D6329 - Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers; 1998 (Reapproved 2015).

CO. ASTM D6506 - Standard Specification for Asphalt Based Protection for Below-Grade Waterproofing; 2001 (Reapproved 2009).

CP. ASTM D6904 - Standard Practice for Resistance to Wind-Driven Rain for Exterior Coatings Applied on Masonry; 2003 (Reapproved 2013).

2.30 ASTM E SERIES -- ASTM INTERNATIONAL

A. ASTM E1 - Standard Specification for ASTM Liquid-in-Glass Thermometers; 2014.

B. ASTM E72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 2013.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.

D. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.

E. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.

F. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings; 2011.

G. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2015.

H. ASTM E152 - Standard Methods of Fire Tests of Door Assemblies; 1981a.

I. ASTM E163 - Standard Methods of Fire Tests of Window Assemblies; 1984.

J. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).

K. ASTM E308 - Standard Practice for Computing the Colors of Objects by Using the CIE System; 2015.

L. ASTM E398 - Standard Test Method for Water Vapor Transmission Rate of Sheet Materials Using a Rapid Technique for Dynamic Measurement; 1983 (Reapproved 1993).

M. ASTM E413 - Classification for Rating Sound Insulation; 2010.

N. ASTM E477 - Standard Test Method for Measuring Acoustical and Airflow Performance of Duct Liner Materials and Prefabricated Silencers; 2013.

O. ASTM E488/E488M - Standard Test Methods for Strength of Anchors in Concrete Elements; 2015.

P. ASTM E514/E514M - Standard Test Method for Water Penetration and Leakage Through Masonry; 2014.

Q. ASTM E518/E518M - Standard Test Methods for Flexural Bond Strength of Masonry; 2010.

R. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2013.

S. ASTM E547 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Differential; 2000 (Reapproved 2009).

T. ASTM E548 - Standard Guide for General Criteria Used for Evaluating Laboratory Competence; 1994.

U. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2014.

V. ASTM E662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials; 2013b.

W. ASTM E695 - Standard Method of Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading; 2003 (Reapproved 2015).

X. ASTM E699 - Standard Criteria for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating Building Components in Accordance with Test Methods Promulgated by ASTM Committee E-6; 1979 (Reapproved 1991).

Y. ASTM E773 - Standard Test Method for Accelerated Weathering of Sealed Insulating Glass Units; 2001.

Z. ASTM E774 - Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units; 1997.

AA. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors; 2002 (Reapproved 2010).

AB. ASTM E966 - Standard Guide for Field Measurement of Airborne Sound Insulation of Building Facades and Facade Elements; 2010.

AC. ASTM E1007 - Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures; 2013.

AD. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2015.

AE. ASTM E1155 - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers; 1996 (Reapproved 2008).

AF. ASTM E1155M - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers (Metric); 1996 (Reapproved 2008).

AG. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2014.

AH. ASTM E1333 - Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber; 2014.

AI. ASTM E1414 - Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum; 2011.

AJ. ASTM E1425 - Standard Practice for Determining the Acoustical Performance of Windows, Doors, Skylight, and Glazed Wall Systems; 2014.

AK. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference; 2005 (Reapproved 2012).

AL. ASTM E1677 - Standard Specification for an Air Barrier (AB) Material or System for Low-Rise Framed Building Walls; 2011.

AM. ASTM E1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems; 2011.

AN. ASTM E1993/E1993M - Standard Specification for Bituminous Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs; 1998 (Reapproved 2013).

AO. ASTM E2112 - Standard Practice for Installation of Exterior Windows, Doors and Skylights; 2007.

AP. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials; 2013.

AQ. ASTM E2188 - Standard Test Method for Insulating Glass Unit Performance; 2010.

AR. ASTM E2189 - Standard Test Method for Testing Resistance to Fogging in Insulating Glass Units; 2010.

AS. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2010.

AT. ASTM E2273 - Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies; 2003 (reapproved 2011).

AU. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies; 2011.

AV. ASTM E2485/E2485M - Standard Test Method for Freeze/Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water Resistive Barrier Coatings; 2013.

AW. ASTM E2486/E2486M - Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS); 2013.

AX. ASTM E2570 - Standard Test Methods for Evaluating Water-Resistive Barrier (WRB) Coatings Used under Exterior Insulation and Finish Systems (EIFS) or EIFS with Drainage; 2007.

2.31 ASTM F SERIES -- ASTM INTERNATIONAL

A. ASTM F386 - Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces; 2011.

B. ASTM F436 - Standard Specification for Hardened Steel Washers; 2011.

C. ASTM F437 - Standard Specification for Threaded Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80; 2015.

D. ASTM F438 - Standard Specification for Socket-Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40; 2015.

E. ASTM F439 - Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80; 2013.

F. ASTM F441/F441M - Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80; 2013.

G. ASTM F442/F442M - Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR); 2013.

H. ASTM F476 - Standard Test Methods for Security of Swinging Door Assemblies; 2014.

I. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe; 2010.

J. ASTM F493 - Standard Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings; 2014.

K. ASTM F512 - Standard Specification for Smooth-Wall Poly(Vinyl Chloride) (PVC) Conduit and Fittings for Underground Installation; 2012.

L. ASTM F567 - Standard Practice for Installation of Chain-Link Fence; 2011.

M. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs; 2013a.

N. ASTM F656 - Standard Specification for Primers for Use in Solvent Cement Joints of Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings; 2010.

O. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers; 1992 (Reapproved 2008).

P. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2011.

Q. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile; 2004 (Reapproved 2014).

R. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures; 2013.

S. ASTM F1249 - Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor; 2006 (Reapproved 2011).

T. ASTM F1267 - Standard Specification for Metal, Expanded, Steel; 2012.

U. ASTM F1303 - Standard Specification for Sheet Vinyl Floor Covering with Backing; 2004 (Reapproved 2014).

V. ASTM F1344 - Standard Specification for Rubber Floor Tile; 2015.

W. ASTM F1450 - Standard Test Methods for Hollow Metal Swinging Door Assemblies for Detention and Correctional Facilities; 2012a.

X. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength; 2007a.

Y. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples; 2013.

Z. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008 (Reapproved 2012).

AA. ASTM F2055 - Standard Test Method for Size and Squareness of Resilient Floor Tile by Dial Gage Method; 2010.

AB. ASTM F2285 - Standard Consumer Safety Performance Specification for Diaper Changing Tables for Commercial Use; 2004 (Reapproved 2010).

2.32 ASTM G SERIES -- ASTM INTERNATIONAL

A. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015.

B. ASTM G22 - Standard Practice for Determining Resistance of Plastics to Bacteria; 1976 (Reapproved 1996).

2.33 AWCI -- ASSOCIATION OF THE WALL AND CEILING INDUSTRIES INTERNATIONAL

2.34 AWI -- ARCHITECTURAL WOODWORK INSTITUTE

A. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2005, 8th Ed., Version 2.0.

B. AWI P-201 - Architectural Casework; 1989.

C. AWI P-206 - Guide to Wood Species; 1977.

D. AWI P-211 - Source Book; current edition.

E. AWI (QCP) - Quality Certification Program; current edition at www.awiqcp.org.

2.35 AWI/AWMAC/WI -- JOINT PUBLICATION OF ARCHITECTURAL WOODWORK INSTITUTE/ARCHITECTURAL WOODWORK MANUFACTURERS ASSOCIATION OF CANADA/WOODWORK INSTITUTE

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.

2.36 AWPA -- AMERICAN WOOD-PRESERVERS' ASSOCIATION

A. AWPA C1 - All Timber Products -- Preservative Treatment by Pressure Process; 2003.

B. AWPA C9 - Plywood -- Preservative Treatment by Pressure Processes; 2003.

C. AWPA C27 - Plywood -- Fire-Retardant Treatment by Pressure Processes; 2002.

D. AWPA C28 - Standard for Preservative Treatment of Structural Glued Laminated Members and Laminations Before Gluing of Southern Pine, Coastal Douglas-Fir, Hemfir and Western Hemlock by Pressure Processes; 2003.

E. AWPA M4 - Standard for the Care of Preservative-Treated Wood Products; 2011.

F. AWPA P5 - Standard for Waterborne Preservatives; 2014.

G. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.

2.37 AWPB -- AMERICAN WOOD PRESERVERS BUREAU

A. AWPB FDN-88 - American Wood Preservers Bureau Quality Control and Inspection Procedures for Softwood Lumber, Timber and Plywood Pressure Treated with Waterborne Preservatives for Ground Contact Use in Residential and Light Commercial Foundations; 1988.

B. AWPB LP-2 - American Wood Preservers Bureau Quality Control and Inspection Procedures for Softwood Lumber, Timber and Plywood Pressure Treated with Waterborne Preservatives for Above Ground Use; 1988.

C. AWPB LP-3 - AWPB Quality Control and Inspection Procedures for Softwood Lumber, Timber and Plywood Pressure Treated with Light Hydrocarbon Solvent-Penta Solution for Above Ground Use; 1988.

D. AWPB LP-4 - AWPB Quality Control and Inspection Procedures for Softwood Lumber, Timber and Plywood Pressure Treated with Volatile Hydrocarbon Solvent-Penta Solution for Above Ground Use; 1988.

E. AWPB LP-5 - AWPB Quality Control and Inspection Procedures for Softwood Lumber, Timber and Plywood Pressure Treated with Creosote or Creosote Coal-Tar Solution for Above Ground Use; 1988.

F. AWPB LP-22 - American Wood Preservers Bureau Quality Control and Inspection Procedures for Softwood Lumber, Timber and Plywood Pressure Treated with Waterborne Preservatives for Ground Contact Use; 1988.

G. AWPB LP-33 - AWPB Quality Control and Inspection Procedures for Softwood Lumber, Timber and Plywood Pressure Treated with Light Hydrocarbon Solvent-Penta Solution for Ground Contact Use; 1988.

2.38 AWS -- AMERICAN WELDING SOCIETY

A. AWS A2.0 - Standard Welding Symbols; obsolete.

B. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.

C. AWS A5.8M/A5.8 - Specification for Filler Metals for Brazing and Braze Welding; 2011-AMD 1.

D. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2014.

E. AWS C 3.9/C 3.9M - Specification for Resistance Brazing; 2009.

F. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015.

G. AWS D1.2/D1.2M - Structural Welding Code - Aluminum; 2008.

H. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel; 2008.

I. AWS D1.4/D1.4M - Structural Welding Code - Reinforcing Steel; 2011.

J. AWS D9.1M/D9.1 - Sheet Metal Welding Code; 2012.

K. AWS D10.9 - Specification for Qualification of Welding Procedures and Welders for Piping and Tubing; 1980.

2.39 CRSI -- CONCRETE REINFORCING STEEL INSTITUTE

A. CRSI (DA1) - CRSI Design Handbook; 2008.

B. CRSI (DA4) - Manual of Standard Practice; 2009.

C. CRSI (P1) - Placing Reinforcing Bars; 2011.

2.40 DHI -- DOOR AND HARDWARE INSTITUTE

A. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; 2004.

B. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors; 1993; also in WDHS-1/WDHS-5 Series, 1996.

C. DHI A115 Series - Specifications for Steel Doors and Frame Preparation for Hardware; 2000 (ANSI/DHI A115 Series).

D. DHI A115.1 - Specifications for Preparation of 1-3/8" and 1-3/4" Standard Steel Doors and Steel Frames for Series 1000 Mortise Locks and Latches; 1990 (ANSI/DHI A115.1).

E. DHI A115.2 - Specifications for Preparation of 1-3/8" and 1-3/4" Standard Steel Doors and Frames for Series 4000 Bored Locks and Latches; 1996 (ANSI/DHI A115.2).

F. DHI A115W Series - Specifications for Wood Door and Frame Preparation for Hardware; 2000.

2.41 EIMA -- EXTERIOR INSULATION MANUFACTURERS ASSOCIATION

A. EIMA (EPS) - Guideline Specification for Expanded Polystyrene (EPS) Insulation Board; 1992, Revised 1995.

B. EIMA (PB) - Guideline Specification For Exterior Insulation and Finish Systems, Class PB; 1984, Revised 1997.

C. EIMA (PM) - Guideline Specification For Exterior Insulation and Finish Systems, Class PM; 1984, Revised 1999.

D. EIMA (SG) - Guide for Use of Sealants with Exterior Insulation and Finish Systems, Class PB; 1992, Revised 1996.

E. ANSI/EIMA 99-A - Exterior Insulation and Finish Systems (EIFS); 2001.

F. EIMA 101.01 - Standard Test Method for Freeze/Thaw Resistance of Exterior Insulation and Finish Systems (EIFS), Class PB; 1995, Revised August 1995 (modified ASTM C67).

G. EIMA 101.02 - Standard Test Method for Resistance to Water Penetration of Exterior Insulation and Finish Systems (EIFS), Class PB; 1995, Revised August 1995 (modified ASTM E331).

H. EIMA 101.03 - Standard Test Method for Determining the Tensile Adhesion Strength of an Exterior Insulation and Finish System (EIFS), Class PB; 1995, Revised August 1995 (modified ASTM C297).

I. EIMA 101.86 - Standard Test Method for Resistance of Exterior Insulation and Finish Systems (EIFS), Class PB to the Effects of Rapid Deformation (Impact); 1995, Revised August 1995.

J. EIMA 105.01 - Standard Test Method for Alkali Resistance of Glass Fiber Reinforcing Mesh for Use in Exterior Insulation and Finish Systems (EIFS), Class PB; 1995.

2.42 EJMA -- EXPANSION JOINT MANUFACTURERS ASSOCIATION

A. EJMA (STDS) - EJMA Standards; Tenth Edition.

2.43 FM -- FACTORY MUTUAL GLOBAL

A. FM 4410 - Protected Metal Panels, Class 1, Fire Rated; current edition.

B. FM 4880 - Class 1 Fire Rating of Insulated Wall or Wall and Roof/Ceiling Panels, Interior Finish Materials or Coatings and Exterior Wall Systems; 2010.

C. FM 4881 - Approval Requirements for Class 1 Exterior Wall Systems; 2010.

D. FM DS 1-28 - Wind Design; 2007.

E. FM DS 1-29 - Roof Deck Securement and Above-Deck Roof Components; Factory Mutual System; 2006.

2.44 GA -- GYPSUM ASSOCIATION

A. GA 150 - Application of Gypsum Base for Gypsum Veneer Plasters and Application of Gypsum Veneer Plaster;.

B. GA-201 - Using Gypsum Board for Walls & Ceilings; 1990.

C. GA 203 - Installation of Screw-Type Steel Framing Members to Receive Gypsum Board;.

D. GA-214 - Recommended Levels of Gypsum Board Finish; 2010.

E. GA-216 - Application and Finishing of Gypsum Board; 2013.

F. GA-226 - Application of Gypsum Board to Form Curved Surfaces; Gypsum Association; 2008.

G. GA 252 - Fire Resistant Gypsum Sheathing; 1986.

H. GA 505 - Gypsum Board Terminology; 1991.

I. GA-600 - Fire Resistance Design Manual; 2015.

2.45 GANA -- GLASS ASSOCIATION OF NORTH AMERICA

A. GANA (GIB 01-0300) - Glass Informational Bulletin (Proper Procedures for Cleaning Architectural Glass Products); 2010.

B. GANA (GIB TD-02-0402) - Glass Informational Bulletin (Heat-Treated Glass Surfaces are Different); 2008.

C. GANA (GM) - GANA Glazing Manual; 2009.

D. GANA (SM) - GANA Sealant Manual; 2008.

E. GANA (LGRM) - Laminated Glazing Reference Manual; 2009.

F. GANA (TIPS) - Mirrors: Handle with Extreme Care (Tips for the Professional on the Care and Handling of Mirrors); 2011.

2.46 IAPMO -- INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS

A. IAPMO (UPC) - Uniform Plumbing Code; 2012.

B. IAPMO Z124 - Plastic Plumbing Fixtures; 2012.

C. IAPMO/ANSI Z124.1 - Gel-Coated Glass-Fiber Reinforced Polyester Resin Bathtub Units; 1987 (Addenda 1990).

D. IAPMO/ANSI Z124.2 - Gel-Coated Glass-Fiber Reinforced Polyester Resin Shower Receptor and Shower Stall Units; 1987 (Addenda 1990).

2.47 IAS -- INTERNATIONAL ACCREDITATION SERVICE

A. IAS AC89 - Accreditation Criteria for Testing Laboratories; 2010.

B. IAS AC157 - Accreditation Criteria for Fabricator Inspection Programs for Reinforced and Precast/Prestressed Concrete; 2010.

C. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel; International Accreditation Service, Inc; 2011.

D. IAS AC291 - Accreditation Criteria for Special Inspection Agencies; 2012.

E. IAS AC472 - Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems; 2012.

2.48 ICBO -- INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS

A. UBC Std 7-1 - Fire Tests of Building Construction and Materials; 1997.

B. UBC Std 7-2 - Fire Tests of Door Assemblies; 1997 formerly UBC Std 43-2).

C. UBC Std 14-1 - Kraft Waterproof Building Paper; 1997.

D. UBC Std 15-2 - Test Standard for Determining the Fire Retardancy of Roof-Covering Materials; 1997.

E. UBC Std 17-1 - Kraft Waterproof Building Paper; 1991.

F. UBC Std 26-4 - Method of Test for the Evaluation of Flammability Characteristics of Exterior, Nonload-Bearing Wall Panel Assemblies Using Foam Plastic Insulation; 1997.

G. UBC Std 26-9 - Method of Test for the Evaluation of Flammability Characteristics of Exterior, Nonload-Bearing Wall Assemblies Containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus; 1997.

H. UBC Std 26-10 Parts I and IV - Test Method for Compressive Strength of Cylindrical Concrete Specimens; 1994.

I. UBC Std 32-1 - Asphalt Saturated Building Felt; 1991.

J. UBC Std 43-7 - Fire Test of Door Assemblies; current edition.

K. UBC - Uniform Building Code; 1997.

L. UBC STD - Uniform Building Code Standards; 1991.

2.49 ICC -- INTERNATIONAL CODE COUNCIL, INC.

A. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.

B. ICC (IBC) - International Building Code; 2015.

C. ICC (IEC) - International Electrical Code Administrative Provisions; 2012.

D. ICC (IECC) - International Energy Conservation Code; 2012.

E. ICC (IFC) - International Fire Code; 2012.

F. ICC (IFGC) - International Fuel Gas Code; 2012.

G. ICC (IMC) - International Mechanical Code; 2012.

H. ICC (IPC) - International Plumbing Code; 2012.

I. ICC (IPMC) - International Property Maintenance Code; 2012.

2.50 ICC-ES -- ICC EVALUATION SERVICE, INC.

A. ICC-ES AC148 - Acceptance Criteria for Flexible Flashing Materials; ICC Evaluation Service, Inc; 2011.

B. ICC-ES AC212 - Acceptance Criteria for Water-Resistive Coatings Used as Water-Resistive Barriers over Exterior Sheathing; ICC Evaluation Service, Inc; 2015.

C. ICC-ES AC219 - Acceptance Criteria for Exterior Insulation and Finish Systems; 2009.

D. ICC-ES AC235 - Acceptance Criteria for EIFS Clad Drainage Wall Assemblies; 2004 (Editorially revised 2009).

2.51 IGMA -- INSULATING GLASS MANUFACTURERS ALLIANCE

A. IGMA TM-3000 - North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use; 1990 (2004).

B. IGMA TM-4000 - Insulating Glass Manufacturing Quality Procedures; 2002 (2007).

2.52 IMIAWC -- INTERNATIONAL MASONRY INDUSTRY ALL-WEATHER COUNCIL

A. IMIAWC (CW) - Recommended Practices & Guide Specifications for Cold Weather Masonry Construction; 1993.

B. IMIAWC (HW) - Recommended Practices & Guide Specifications for Hot Weather Masonry Construction; current edition.

2.53 ISDI -- INSULATED STEEL DOOR INSTITUTE

A. ISDI 101 - Air Infiltration Performance Standard for Insulated Steel Door Systems; 1983 (R1989) (ANSI/ISDI 101).

B. ISDI 102 - Installation Standard for Insulated Steel Door Systems; 1993 (ANSI/ISDI 102).

C. ISDI 103 - Minimum Acoustical Performance Standard for Insulated Steel Door Systems; 1990 (ANSI/ISDI 103).

D. ISDI 104 - Water Penetration Performance Standard for Insulated Steel Door Systems; 1993 (ANSI/ISDI 104).

E. ISDI 105 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings; 2001 (ANSI/A250.4).

F. ISDI 106 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surface for Steel Door and Frames; 1998 (Same as ANSI A224.1).

G. ISDI 107 - Thermal Performance Standard for Insulated Steel Door Systems; 1983.

2.54 ISO -- INTERNATIONAL STANDARDS ORGANIZATION

A. ISO 228-1 - Pipe Threads Where Pressure-Tight Joints Are Not Made on The Threads - Part 1: Dimensions, Tolerances and Designation; 2000.

B. ISO 2812-1 - Paints and Varnishes - Determination of resistance to liquids - Part 1: Immersion in liquids; 2007.

C. ISO 9002 - Quality Systems - Model for Quality Assurance in Production, Installation and Servicing; 1994.

2.55 MFMA -- METAL FRAMING MANUFACTURERS ASSOCIATION

A. MFMA-4 - Metal Framing Standards Publication; 2004.

2.56 MPI -- MASTER PAINTERS INSTITUTE (MASTER PAINTERS AND DECORATORS ASSOCIATION)

A. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, www.paintinfo.com.

B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition, www.paintinfo.com.

2.57 NAAMM -- THE NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS

A. NAAMM HMMA 805 - Recommended Selection and Usage Guide for Hollow Metal Doors and Frames; 2012.

B. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.

C. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2011.

D. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; 2007.

E. NAAMM HMMA 850 - Fire-Protection and Smoke Control Rated Hollow Metal Door and Frame Products; 2014.

F. NAAMM HMMA 860 - Guide Specifications for Hollow Metal Doors and Frames; 2013.

G. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2006.

H. NAAMM AMP 500-06 - Metal Finishes Manual; 2006.

I. NAAMM MBG 531 - Metal Bar Grating Manual; 2009.

2.58 NFPA -- NATIONAL FIRE PROTECTION ASSOCIATION

A. NFPA 1 - Fire Code; 2015.

B. NFPA 10 - Standard for Portable Fire Extinguishers; 2013.

C. NFPA 30 - Flammable and Combustible Liquids Code; 2015.

D. NFPA 54 - National Fuel Gas Code; 2015.

E. NFPA 55 - Standard for the Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks; 2013.

F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

G. NFPA 70E - Standard for Electrical Safety in the Workplace; 2015.

H. NFPA 72 - National Fire Alarm and Signaling Code; 2016.

I. NFPA 72A - Local Protective Signaling Systems;.

J. NFPA 72E - Automatic Fire Detectors;.

K. NFPA 72G - Notification Appliances for Protective Signaling Systems;.

L. NFPA 72H - Guide for Test Procedures for Protective Signaling Systems;.

M. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.

N. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2015.

O. NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems; 2015.

P. NFPA 92 - Standard for Smoke Control Systems; 2015.

Q. NFPA 101 - Life Safety Code; 2015.

R. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives; 2016.

S. NFPA 110 - Standard for Emergency and Standby Power Systems; 2013.

T. NFPA 110A - Stored Electrical Energy Emergency and Standby Power Systems;.

U. NFPA 111 - Standard on Stored Electrical Energy Emergency and Standby Power Systems; 2013.

V. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2015.

W. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials; 2006.

X. NFPA 259 - Standard Test Method for Potential Heat of Building Materials; 2013.

Y. NFPA 268 - Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source; 2012.

Z. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth; 2015.

AA. NFPA 495 - Explosive Materials Code; 2013.

AB. NFPA 601 - Standard for Security Services in Fire Loss Prevention; 2015.

AC. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films; 2015.

AD. NFPA 704 - Standard System for the Identification of the Hazards of Materials for Emergency Response; National Fire Protection Association; 2012.

AE. NFPA 5000 - Building Construction and Safety Code; 2012.

2.59 NFRC -- NATIONAL FENESTRATION RATING COUNCIL, INC.

A. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2014.

B. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2014.

C. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2014.

D. NFRC (CPD) - Certified Product Directory; National Fenestration Rating Council; online at cpd.nfrc.org.

2.60 NRCA -- NATIONAL ROOFING CONTRACTORS ASSOCIATION

A. NRCA MS103 - Handbook of Accepted Roofing Knowledge (HARK); Fourth Edition.

B. NRCA ML104 - The NRCA Roofing and Waterproofing Manual; Fifth Edition, with interim updates.

C. NRCA MS104 - The NRCA Roofing Manual: Steep-slope Roof Systems; 2013.

D. NRCA MS108 - The NRCA Waterproofing and Dampproofing Manual; Third Edition.

2.61 PCA -- PORTLAND CEMENT ASSOCIATION

A. PCA EB049 - Portland Cement Plaster/Stucco Manual; 2003.

B. PCA Bulletin D137 - Clear Coatings for Exposed Architectural Concrete; 1968.

2.62 PDCA -- PAINTING AND DECORATING CONTRACTORS OF AMERICA

A. PDCA (MAN) - Architectural Specification Manual; 1986.

2.63 RCSC -- RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

A. RCSC (HSBOLT) - Specification for Structural Joints Using High-Strength Bolts; Research Council on Structural Connections; 2009.

2.64 SDI -- STEEL DOOR INSTITUTE

A. SDI 100 - Recommended Specifications Standard Steel Doors and Frames; 1991 (ANSI/SDI 100).

B. SDI 105 - Recommended Erection Instructions for Steel Frames; 1998.

C. SDI 107 - Hardware on Steel Doors (Reinforcement--Application); 1984.

D. SDI 111 - Recommended Standard Details for Steel Doors & Frames; 2009.

E. SDI 114 - Test Procedure and Acceptance Criteria for Acoustical Performance for Steel Door and Frame Assemblies; 1979.

F. SDI 116 - Standard Test Procedure and Acceptance Criteria for Rate of Air Flow Through Closed Steel Door and Frame Assemblies; 1979.

2.65 SPIB -- SOUTHERN PINE INSPECTION BUREAU, INC.

A. SPIB (GR) - Grading Rules; 2014.

2.66 SSPC -- SOCIETY FOR PROTECTIVE COATINGS

A. SSPC V1 (PM1) - Good Painting Practice: Painting Manual, Volume 1; Fourth Edition.

B. SSPC V2 (PM2) - Systems and Specifications: Steel Structures Painting Manual, Volume 2; Fourth Edition.

C. SSPC-Paint 5 - Zinc Dust, Zinc Oxide, and Phenolic Varnish Paint; 1982 (Ed. 2000).

D. SSPC-Paint 12 - Cold-Applied Asphalt Mastic (Extra Thick Film); 1982 (Ed. 2000).

E. SSPC-Paint 13 - Red or Brown One-Coat Shop Paint; .

F. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 1999 (Ed. 2004).

G. SSPC-Paint 16 - Coal Tar Epoxy-Polyamide Black (or Dark Red); 2006 (Reaffirmed 2015).

H. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 2002 (Ed. 2004).

I. SSPC-Paint 22 - Epoxy-Polyamide Paints (Primer, Intermediate, and Topcoat); 1982 (Ed.2004).

J. SSPC-Paint 25 - Red Iron Oxide, Zinc Oxide, Raw Linseed Oil and Alkyd Primer; 1991 (Part of Steel Structures Painting Manual, Vol. Two).

K. SSPC-PA 1 - Shop, Field, and Maintenance Painting of Steel; 2004.

L. SSPC-PA 2 - Procedure For Determining Conformance To Dry Coating Thickness Requirements; 2015.

2.67 UL -- UNDERWRITERS LABORATORIES INC.

A. UL (BMD) - Building Materials Directory; current edition.

B. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

C. UL (ECMD) - Electrical Construction Materials Directory; current edition.

D. UL (FRD) - Fire Resistance Directory; current edition.

E. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.

F. UL 4 - Armored Cable; Current Edition, Including All Revisions.

G. UL 5 - Surface Metal Raceways and Fittings; Current Edition, Including All Revisions.

H. UL 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.

I. UL 6A - Electrical Rigid Metal Conduit-Aluminum, Red Brass, and Stainless Steel; Current Edition, Including All Revisions.

J. UL 9 - Standard for Fire Tests of Window Assemblies; Current Edition, Including All Revisions.

K. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

L. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

M. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.

N. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.

O. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.

P. UL 55B - Class C Asphalt Organic-Felt Sheet Roofing and Shingles; Current Edition, Including All Revisions.

Q. UL 67 - Panelboards; Current Edition, Including All Revisions.

R. UL 183 - Manufactured Wiring Systems; Current Edition, Including All Revisions.

S. UL 198B - Standard for Class H Fuses; Current Edition, Including All Revisions.

T. UL 198C - Standard for High-Interrupting-Capacity Fuses, Current-Limiting Types; Current Edition, Including All Revisions.

U. UL 198D - Standard for Class K Fuses; Current Edition, Including All Revisions.

V. UL 198E - Standard for Class R Fuses; Current Edition, Including All Revisions.

W. UL 214 - Standard for Tests for Flame Propagation of Fabrics and Films; Current Edition, Including All Revisions.

X. UL 263 - Standard for Fire Tests of Building Construction and Materials; Current Edition, Including All Revisions.

Y. UL 273 - Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

Z. UL 429 - Electrically Operated Valves; Current Edition, Including All Revisions.

AA. UL 437 - Standard for Key Locks; Current Edition, Including All Revisions.

AB. UL 441 - Standard for Gas Vents; Current Edition, Including All Revisions.

AC. UL 444 - Communications Cables; Current Edition, Including All Revisions.

AD. UL 465 - Central Cooling Air Conditioners; Current Edition, Including All Revisions.

AE. UL 467 - Grounding and Bonding Equipment; Current Edition, Including All Revisions.

AF. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.

AG. UL 497 - Standard for Protectors for Paired-Conductor Communications Circuits; Current Edition, Including All Revisions.

AH. UL 498 - Attachment Plugs and Receptacles; Current Edition, Including All Revisions.

AI. UL 508 - Industrial Control Equipment; Underwriters Laboratories Inc; Current Edition, Including All Revisions.

AJ. UL 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.

AK. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.

AL. UL 514C - Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers; Current Edition, Including All Revisions.

AM. UL 514D - Cover Plates for Flush-Mounted Wiring Devices; Current Edition, Including All Revisions.

AN. UL 555 - Standard for Fire Dampers; Current Edition, Including All Revisions.

AO. UL 555S - Standard for Smoke Dampers; Current Edition, Including All Revisions.

AP. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings; Current Edition, Including All Revisions.

AQ. UL 651A - Schedule 40 and 80 High Density Polyethylene (HDPE) Conduit; Current Edition, Including All Revisions.

AR. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

AS. UL 752 - Standard for Bullet-Resisting Equipment; Current Edition, Including All Revisions.

AT. UL 778 - Standard for Motor-Operated Water Pumps; Current Edition, Including All Revisions.

AU. UL 790 - Standard for Standard Test Methods for Fire Tests of Roof Coverings; Current Edition, Including All Revisions.

AV. UL 795 - Commercial-Industrial Gas Heating Equipment; Current Edition, Including All Revisions.

AW. UL 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.

AX. UL 854 - Service-Entrance Cables; Current Edition, Including All Revisions.

AY. UL 857 - Busways; Current Edition, Including All Revisions.

AZ. UL 864 - Control Units and Accessories for Fire Alarm Systems; Current Edition, Including All Revisions.

BA. UL 886 - Outlet Boxes and Fittings for Use in Hazardous (Classified) Locations; Current Edition, Including All Revisions.

BB. UL 879 - Electric Sign Components; Current Edition, Including All Revisions.

BC. UL 900 - Standard for Air Filter Units; Current Edition, Including All Revisions.

BD. UL 924 - Emergency Lighting and Power Equipment; Current Edition, Including All Revisions.

BE. UL 943 - Ground-Fault Circuit-Interrupters; Current Edition, Including All Revisions.

BF. UL 1053 - Ground-Fault Sensing and Relaying Equipment; Current Edition, Including All Revisions.

BG. UL 1096 - Electric Central Air Heating Equipment; Current Edition, Including All Revisions.

BH. UL 1242 - Electrical Intermediate Metal Conduit-Steel; Current Edition, Including All Revisions.

BI. UL 1449 - Standard for Surge Protective Devices; Current Edition, Including All Revisions.

BJ. UL 1472 - Solid-State Dimming Controls; Current Edition, Including All Revisions.

BK. UL 1558 - Switchgear; Current Edition, Including All Revisions.

BL. UL 1561 - Standard for Dry-Type General Purpose and Power Transformers; Current Edition, Including All Revisions.

BM. UL 1569 - Metal-Clad Cables; Current Edition, Including All Revisions.

BN. UL 1581 - Reference Standard for Electrical Wires, Cables, and Flexible Cords; Current Edition, Including All Revisions.

BO. UL 1598 - Luminaires; Current Edition, Including All Revisions.

BP. UL 1653 - Electrical Nonmetallic Tubing; Current Edition, Including All Revisions.

BQ. UL 1995 - Heating and Cooling Equipment; Current Edition, Including All Revisions.

2.68 WWPA -- WESTERN WOOD PRODUCTS ASSOCIATION

A. WWPA G-5 - Western Lumber Grading Rules; 2011.

PART 3 UNITED STATES GOVERNMENT AND RELATED AGENCIES DOCUMENTS

3.01 UNITED STATES CODE

A. Title 7, United States Code, 136 through 136y - Federal Insecticide, Fungicide and Rodenticide Act; 1947 (Revised 2001).

3.02 CFR -- CODE OF FEDERAL REGULATIONS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.

C. 29 CFR 1910 - Occupational Safety and Health Standards; current edition.

D. 29 CFR 1910.23 - Guarding floor and wall openings and holes; current edition.

E. 29 CFR 1910.132-138 - Personal Protective Equipment; current edition.

F. 29 CFR 1910.134 - Respiratory protection; current edition.

G. 29 CFR 1910.145 - Accident Prevention Signs and Tags; current edition.

H. 29 CFR 1910.1000 - Air Contaminants; current edition.

I. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.

J. 29 CFR 1926.58 - Asbestos, Tremolite, Anthophyllite, and Actinolite; current edition.

K. 29 CFR 1926.62 - Lead; current edition.

L. 29 CFR 1926.1101 - Asbestos; Current Edition.

M. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.

N. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

O. 40 CFR 763; Subpart F, Appendix A - Interim Method of the Determination of Asbestos in Bulk Insulation Samples; current edition.

P. 47 CFR 15 - Radio Frequency Devices; current edition.

Q. 49 CFR 27, 37, and 38 - Transportation for Individuals with Disabilities; Final Rule; Department of Transportation; current edition.

3.03 ATBCB -- US ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD (THE ACCESS BOARD)

A. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines; 2002.

3.04 EPA -- ENVIRONMENTAL PROTECTION AGENCY

A. EPA (NPDES) - National Pollutant Discharge Elimination System (NPDES), Construction General Permit; Current Edition.

B. EPA 600/4-90/010 - Compendium of Methods for the Determination of Air Pollutants in Indoor Air; April 1990.

C. EPA 600-4-790-20 - Methods for Chemical Analysis of Water and Wastes; 1983.

D. EPA 625/R-96/010b - Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air; Jan-99.

E. EPA 712-C-02-190 - Health Effects Test Guidelines OPPTS 870.1100 Acute Oral Toxicity; 2002.

F. EPA SW-846 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods; Current Edition online at http://www.epa.gov/epawaste/hazard/testmethods/sw846/index.htm.

3.05 FS -- FEDERAL SPECIFICATIONS AND STANDARDS (GENERAL SERVICES ADMINISTRATION)

A. FED-STD-795 - Uniform Federal Accessibility Standards (UFAS); 1988.

3.06 PS -- PRODUCT STANDARDS

A. PS 1 - Structural Plywood; 2009.

B. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; 2010.

C. PS 20 - American Softwood Lumber Standard; 2010.

END OF SECTION

SECTION 01 6000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Re-use of existing products.

C. Transportation, handling, storage and protection.

D. Product option requirements.

E. Substitution limitations.

F. Procedures for Owner-supplied products.

G. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Section 01 2500 - Substitution Procedures: Substitutions made during and after the Bidding/Negotiation Phase.

1.03 SUBMITTALS

A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
   1. Submit within 15 days after date of Agreement.
   2. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

B. DO NOT USE products having any of the following characteristics:
   1. Containing lead, cadmium, asbestos.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

A. See Section 01 2500 - Substitution Procedures.

3.02 OWNER-SUPPLIED PRODUCTS

A. Owner's Responsibilities:
   1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
   2. Arrange and pay for product delivery to site.
   3. On delivery, inspect products jointly with Contractor.
   4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
   5. Arrange for manufacturers' warranties, inspections, and service.

B. Contractor's Responsibilities:
   1. Review Owner reviewed shop drawings, product data, and samples.
   2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
   3. Handle, store, install and finish products.
   4. Repair or replace items damaged after receipt.

3.03 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.04 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

G. Comply with manufacturer's warranty conditions, if any.

H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 7000

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.

C. Cleaning and protection.

D. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

E. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 01 3000 - Administrative Requirements: Submittals procedures, Electronic document submittal service.

C. Section 01 4000 - Quality Requirements: Testing and inspection procedures.

D. Section 01 5000 - Temporary Facilities and Controls: Temporary interior partitions.

E. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.04 PROJECT CONDITIONS

A. Use of explosives is not permitted.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
   1. Provide dust-proof enclosures to prevent entry of dust generated outdoors.
   2. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.

E. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
   1. Pest Control Service: Weekly treatments.

F. Rodent Control: Provide methods, means, and facilities to prevent rodents from accessing or invading premises.

G. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.05 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect four days in advance of meeting date.

D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.05 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as indicated.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000 in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
   1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
   2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.
   2. Relocate items indicated on drawings.
   3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
   4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

E. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.

F. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
   1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
   2. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.
   3. Trim existing wood doors as necessary to clear new floor finish. Refinish trim as required.

G. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

H. Refinish existing surfaces as indicated:
   1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
   2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

I. Clean existing systems and equipment.

J. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

K. Do not begin new construction in alterations areas before demolition is complete.

L. Comply with all other applicable requirements of this section.

3.06 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:
   1. Complete the work.
   2. Fit products together to integrate with other work.
   3. Provide openings for penetration of mechanical, electrical, and other services.
   4. Match work that has been cut to adjacent work.
   5. Repair areas adjacent to cuts to required condition.
   6. Repair new work damaged by subsequent work.
   7. Remove samples of installed work for testing when requested.
   8. Remove and replace defective and non-conforming work.

D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

E. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

G. Restore work with new products in accordance with requirements of Contract Documents.

H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.

J. Patching:
   1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
   2. Match color, texture, and appearance.
   3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.07 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.08 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.09 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.10 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean filters of operating equipment.

F. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, drainage systems, and _____.

G. Clean site; sweep paved areas, rake clean landscaped surfaces.

H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.11 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.
   1. Provide copies to Architect and Owner.

B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.

C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.

D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.

E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.

F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.

H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

3.12 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

SECTION 01 7800

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 00 7200 - General Conditions and 00 7300 - Supplementary Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.

B. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.

D. Individual Product Sections: Specific requirements for operation and maintenance data.

E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
   2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
   3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
   4. Submit two sets of revised final documents in final form within 10 days after final inspection.

C. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
   2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Field changes of dimension and detail.
   2. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
   1. Description of unit or system, and component parts.
   2. Identify function, normal operating characteristics, and limiting conditions.
   3. Include performance curves, with engineering data and tests.
   4. Complete nomenclature and model number of replaceable parts.

B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

C. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

D. Provide servicing and lubrication schedule, and list of lubricants required.

E. Include manufacturer's printed operation and maintenance instructions.

F. Include sequence of operation by controls manufacturer.

G. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

H. Additional Requirements: As specified in individual product specification sections.

3.05 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants,Contractorand subcontractors, with names of responsible parties.

F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

H. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.

I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

J. Arrangement of Contents: Organize each volume in parts as follows:
   1. Project Directory.
   2. Table of Contents, of all volumes, and of this volume.
   3. Operation and Maintenance Data: Arranged by system, then by product category.
      a. Source data.
      b. Product data, shop drawings, and other submittals.
      c. Maintenance data.
      d. Field quality control data.
      e. Photocopies of warranties and bonds.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

3.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1. SUMMARY
   a. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
      1) Footings.
      2) Slabs-on-grade.
   b. Related Sections:
      1) Section 033300 "Architectural Concrete" for general building applications of specially finished formed concrete.

2. DEFINITIONS
   a. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

3. ACTION SUBMITTALS
   a. Product Data: For each type of product indicated.
   b. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
   c. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

4. INFORMATIONAL SUBMITTALS
   a. Material Certificates: For each of the following, signed by manufacturers:
      1) Admixtures.
      2) Form materials and form-release agents.
      3) Steel reinforcement and accessories.
      4) Fiber reinforcement.
      5) Curing compounds.
      6) Bonding agents.
      7) Adhesives.
      8) Vapor retarders.
      9) Semirigid joint filler.
      10) Joint-filler strips.
      11) Repair materials.
   b. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
      1) Aggregates.

5. QUALITY ASSURANCE
    a. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI- certified Concrete Flatwork Technician.
    b. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
        1) Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
    c. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
        1) Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
        2) Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.
    d. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
    e. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
        1) ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
        2) ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
    f. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

6. DELIVERY, STORAGE, AND HANDLING
    a. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

5.01 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
    1. Plywood, metal, or other approved panel materials.

    2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

        a. High-density overlay, Class 1 or better.
        b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
        c. Structural 1, B-B or better; mill oiled and edge sealed.
        d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
        e. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
        f. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

g. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
h. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
   1) Formulate form-release agent with rust inhibitor for steel form-facing materials.
i. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
   1) Furnish units that will leave no corrodible metal closer than 1 inchto the plane of exposed concrete surface.
   2) Furnish ties that, when removed, will leave holes no larger than 1 inchin diameter in concrete surface.
   3) Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

3. STEEL REINFORCEMENT
   a. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

4. REINFORCEMENT ACCESSORIES
   a. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775/A 775M.
   b. Zinc Repair Material: ASTM A 780, zinc-based solder, paint containing zinc dust, or sprayed zinc.
   c. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
      1) For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
      2) For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
      3) For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

B. CONCRETE MATERIALS
   1. Normal-Weight Aggregates: ASTM C 33,Class 3M coarse aggregate or better, graded. Provide aggregates from a single source.
      a. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
      b. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
      c. Water: ASTM C 94/C 94M.

C. ADMIXTURES
   1. Air-Entraining Admixture: ASTM C 260.

   2. FIBER REINFORCEMENT
      a. Synthetic Micro-Fiber: fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C 1116/C 1116M, Type III, 1/2 to 1-1/2 inches long.
         1) Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
            (a) Fibrillated Micro-Fibers:
               (1) Axim Italcementi Group, Inc.; Fibrasol F.

(2) Euclid Chemical Company (The), an RPM company; Fiberstrand F.
(3) FORTA Corporation; FORTA Econo-Net or Ultra-Net.
(4) Grace Construction Products, W. R. Grace & Co.; Grace Fibers.
(5) Nycon, Inc.; ProConF.
(6) Propex Concrete Systems Corp.; Fibermesh 300.
(7) Sika Corporation; Sika Fiber PPF.

3. VAPOR RETARDERS
   a. Sheet Vapor Retarder: ASTM E 1745, Class B. Include manufacturer's recommended adhesive or pressure-sensitive tape.
      1) Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
         (a) Fortifiber Building Systems Group; Moistop Ultra 6.
         (b) Reef Industries Inc.; Griffolyn Vaporguard.
         (c) Stego Industries, LLC; Stego Wrap, 10 mil Class A.

4. CURING MATERIALS
   a. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
      1) Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
         (a) Axim Italcementi Group, Inc.; CATEXOL CimFilm.
         (b) BASF Construction Chemicals - Building Systems; Confilm.
         (c) ChemMasters; SprayFilm.
         (d) Conspec by Dayton Superior; Aquafilm.
         (e) Dayton Superior Corporation; Sure Film (J-74).
         (f) Edoco by Dayton Superior; BurkeFilm.
         (g) Euclid Chemical Company (The), an RPM company; Eucobar.
         (h) Kaufman Products, Inc.; Vapor-Aid.
         (i) Lambert Corporation; LAMBCO Skin.
         (j) L&M Construction Chemicals, Inc.; E-CON.
         (k) Meadows, W. R., Inc.; EVAPRE.
         (l) Metalcrete Industries; Waterhold.
         (m) Nox-Crete Products Group; MONOFILM.
         (n) Sika Corporation; SikaFilm.
         (o) SpecChem, LLC; Spec Film.
         (p) Symons by Dayton Superior; Finishing Aid.
         (q) TK Products, Division of Sierra Corporation; TK-2120 TRI-FILM.
         (r) Unitex; PRO-FILM.
         (s) Vexcon Chemicals, Inc.; Certi-Vex Envio Set.
   b. Water: Potable.
   c. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
      1) Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
         (a) BASF Construction Chemicals - Building Systems; Kure 1315.
         (b) ChemMasters; Polyseal WB.
         (c) Conspec by Dayton Superior; Sealcure 1315 WB.
         (d) Edoco by Dayton Superior; Cureseal 1315 WB.
         (e) Euclid Chemical Company (The), an RPM company; Super Diamond Clear VOX; LusterSeal WB 300.
         (f) Kaufman Products, Inc.; Sure Cure 25 Emulsion.
         (g) Lambert Corporation; UV Safe Seal.
         (h) L&M Construction Chemicals, Inc.; Lumiseal WB Plus.

(i) Meadows, W. R., Inc.; Vocomp-30.
(j) Metalcrete Industries; Metcure 30.
(k) Right Pointe; Right Sheen WB30.
(l) Symons by Dayton Superior; Cure & Seal 31 Percent E.
(m) Vexcon Chemicals, Inc.; Vexcon Starseal 1315.

5. RELATED MATERIALS
   a. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
   b. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D 2240.
   c. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
   d. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
      1) Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
   e. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inchthick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

6. REPAIR MATERIALS
   a. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inchand that can be feathered at edges to match adjacent floor elevations.
      1) Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
      2) Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
      3) Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inchor coarse sand as recommended by underlayment manufacturer.
      4) Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.
   b. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inchand that can be filled in over a scarified surface to match adjacent floor elevations.
      1) Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
      2) Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
      3) Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inchor coarse sand as recommended by topping manufacturer.
      4) Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

7. CONCRETE MIXTURES, GENERAL
   a. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
      1) Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
   b. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
   c. Admixtures: Use admixtures according to manufacturer's written instructions.

1) Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
2) Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3) Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
4) Use corrosion-inhibiting admixture in concrete mixtures where indicated.

d. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

D. CONCRETE MIXTURES FOR BUILDING ELEMENTS
1. Footings: Proportion normal-weight concrete mixture as follows:
a. Minimum Compressive Strength: 3000 psi at 28 days.
b. Maximum Water-Cementitious Materials Ratio: 0.45.
c. Slump Limit: 8 inchesfor concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
d. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch nominal maximum aggregate size.
e. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:
1) Minimum Compressive Strength: 3500 psi at 28 days.
2) Minimum Cementitious Materials Content: 520 lb/cu. yd..
3) Slump Limit: 5 inches, plus or minus 1 inch.
4) Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.
5) Synthetic Micro-Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than1.5 lb/cu. yd..
2. FABRICATING REINFORCEMENT

5.02 FABRICATE STEEL REINFORCEMENT ACCORDING TO CRSI'S "MANUAL OF STANDARD PRACTICE."

A. CONCRETE MIXING
1. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
a. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

7.01 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch for smooth-formed finished surfaces.

2. Class B, 1/4 inch for rough-formed finished surfaces.
   a. Construct forms tight enough to prevent loss of concrete mortar.
   b. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
      1) Install keyways, reglets, recesses, and the like, for easy removal.
      2) Do not use rust-stained steel form-facing material.
   c. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
   d. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
   e. Chamfer exterior corners and edges of permanently exposed concrete.
   f. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
   g. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
   h. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
   i. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3. EMBEDDED ITEMS
   a. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
      1) Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

4. REMOVING AND REUSING FORMS
   a. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 48 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
      1) Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved its 28-day design compressive strength.
      2) Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
   b. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
   c. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

5. SHORES AND RESHORES
    a. Comply with ACI 318and ACI 301 for design, installation, and removal of shoring and reshoring.
        1) Do not remove shoring or reshoring until measurement of slab tolerances is complete.
    b. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

6. VAPOR RETARDERS
    a. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
        1) Lap joints 6 inchesand seal with manufacturer's recommended tape.

7. STEEL REINFORCEMENT
    a. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
        1) Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
    b. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
    c. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
    d. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

8. JOINTS
    a. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
    b. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-third of concrete thickness as follows:
        Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

9. CONCRETE PLACEMENT
    a. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
    b. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
    c. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
        1) Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
    d. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
        1) Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
        2) Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
        3) Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer

and at least 6 inchesinto preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

e. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
   1) Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
   2) Maintain reinforcement in position on chairs during concrete placement.
   3) Screed slab surfaces with a straightedge and strike off to correct elevations.
   4) Slope surfaces uniformly to drains where required.
   5) Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

f. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
   1) When average high and low temperature is expected to fall below 40 deg Ffor three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
   2) Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
   3) Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

g. Hot-Weather Placement: Comply with ACI 301 and as follows:
   1) Maintain concrete temperature below 90 deg Fat time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
   2) Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

10. FINISHING FORMED SURFACES
    a. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
       1) Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
    b. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces 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.

11. FINISHING FLOORS AND SLABS
    a. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
    b. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
       1) Apply a trowel finish to surfaces, exposed to view.

2) Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.-long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch.

12. MISCELLANEOUS CONCRETE ITEMS
    a. A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

13. CONCRETE PROTECTING AND CURING
    a. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
    b. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x hbefore and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
    c. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist
    d. cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
    e. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
    f. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
        1) Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

14. LIQUID FLOOR TREATMENTS
    a. A. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

D. JOINT FILLING
    1. Prepare, clean, and install joint filler according to manufacturer's written instructions.
        a. Defer joint filling until concrete has aged at least [one][six] month(s). Do not fill joints until construction traffic has permanently ceased.
        b. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
        c. Install semirigid joint filler full depth in saw-cut joints and at least 2 inchesdeep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

E. CONCRETE SURFACE REPAIRS

    1. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

2. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16sieve, using only enough water for handling and placing.

3. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
   a. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with
   b. water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
   c. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
   d. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
   e. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
      1) Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
      2) After concrete has cured at least 14 days, correct high areas by grinding.
      3) Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
      4) Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
      5) Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inchto match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
      6) Repair defective areas, except random cracks and single holes 1 inchor less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inchclearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
      7) Repair random cracks and single holes 1 inchor less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

f. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
g. Repair materials and installation not specified above may be used, subject to Architect's approval.

4. FIELD QUALITY CONTROL
   a. Testing and Inspecting: Owner will engage a special inspector to perform field tests and inspections and prepare test reports.
   b. Inspections:
      1) Steel reinforcement placement.
      2) Steel reinforcement welding.
      3) Headed bolts and studs.
      4) Verification of use of required design mixture.
      5) Concrete placement, including conveying and depositing.
      6) Curing procedures and maintenance of curing temperature.
      7) Verification of concrete strength before removal of shores and forms from beams and slabs.
   c. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
      1) Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd.or fraction thereof.
      2) Testing Frequency: Obtain at least one composite sample for each 100 cu. yd.or fraction thereof of each concrete mixture placed each day.
         (a) When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
      3) Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
      4) Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
      5) Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg Fand below and when 80 deg Fand above, and one test for each composite sample.
      6) Compression Test Specimens: ASTM C 31/C 31M.
         (a) Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
         (b) Cast and field cure two sets of two standard cylinder specimens for each composite sample.
      7) Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
         (a) Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
         (b) A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
      8) When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
      9) Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified

compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

10) Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
11) Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
12) Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
13) Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
14) Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

d. Measure floor and slab flatness and levelness according to ASTM E 1155 within 48 hours of finishing.

5. PROTECTION OF LIQUID FLOOR TREATMENTS
   a. A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION

SECTION 04 0511
MORTAR AND MASONRY GROUT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Mortar for masonry.

B. Grout for masonry.

1.02 RELATED REQUIREMENTS

A. Section 04 2000 - Unit Masonry: Installation of mortar and grout.

1.03 REFERENCE STANDARDS

A. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures and Related Commentaries; 2011.

B. ASTM C5 - Standard Specification for Quicklime for Structural Purposes; 2010.

C. ASTM C91/C91M - Standard Specification for Masonry Cement; 2012.

D. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2015.

E. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2011.

F. ASTM C150/C150M - Standard Specification for Portland Cement; 2015.

G. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006 (Reapproved 2011).

H. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2014a.

I. ASTM C387/C387M - Standard Specification for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar; 2011b.

J. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2011.

K. ASTM C476 - Standard Specification for Grout for Masonry; 2010.

L. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2012.

M. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete; 2010.

N. ASTM C1019 - Standard Test Method for Sampling and Testing Grout; 2013.

O. ASTM C1072 - Standard Test Method for Measurement of Masonry Flexural Bond Strength; 2013.

P. ASTM C1142 - Standard Specification for Extended Life Mortar for Unit Masonry; 1995 (Reapproved 2013).

Q. ASTM C1148 - Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar; 1992a (Reapproved 2008).

R. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2014.

S. ASTM E514/E514M - Standard Test Method for Water Penetration and Leakage Through Masonry; 2014.

T. ASTM E518/E518M - Standard Test Methods for Flexural Bond Strength of Masonry; 2010.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Include design mix and indicate whether the Proportion or Property specification of ASTM C270 is to be used. Also include required environmental conditions and admixture limitations.

C. Samples: Submit two samples of mortar, illustrating mortar color and color range.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

A. Comply with provisions of ACI 530/530.1/ERTA, except where exceeded by requirements of the contract documents.
   1. Maintain one copy of each document on project site.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.07 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

PART 2 PRODUCTS

2.01 MORTAR AND GROUT APPLICATIONS

A. At Contractor's option, mortar and grout may be field-mixed from packaged dry materials, made from factory premixed dry materials with addition of water only, or ready-mixed.

B. Mortar Color: Natural gray unless otherwise indicated.

C. Mortar Mix Designs: ASTM C270, Property Specification.
   1. Masonry below grade and in contact with earth: Type S.
   2. Exterior Cavity Walls: Type S mortar with Type N pointing mortar.
   3. Engineered Masonry: Type M.
   4. Exterior, Non-loadbearing Masonry: Type N.

D. Grout Mix Designs:
   1. Bond Beams and Lintels: 3,000 psi strength at 28 days; 8-10 inches slump; provide premixed type in accordance with ASTM C94/C94M.

2.02 MATERIALS

A. Packaged Dry Material for Mortar for Unit Masonry: Premixed Portland cement, hydrated lime, and sand; complying with ASTM C387/C387M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.
   1. Type: Type M.
   2. Color: Standard gray.
   3. Water repellent mortar for use with water repellent masonry units.

B. Portland Cement: ASTM C150/C150M.
   1. Type: Type I - Normal; ASTM C150/C150M.
   2. Color: Standard gray.
   3. Manufacturers:
      a. Solomon Colors; Solomon Colors Concentrated A, H, and X Series: www.solomoncolors.com/sle.
      b. Substitutions: See Section 01 6000 - Product Requirements.

C. Masonry Cement: ASTM C91/C91M.
   1. Type: Types as scheduled in this section; ASTM C91/C91M.
   2. Colored Mortar: Premixed cement as required to match Architect's color sample.

D. Quicklime: ASTM C5, non-hydraulic type.

E. Mortar Aggregate: ASTM C144.

F. Grout Aggregate: ASTM C404.

G. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M.

H. Water: Clean and potable.

I. Bonding Agent: Latex type.

2.03 MORTAR MIXING

A. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C270 and in quantities needed for immediate use.

B. Maintain sand uniformly damp immediately before the mixing process.

C. Colored Mortar: Proportion selected pigments and other ingredients to match Architect's sample, without exceeding manufacturer's recommended pigment-to-cement ratio; mix in accordance with manufacturer's instructions, uniform in coloration.

D. Do not use anti-freeze compounds to lower the freezing point of mortar.

E. If water is lost by evaporation, re-temper only within two hours of mixing.

2.04 GROUT MIXING

A. Mix grout in accordance with ASTM C94/C94M.

B. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C476 for fine and coarse grout.

PART 3 EXECUTION

3.01 PREPARATION

A. Apply bonding agent to existing concrete surfaces.

B. Plug clean-out holes for grouted masonry with brick masonry units. Brace masonry to resist wet grout pressure.

3.02 INSTALLATION

A. Install mortar and grout to requirements of section(s) in which masonry is specified.

B. Work grout into masonry cores and cavities to eliminate voids.

C. Do not install grout in lifts greater than 16 inches without consolidating grout by rodding.

D. Do not displace reinforcement while placing grout.

E. Remove excess mortar from grout spaces.

3.03 GROUTING

A. Use either high-lift or low-lift grouting techniques, at Contractor's option, subject to other limitations of contract documents.

B. Low-Lift Grouting:
   1. Limit height of pours to 12 inches.
   2. Limit height of masonry to 16 inches above each pour.
   3. Pour grout only after vertical reinforcing is in place; place horizontal reinforcing as grout is poured. Prevent displacement of bars as grout is poured.
   4. Place grout for each pour continuously and consolidate immediately; do not interrupt pours for more than 1-1/2 hours.

C. High-Lift Grouting:
   1. Verify that horizontal and vertical reinforcement is in proper position and adequately secured before beginning pours.
   2. Hollow Masonry: Limit lifts to maximum 4 feet and pours to maximum height of 24 feet.
   3. Place grout for spanning elements in single, continuous pour.

3.04 FIELD QUALITY CONTROL

A. An independent testing agency will perform field tests, in accordance with provisions of Section 01 4000 - Quality Requirements.

B. Test and evaluate mortar in accordance with ASTM C780 procedures.

C. Test and evaluate grout in accordance with ASTM C1019 procedures.

D. Prism Tests: Test masonry and mortar panels for compressive strength in accordance with ASTM C1314, and for flexural bond strength in accordance with ASTM C1072 or ASTM E518/E518M; perform tests and evaluate results as specified in individual masonry sections.

END OF SECTION

SECTION 04 2000

UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete Block.

B. Reinforcement and Anchorage.

C. Flashings.

1.02 RELATED REQUIREMENTS

A. Section 03 2000 - Concrete Reinforcing: Reinforcing steel for grouted masonry.

B. Section 04 0511 - Mortar and Masonry Grout.

C. Section 06 1000 - Rough Carpentry: Nailing strips built into masonry.

D. Section 07 6200 - Sheet Metal Flashing and Trim: Through-wall masonry flashings.

E. Section 07 9200 - Joint Sealants: Sealing control and expansion joints.

1.03 REFERENCE STANDARDS

A. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures and Related Commentaries; 2011.

B. ASTM A580/A580M - Standard Specification for Stainless Steel Wire; 2015.

C. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement; 2015.

D. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2009a (Reapproved 2014).

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

F. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2015.

G. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale); 2013.

H. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2014.

I. ASTM C91/C91M - Standard Specification for Masonry Cement; 2012.

J. ASTM C126 - Standard Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units; 2015.

K. ASTM C140/C140M - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2014.

L. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006 (Reapproved 2011).

M. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale); 2014.

N. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2014a.

O. ASTM C387/C387M - Standard Specification for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar; 2011b.

P. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2011.

Q. ASTM C476 - Standard Specification for Grout for Masonry; 2010.

R. ASTM C652 - Standard Specification for Hollow Brick (Hollow Masonry Units Made From Clay or Shale); 2014.

S. ASTM C744 - Standard Specification for Prefaced Concrete and Calcium Silicate Masonry Units; 2014.

T. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2012.

U. ASTM C1148 - Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar; 1992a (Reapproved 2008).

V. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2014.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.

1.05 QUALITY ASSURANCE

A. Comply with provisions of ACI 530/530.1/ERTA, except where exceeded by requirements of the contract documents.
   1. Maintain one copy of each document on project site.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depths as indicated on the drawings for specific locations.
   2. Load-Bearing Units: ASTM C90, normal weight.

2.02 MORTAR AND GROUT MATERIALS

A. Mortar and Grout: As specified in Section 04 0511.

B. Hydrated Lime: ASTM C207, Type S.

C. Grout Aggregate: ASTM C404.

2.03 REINFORCEMENT AND ANCHORAGE

A. Reinforcing Steel: ASTM A615/A615M, Grade 40 (40,000 psi), deformed billet bars; galvanized.

B. Single Wythe Joint Reinforcement: Truss or ladder type; ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M, Class 3; 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage on each exposure.

2.04 FLASHINGS

A. Metal Flashing Materials: Galvanized Steel, as specified in Section 07 6200.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

3.03 COLD AND HOT WEATHER REQUIREMENTS

A. Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

3.04 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:
   1. Bond: Running.
   2. Coursing: One unit and one mortar joint to equal 8 inches.
   3. Mortar Joints: Concave.

3.05 PLACING AND BONDING

A. Lay hollow masonry units with face shell bedding on head and bed joints.

B. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

C. Remove excess mortar and mortar smears as work progresses.

D. Cut mortar joints flush where wall tile is scheduled or resilient base is scheduled.

3.06 MASONRY FLASHINGS

A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.

3.07 GROUTED COMPONENTS

A. Reinforce columns with reinforcement as shown, No. of bars and sizes as shown bars, placed in pattern as shown on structural drawings.

B. Lap splices minimum 24 bar diameters.

C. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

D. Place and consolidate grout fill without displacing reinforcing.

3.08 CLEANING

A. Remove excess mortar and mortar droppings.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

3.09 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION

SECTION 05 5213

PIPE AND TUBE RAILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall mounted handrails.

B. Stair railings and guardrails.

C. Free-standing railings at steps.

D. Deck railings and guardrails.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Placement of anchors in concrete.

B. Section 04 2000 - Unit Masonry: Placement of anchors in masonry.

C. Section 06 1500 Wood Decking

1.03 REFERENCE STANDARDS

A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2012.

B. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2013.

C. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

D. ASTM B211 - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire; 2012.

E. ASTM B241/B241M - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube; 2012.

F. ASTM B429/B429M - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube; 2010.

G. ASTM B483/B483M - Standard Specification for Aluminum and Aluminum-Alloy Drawn Tubes for General Purpose Applications; 2013.

H. ASTM C177: Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus

I. ASTM D -1413-99: Test method for Wood Preservatives by Laboratory Soil-block Cultures

J. ASTM D 1761: Mechanical Fasteners in Wood

K. ASTM D 570: Water Absorption of Plastics

L. ASTM D-7032-04: Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails), ASTM International.

M. ASTM D-7031-04: Standard Guide for Evaluating Mechanical and Physical Properties of Wood-Plastic Composite Products, ASTM Internation

N. ASTM E-84-01: Test Method for Surface Burning Characteristics of Building Materials, ASTM International

O. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings; 2013.

P. ASTM E985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings; 2000 (Reapproved 2006).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

C. Samples: Submit two, 6 inch long samples of handrail. Submit two samples of elbow, wall bracket, and end stop.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Handrails and Railings:
   1. Basis of Design: Trex: Transcend Railing: www.trex.com
   2. Excell Railing System, Ltd; Premium Wood Grain Finish: www.excellrailing.com
   3. Feeney Inc.: DesignRail Custom w/ low-profile wood grain top rail: www.feeneyinc.com

2.02 RAILINGS - GENERAL REQUIREMENTS

A. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of ASTM E985 and to comply with ICC- ESR-3168 rev. 02/2107..

B. Distributed Loads: Design railing assembly, wall rails, and attachments to resist distributed force of 75 pounds per linear foot applied to the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E935.

C. Concentrated Loads: Design railing assembly, wall rails, and attachments to resist a concentrated force of 200 pounds applied at any point on the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E935.

D. Allow for expansion and contraction of members and building movement without damage to connections or members.

E. Dimensions: See drawings for configurations and heights. All components are required per Trex Transcend Railing kit or similar products approved by Architect as listed above.
   1. Railing assembly template per manufacturer's recomendations.
   2. Railing support brackets.
   3. Top rails and wall rails: varies per manufacturer's standard wood or simulated wood top rail inches flat, square or round.
   4. Fascia trim.
   5. Posts: Aluminum sleeve 4" x 4" nominal inches square.
   6. Post Mount: Mount 4x4 to inside face of perimeter spandrel joist per manuf. recomendations and standard details.
   7. Post sleeve skirt.
   8. Railing gaskets
   9. Adjustable foot block.
   10. Post Sleeve Cap
   11. Balusters: manufacturer's standard inch round solid bar with spacing less than 4" between ballusters. Use manufacturer's standard ballaster spacer
   12. Ballusters: Manufacturer's standard aluminum vertical bars sized and spaced for Code compliance with finish to match sleeve.
   13. Bottom bar per manufacturer's standard.

F. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.
   1. For anchorage to concrete, provide inserts to be cast into concrete, for bolting anchors.
   2. For anchorage to stud walls, provide backing plates, for bolting anchors.
   3. Posts: Provide adjustable flanged brackets.
   4. Provide manufacturer's standard separate handrail including attachments and ADA compliant looped ending at all stairs and ramps.

G. Provide slip-on non-weld mechanical fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

2.03 FABRICATION

A. Accurately form components to suit specific project conditions and for proper connection to building structure.

B. Fit and shop assemble components in largest practical sizes for delivery to site.

C. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.

2.04 ALUMINUM FINISHES

A. Class II Color Anodized Finish: AAMA 611 AA-M12C22A32 Integrally colored anodic coating not less than 0.4 mils thick.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.

C. Anchor railings securely to structure.

D. Conceal anchor bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.

3.04 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per floor level, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 06 0573

WOOD TREATMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Site applied termiticide for wood materials.

B. Site applied mildicide for wood materials.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete.

B. Section 06 1000 - Rough Carpentry: Factory treatment for wood products.

C. Section 06 1324: Factory treatment for wood products.

D. Section 06 1500 - Wood Decking: Factory treatment for wood products.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide technical data on wood preservative materials and application instructions.

C. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.04 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 SITE APPLIED WOOD TREATMENT

A. Manufacturers:
   1. Nisus Corporation; QNAP oil born copper naphtenate: www.nisuscorp.com.
   2. Substitutions: See Section 01 6000 - Product Requirements.

B. Site Applied Termiticide and Mildicide: Borate mineral salt based, spray applied termiticide, mildicide and mold growth preventative.
   1. Products:
      a. Nisus Corporation; Product Bora-Care with Mold-Care: www.nisuscorp.com.
      b. Substitutions: See Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 PREPARATION

A. Remove dust, dirt and other contaminants from treatment surfaces. Remove tarpaulins, dropcloths, strippable protective films, etc., from areas to be treated Move equipment and stored materials that block or prevent product application.

3.02 INSTALLATION - GENERAL

A. Provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 SITE APPLIED WOOD TREATMENT

A. Comply with manufacturers written mixing and installation instructions.

B. Apply filed applied wood preservative at all field cut lumber and wood decking material.

C. Termiticide: Apply to foundations, structure and other items as listed.
   1. All structural wood and sill plates within 24 inches, minimum, of point of contact with foundation.
   2. Concrete foundations 2 inches, minimum, from sill plate.

3. Concrete or masonry crawlspace walls up to 24 inches, minimum, from top of soil.

END OF SECTION

SECTION 06 1000

ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural dimension lumber framing.

B. Exposed timber structural framing.

C. Non-structural dimension lumber framing.

D. Rough opening framing for doors, windows, and roof openings.

E. Sheathing.

F. Preservative treated wood materials.

G. Miscellaneous framing and sheathing.

H. Concealed wood blocking, nailers, and supports.

I. Miscellaneous wood nailers, furring, and grounds.

J. Wall sheathing with factory applied water-resistive and air barrier sheet.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Setting anchors in concrete.

B. Section 06 1500 - Wood Decking.

C. Section 07 2500 - Weather Barriers: Air barrier over sheathing.

D. Section 07 2726 Fluid-Applied Membrand Air Barriers

E. Section 07 6200 - Sheet Metal Flashing and Trim: Sill flashings.

F. Section 09 2116 - Gypsum Board Assemblies: Gypsum-based sheathing.

1.03 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 2009.

B. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2015.

C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

E. ASTM C208 - Standard Specification for Cellulosic Fiber Insulating Board; 2012.

F. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2015a.

G. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2013.

H. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2014.

I. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

J. ASTM D2898 - Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing; 2010.

K. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.

L. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.

M. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.

N. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood Protection Association; 2003.

O. AWPA C9 - Plywood -- Preservative Treatment by Pressure Processes; American Wood Protection Association; 2003.

P. AWPA C20 - Structural Lumber -- Fire Retardant Treatment by Pressure Processes; American Wood-Protection Association; 2003.

Q. AWPA C27 - Plywood -- Fire-Retardant Treatment by Pressure Processes; American Wood-Protection Association; 2002.

R. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.

S. ICC (IBC) - International Building Code; 2015.

T. ICC (IECC) - International Energy Conservation Code; 2012.

U. ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers; ICC Evaluation Service, Inc; 2013.

V. PS 1 - Structural Plywood; 2009.

W. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; 2010.

X. PS 20 - American Softwood Lumber Standard; 2010.

Y. SPIB (GR) - Grading Rules; 2014.

Z. WWPA G-5 - Western Lumber Grading Rules; 2011.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide technical data on wood preservative materials and application instructions.

C. Samples: For rough carpentry members that will be exposed to view, submit two samples, 6"by12" inch in size illustrating wood grain, color, and general appearance.

D. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Species: Southern Pine, unless otherwise indicated.
   2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
   3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
   4. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).

B. Sizes: Nominal sizes as indicated on drawings, S4S.

C. Moisture Content: S-dry or MC19.

D. Stud Framing (2 by 2 through 2 by 6):
   1. Species: Any allowed under referenced grading rules.
   2. Grade: No. 2.

E. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):
   1. Species and Grades: As indicated on the structural drawings for various locations.

F. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 EXPOSED DIMENSION LUMBER

A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).

B. Sizes: Nominal sizes as indicated on drawings.

C. Surfacing: S4S.

D. Moisture Content: S-dry or MC19.

2.04 EXPOSED BOARDS FOR DECK (SEE ALTERNATE 1)

A. Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.

B. Moisture Content: Kiln-dry (15 percent maximum).

C. Surfacing: S4S.

D. Species: Southern Pine.

E. Grade: Select Heart.

F. Pressure Treated at all exposed locations.

2.05 CONSTRUCTION PANELS

A. Roof Sheathing: Oriented strand board structural wood panel, PS 2, with factory laminated roofing underlayment layer.
   1. Sheathing Panel:
      a. Grade: Structural 1 Sheathing.
      b. Size: 4 feet wide by 8 feet long.
      c. Performance Category: 5/8 PERF CAT.
      d. Span Rating: 40/20.
      e. Edge Profile: Square edge.
   2. Exposure Time: Sheathing undamaged and integral roofing underlayment layer intact after exposure to weather for up to 180 days.

B. Wall Sheathing: Oriented strand board wood structural panel; PS 2.
   1. Grade: Structural 1 Sheathing.
   2. Bond Classification: Exposure 1.
   3. Performance Category: 1/2 PERF CAT. Or to match existing adjacent product.
   4. Span Rating: 32/16.
   5. Edges: Square.

C. Other Applications:
   1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
   2. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
   3. Other Locations: PS 1, C-D Plugged or better.

2.06 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Preservative Treatment:
   1. Manufacturers:
      a. Arch Wood Protection, Inc; Dricon: www.wolmanizedwood.com.
      b. Cox Industries, Inc.; KDAT Lumber: www.coxwood.com.
      c. Viance, LLC; Preserve ACQ: www.treatedwood.com/#sle.
      d. Thomasson Company: www.thomassoncompany.com.
      e. Substitutions: See Section 01 6000 - Product Requirements.
   2. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
      a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
      b. Treat lumber exposed to weather.
      c. Treat lumber in contact with roofing, flashing, or waterproofing.
      d. Treat lumber in contact with masonry or concrete.
      e. Treat lumber less than 18 inches above grade.
      f. Treat lumber in other locations as indicated.
      g. Treat lumber used in exposed wood deck under Alternate 1.
   3. Preservative Pressure Treatment of Plywood Above Grade: AWPA U1, Use Category UC2 and UC3B, Commodity Specification F using waterborne preservative.
      a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
      b. Treat plywood in contact with roofing, flashing, or waterproofing.
      c. Treat plywood in contact with masonry or concrete.
      d. Treat plywood less than 18 inches above grade.
   4. Preservative Pressure Treatment of Lumber in Contact with Soil: AWPA U1, Use Category UC4A, Commodity Specification A using waterborne preservative.
      a. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.
      b. Restrictions: Do not use lumber or plywood treated with chromated copper arsenate (CCA) in exposed exterior applications subject to leaching.

PART 3 EXECUTION

3.01 PREPARATION

A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches and seal.

B. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.

C. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes, AWC (WFCM) Wood Frame Construction Manual, and Local governing codes.

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.

F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

G. Provide bridging at joists in excess of 8 feet span as detailed. Fit solid blocking at ends of members.

H. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.

C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

E. Specifically, provide the following non-structural framing and blocking: (Optional - See Cold Formed Steel plate option)
   1. Wall brackets.
   2. Handrails.
   3. Wall-mounted door stops.
   4. Joints of rigid wall coverings that occur between studs.

3.05 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, and roofing assembly installation.

3.06 INSTALLATION OF CONSTRUCTION PANELS

A. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
   1. At long edges use sheathing clips where joints occur between roof framing members.
   2. Nail panels to framing; staples are not permitted.
   3. Nailing pattern must comply with local wind load requirements.

B. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails or screws.
   1. Place water-resistive barrier horizontally over wall sheathing, weather lapping edges and ends.

3.07 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

C. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.08 CLEANING

A. Waste Disposal: Comply with the requirements of Section 01 7419 - Construction Waste Management and Disposal.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 06 1500

WOOD DECKING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Softwood lumber structural wood decking.

B. Hardwood structural wood decking.

C. Preservative treatment of wood.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Bearing support.

B. Section 04 2000 - Unit Masonry: Bearing support.

C. Section 06 1000 - Rough Carpentry: Bearing support.

D. Section 09 9113 - Exterior Painting: Field finishing.

1.03 REFERENCE STANDARDS

A. AITC 110 - Standard Appearance Grades for Structural Glued Laminated Timber; 2001.

B. ASTM D198 - Standard Test Methods of Static Tests of Lumber in Structural Sizes; 2015.

C. ASTM D1761 - Standard Test Methods for Mechanical Fasteners in Wood; 2012.

D. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.

E. PS 1 - Structural Plywood; 2009.

F. PS 20 - American Softwood Lumber Standard; 2010.

G. SPIB (GR) - Grading Rules; 2014.

1.04 SYSTEM DESCRIPTION

A. Design roof live and dead load: 40 psf with deflection limited to 1/240 of span.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide technical data on wood preservative materials.

C. Shop Drawings: Indicate deck framing system, loads and cambers, and bearing details.

D. Samples of Wood Deck Exposed To View: Submit two samples, 6 by 12 inch in size illustrating wood grain, stain, and finish and grooved side for concealed attachment.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience and certified by AITC.

B. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect all wood deck material against improproper storage per manufacturer's written documentation.

PART 2 PRODUCTS

2.01 WOOD MATERIALS

A. Hardwood Decking: Base Bid
   1. Species: IPE, "Brazilian Walnut" or "Ironwood".
   2. Size: 1 x 6, nominal.
   3. Length: Random
   4. Grooved both sides for concealed fasteners.

B. Softwood Pressure Treated Wood Deck (See Alternate 1).
   1. Species: Southern Yellow Pine
   2. Grade: Select Heart
   3. Surfacing: S4S
   4. Grooved both sides for concealed fastener application.
   5. Pressure Treated.

2.02 HARDWOOD DECKING: [IPE] FABRICATED TO COMPLY WITH DETAILS ON DRAWINGS (BASE BID)

A. Appearance: Fabricate to AITC 110 Architectural grade.

B. Appearance: Fabricate sides with grooves to receive concealed fasteners.

C. Designed for the following minimum values:
   1. Compression Parallel to Grain (Fc): 13,010 psi.
   2. Horizontal Shear (Fv): 2,060 psi.
   3. Modulus of Elasticity (E): 3,140,000 psi.
   4. Side Hardness: 3,680 lbs.

D. After end trimming, seal with penetrating sealer.

2.03 SOFTWOOD DECKING: SOUTHERN YELLOW PINE FABRICATED TO COMPLY WITH DETAILS ON DRAWINGS (SEE ALTERNATE 1).

A. Size: 5/4" x 6"

B. Length: Random

C. Color: Stained. - Color as selected by Architect.

D. Edges, Field Boards: Grooved to receive concealed fasteners.

E. Edges, Perimeter Boards: Square one edge; grooved to receive concealed fasteners on the other.

2.04 ACCESSORIES

A. Fasteners and Anchors:
   1. Screws: Bugle head, hardened steel, power driven type, length three times thickness of decking.
   2. Anchors: Toggle bolt type for anchorage to hollow masonry.
   3. Concealed Deck Clips: For application in all wood deck material under Base Bid or Alternate 1.
      a. Deckmaster G5 Deck Clip System by IPE Woods USA: www.ipewoods.com
   4. Provide self healing self adhered 40 mil membrane between top of joist and bottom of wood deck under Base Bid or Alternate 1.

2.05 WOOD TREATMENT

A. Preservative Pressure Treatment:
   1. Manufacturers:
      a. Arch Wood Protection, Inc; Dricon: www.wolmanizedwood.com.
      b. Cox Industries, Inc.; Dura Q CuNap: www.coxwood.com.
      c. Viance, LLC; Preserve ACQ: www.treatedwood.com.
      d. Thomasson Company: www.thomassoncompany.com.
      e. Substitutions: See Section 01 6000 - Product Requirements.

B. Surface-Applied Wood Preservative:

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that support framing is ready to receive decking.

3.02 PREPARATION

A. Coordinate placement of bearing items.

3.03 SITE APPLIED WOOD TREATMENT

A. Brush apply one coats of preservative treatment on wood in contact with cementitious materials. Treat site-sawn cuts.

B. Allow preservative to dry prior to erecting members.

3.04 INSTALLATION - BOARD DECKING

A. Install decking perpendicular to framing members, with ends staggered over firm bearing.

B. Secure with concealed fasteners.

3.05 TOLERANCES

A. Surface Flatness of Decking Without Load: 1/4 inch in 10 feet maximum, and 1/2 inch in 30 feet maximum.

END OF SECTION

SECTION 06 6630

EXTERIOR PVC DECORATIVE TRIM

PART 1 - GENERAL

1.01 RELATED SECTIONS:

A. All contract documents apply to work of this section; this includes but is not limited to: Agreement; Drawings; Instructions to Bidders; General and Supplementary Conditions; and Division One Administrative Sections of the specifications.

A. B. Related Sections:
1. 01 33 00 - Submittal Procedures
2. 01 40 00 - Quality Requirements
3. 01 60 00 - Product Requirements
4. 06 10 00 - Rough Carpentry
5. 06 20 00 - Finish Carpentry
6. 07 90 00 - Joint Protection
7. 09 90 00 - Painting and Coating

1.02 SUMMARY:

A. A. Section includes the furnishing and installing PVC trim products, including but not limited to:
1. Column Wraps
2. Pilasters
3. Vinyl lattice Trim

1.03 SUBMITTALS:

A. A. Comply with provisions of Section 01 33 00 - Submittal Procedures

B. B. Product Data: Provide Manufacturer's Data for each product to be used, including:
1. Storage and handling requirements and recommendations.
2. Preparation instructions and recommendations.
3. Installation instructions.

C. C. Shop drawings:
1. Submit detailed drawings showing height, width, depth, style of all column wraps and pilasters.
2. Show all field connections.
3. Indicate all required field measurements.
4. Indicate component details, materials, finishes, connection and joining methods and the relationship to adjoining work.
5. Submit one set of PDF files for approval.

D. Product Samples: Submit duplicate samples of column wrap materials showing style and finish. One approved sample will be returned to contractor.

1.04 QUALITY ASSURANCE:

A. Manufacturer Qualifications: Manufacturer shall have not less than 5 years successful experience in producing the type of prefabricated components required for project applications equivalent to the requirements for this project.

B. Installer Qualifications: Installer shall have a minimum of 5 years experience with the type of prefabricated components specified.

C. Pre-installation meetings: Conduct a pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

1.05 DELIVERY, STORAGE AND HANDLING:

A. Deliver all materials in original packaging, unopened with no visible damage.

B. Label each package with product contents and stock number of contents, with warranty, installation, and handling and storage recommendations enclosed, on-line or on packaging.

C. Allow for receiving, unloading, handling and movement to approved storage areas within project, and final movement to point of installation.

D. Store and protect all materials in accordance with manufacturer's requirements for environmental and physical protection. Keep temporary protective coverings in place.

E. Store products on flat level surface to prevent warping.

F. Protect materials and finish from damage during handling and installation.

1.06 PROJECT CONDITIONS:

A. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results.

B. Do not install products under environmental conditions outside manufacturer's recommendations.

C. Allow at least 24 hours for materials to adapt to conditions at project site prior to installation.

1.07 WARRANTY:

A. Upon completion of work, provide a written Manufacturer's Lifetime Limited Warranty for products installed as part of this project to the Original Owner.

PART 2 - PRODUCTS

3.01 MANUFACTURERS:

A. Acceptable Manufacturer:

1. Fypon, LLC. (Basis of Design)
   a. 1750 Indian Wood Circle
   b. Maumee, Ohio 43537
   c. Phone: 800/446-3040 (U.S. or Canada)

2. Turncraft
   a. Phone: (541) 826-2911
   b. www.turncraft.com

3. HB&G
   a. Phone: (800) 264-4424
   b. www.hbgcolumns.com

B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

3.02 MATERIALS:

A. Manufactured PVC Column Wraps:
   1. Column Wraps: (Pilasters similar) .
      a. Height: Field Measure
      b. Column Profile: Square, non-tapered to match existing
      c. Column Caps: Plain
      d. Column Base: Plain
   2. Color: White
   3. j. Color: White

B. Vinyl Lattice
   1. Manufacturer: Permalatt Products, Inc.
   2. DuraShell
   3. Style Diagonal 2 3/4", 1 1/2" wide strips, 1/2" thick
   4. Color: As selected by Architect

PART 3 - EXECUTION

5.01 EXAMINATION:

A. A. Site Verification of Conditions:
   1. Prior to the start of installation, inspect all preceding work to ensure that there are no conditions which will cause an unsatisfactory installation of work involving PVC Railings.
   2. Notify Architect in writing of any unacceptable conditions that would adversely affect installation or subsequent use of railings.
   3. Do not install any work involving PVC Railing until unsatisfactory conditions are corrected and acceptable for proper installation of work.
   4. Contractor shall be responsible for correcting or replacing all unacceptable work involving PVC Railings, which were installed over unsatisfactory conditions at no cost to Owner.

5.02 PREPARATION:

A. A. Protect surrounding and adjacent work as required preventing damage to preceding work during execution of this work.

B. B. Perform all preparation necessary for a successful installation of products as specified in manufacturer's installation instructions.

5.03 INSTALLATION:

A. A. Obtain Manufacturer's instructions for successful installation of work to be performed and become knowledgeable with all material handling and installation recommendations.

B. B. Ensure full compliance with Manufacturer's instructions in all aspects of tasks required by this work. Install railings in accordance with manufacturer's instructions at locations indicated on the drawings.

C. C. Coordinate all work with all other project trades and provide proper accommodations for following work by other trades.

5.04 FIELD QUALITY CONTROL:

A. A. After installation, check all work for flaws and defects.

B. B. Repair all defective work.

C. C. Remove and replace all damaged components that cannot be successfully repaired as determined by the Project Architect.

5.05 PROTECTION:

A. A. Install temporary protective materials necessary to prevent damage to materials installed in this work until final acceptance of the project.

B. B. Remove protection materials and clean all surfaces following manufacturer's recommendations prior to final project completion.

C. C. Dispose properly of all protection and cleaning materials.

5.06 CLEANING:

A. A. Clean railings prior to final acceptance in accordance with manufacturer's instructions.

B. B. Remove labels and temporary protective coverings.

C. C. Do not use harsh cleaning materials or methods that would damage finish.

END OF SECTION

SECTION 07 2100
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Batt insulation and vapor retarder in exterior wall, ceiling, and roof construction.

B. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Supporting construction for batt insulation.

B. Section 09 2116 - Gypsum Board Assemblies: Acoustic insulation inside walls and partitions.

1.03 REFERENCE STANDARDS

A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2010.

B. ASTM C552 - Standard Specification for Cellular Glass Thermal Insulation; 2015.

C. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013.

D. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2015a.

E. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.

F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.

G. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.

H. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2012.

I. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies; 2011.

J. FM DS 1-28 - Wind Design; 2007.

K. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components; 2012.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Insulation in Metal Framed Walls: Batt insulation with integral vapor retarder.

B. Insulation Above Lay-In Acoustical Ceilings: Batt insulation with no vapor retarder.

2.02 BATT INSULATION MATERIALS

A. Where batt insulation is indicated, either glass fiber or mineral fiber batt insulation may be used, at Contractor's option.

B. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
   1. Flame Spread Index: 75 or less, when tested in accordance with ASTM E84.
   2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
   3. Combustibility: Non-combustible, when tested in accordance with ASTM E136.

4. Formaldehyde Content: Zero.
5. Thermal Resistance: As shown on drawings
6. Thickness: As shown on drawings.
7. Manufacturers:
    a. CertainTeed Corporation: www.certainteed.com.
    b. Johns Manville: www.jm.com.
    c. Owens Corning Corporation; EcoTouch PINK FIBERGLAS Insulation: www.ocbuildingspec.com/#sle.
8. Substitutions: See Section 01 6000 - Product Requirements.

C. Mineral Fiber Batt Insulation: Flexible or semi-rigid preformed batt or blanket, complying with ASTM C665; friction fit; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.
1. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.
2. Manufacturers:
    a. Johns Manville: www.jm.com/#sle.
    b. Owens Corning; Ecotouch Flame Spread 25: www.owenscorning.com
    c. Thermafiber, Inc; SAFB: www.thermafiber.com/#sle.
    d. Substitutions: See Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

3.02 BATT INSTALLATION

A. Install insulation in accordance with manufacturer's instructions.

B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

E. Tape seal tears or cuts in vapor retarder.

F. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane. Tape seal in place.

3.03 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 2500

WEATHER BARRIERS

PART 1 - GENERAL

1.01 1.1 SECTION INCLUDES

A. Weather barrier membrane

B. Seam Tape

C. Flashing:

D. Fasteners

1.02 1.2 REFERENCES

A. ASTM International
   1. ASTM C920; Standard Specification for Elastomeric Joint Sealants
   2. ASTM C1193; Standard Guide for Use of Joint Sealants
   3. ASTM D882; Test Method for Tensile Properties of Thin Plastic Sheeting
   4. ASTM D1117; Standard Guide for Evaluating Non-woven Fabrics
   5. ASTM E84; Test Method for Surface Burning Characteristics of Building Materials
   6. ASTM E96; Test Method for Water Vapor Transmission of Materials
   7. ASTM E1677; Specification for Air Retarder Material or System for Framed Building Walls
   8. ASTM E2178; Test Method for Air Permeance of Building Materials
   9. AATCC - American Association of Textile Chemists and Colorists
      a. Test Method 127 Water Resistance: Hydrostatic Pressure Test
   10. TAPPI
      a. Test Method T-410; Grams of Paper and Paperboard (Weight per Unit Area)
      b. Test Method T-460; Air Resistance (Gurley Hill Method)

1.03 1.3 SUBMITTALS

A. Refer to Section [01 33 00 Submittal Procedures] [insert section number and title].

B. Product Data: Submit manufacturer current technical literature for each component.

C. Samples: Weather Barrier membrane, minimum 8-1/2 inches by 11 inch.

D. Quality Assurance Submittals
   1. Manufacturer Instructions: Provide manufacturer's written installation instructions.
   2. Closeout Submittals
      a. Refer to Section [01 78 00 Closeout Submittals] [insert section number and title].

1.04 1.4 QUALITY ASSURANCE

A. Qualifications
   1. Installer shall have experience with installation of similar weather barrier assemblies under similar conditions.
   2. Installation shall be in accordance with manufacturer's installation guidelines and recommendations.
   3. Source Limitations: Provide weather barrier and accessory materials produced by single manufacturer.

1.05 1.5 DELIVERY, STORAGE AND HANDLING

A. Refer to Section [01 60 00 Product Requirements] [insert section number and title].

B. Deliver weather barrier materials and components in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Store weather barrier materials as recommended by system manufacturer.

1.06 1.6 SCHEDULING

A. Review requirements for sequencing of installation of weather barrier assembly with installation of windows, doors, louvers and flashings to provide a weather-tight barrier assembly.

PART 2 - PRODUCTS

2.01 2.1 MANUFACTURERS

A. Basis of Design - DuPont; 4417 Lancaster Pike, Chestnut Run Plaza 728, Wilmington, DE 19805; 1-800-44-TYVEK (8-9835); http://www.construction.tyvek.com

B. Subject to compliance with these specification the following manufacturer's may be considered:
   1. Fortifiber: WeatherSmart Drainable Wrap: www.fortifiber.com
   2. Benjamin OBdyke, Inc.:Home Slicker Plus Typar Rainscreen 10 mm: www.benjaminobdyke.com

2.02 2.2 MATERIALS

A. Basis of Design: spunbonded polyolefin, non-woven, non-perforated, weather barrier is based upon DuPont™ Tyvek® DrainWrap™ and related assembly components.
   1. Performance Characteristics:
      a. Air Penetration: 0.004 cfm/ft2 at 75 Pa, when tested in accordance with ASTM E2178. Type I per ASTM E1677.
      b. Water Vapor Transmission: 50 perms, when tested in accordance with ASTM E96, Method B.
      c. Water Penetration Resistance: 210 cm when tested in accordance with AATCC Test Method 127.
      d. Basis Weight: 2.1 oz/yd2, when tested in accordance with TAPPI Test Method T-410.
      e. Air Resistance: 300 seconds, when tested in accordance with TAPPI Test Method T-460.
      f. Tensile Strength: 30/30 lbs/in., when tested in accordance with ASTM D882, Method A.
      g. Tear Resistance: 7/9 lbs, when tested in accordance with ASTM D1117.
      h. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E84. Flame Spread: 5, Smoke Developed: 25

2.03 2.3 ACCESSORIES

A. Seam Tape: 2 inch wide, DuPont™ Tyvek® Tape as distributed by DuPont Building Innovations.

B. Fasteners:
   1. Tyvek® Wrap Caps, as manufactured by DuPont Building Innovations: #4 nails with large 1-inch plastic cap fasteners.
   2. Tyvek® Wrap Cap staples as distributed by DuPont Building Innovations, or 1-inch plastic cap staples with leg length sufficient to achieve a minimum penetration of 5/8-inch into the wood stud.
   3. Sealants
      a. Refer to Section [07 92 00 Joint Sealants] [insert section number and title].
   4. Adhesive:
      a. Provide adhesive recommended by weather barrier manufacturer.
      b. Products:
         1) Liquid Nails® LN-109
         2) Denso Butyl Liquid
         3) 3M High Strength 90
         4) SIA 655
         5) Adhesives recommend by the weather barrier manufacturer.
   5. Primer:
      a. Provide flashing manufacturer recommended primer to assist in adhesion between substrate and flashing.
      b. Products:
         1) 3M High Strength 90
         2) Denso Butyl Spray
         3) SIA 655
         4) Permagrip 105

5) ITW TACC Sta' Put SPH
6) Primers recommended by the flashing manufacturer

6. Flashing
   a. DuPont™ StraightFlash™, as manufactured by DuPont Building Innovations: straight flashing membrane materials for flashing windows and doors and sealing penetrations and masonry ties, etc.
      1) DuPont™ Thru-Wall Surface Adhered Membrane with Integrated Drip Edge: Thru-Wall flashing membrane materials for flashing at changes in direction or elevation (shelf angles, foundations, etc.) and at transitions between different assembly materials.
      2) Preformed Inside and Outside Corners and End Dams as manufactured by DuPont: Preformed three-dimensional shapes to complete the flashing system used in conjunction with DuPont™ Thru-Wall Flashing.

PART 3 - EXECUTION

3.01 3.1 EXAMINATION

A. Verify substrate and surface conditions are in accordance with weather barrier manufacturer recommended tolerances prior to installation of weather barrier and accessories.

3.02 3.2 INSTALLATION - WEATHER BARRIER

A. Install weather barrier over exterior face of exterior wall substrate in accordance with manufacturer recommendations.

B. Start weather barrier installation at a building corner, leaving 6-12 inches of weather barrier extended beyond corner to overlap.

C. Apply wrap with grooved surface pattern in vertical direction.

D. Install weather barrier in a horizontal manner starting at the lower portion of the wall surface with grooved surface pattern in vertical position. Maintain weather barrier plumb and level.

E. Extend bottom roll edge over sill plate 2" to 3". Seal weather barrier with sealant or tape. Shingle weather barrier over back edge of weep screed. Seal weather barrier with sealant or tape to weep screed. Ensure weeps are not blocked.

F. Subsequent layers shall overlap lower layers a minimum of 6 inches horizontally in a shingling manner.

G. Window and Door Openings: Extend weather barrier completely over openings.

H. Weather Barrier Attachment:
   1. Attach weather barrier to studs through exterior sheathing. Secure using weather barrier manufacturer recommended fasteners, space 12 -18 inches vertically on center along stud line, and 24 inch on center, maximum horizontally.
   2. Apply 4 inch by 7 inch piece of DuPont™ StraightFlash™ or weather barrier manufacturer approved alternate to weather barrier membrane prior to the installation cladding anchors.

3.03 3.3 SEAMING

A. Seal seams of weather barrier with seam tape at all vertical and horizontal overlapping seams.

B. Seal any tears or cuts as recommended by weather barrier manufacturer

3.04 3.4 OPENING PREPARATION (FOR USE WITH FLANGED WINDOWS)

3.05 CUT WEATHER BARRIER IN AN "I-CUT" PATTERN. A MODIFIED I-CUT IS ALSO ACCEPTABLE.

A. Cut weather barrier horizontally along the bottom and top of the window opening.

B. From the top center of the window opening, cut weather barrier vertically down to the sill..
   1. 3. Fold side and bottom weather barrier flaps into window opening and fasten.
   2. Cut a head flap at 45-degree angle in the weather barrier membrane at window head to expose 8 inches of sheathing. Temporarily secure weather barrier membrane flap away from sheathing with tape.

3.06 3.5 FLASHING

A. Cut 7-inch wide DuPont™ FlexWrap™ a minimum of 12 inches longer than width of sill rough opening. Apply primer to sheathing as recommended by manufacturer.

B. Cover horizontal sill by aligning DuPont™ FlexWrap™ edge with inside edge of sill. Adhere to rough opening across sill and up jambs a minimum of 6 inches. Secure flashing tightly into corners by working in along the sill before adhering up the jambs.

C. Fan DuPont™ FlexWrap™ at bottom corners onto face of wall. Firmly press in place. Mechanically fasten fanned edges. Mechanical fastening is not required for DuPont™ FlexWrap™ NF.

D. On exterior, apply continuous bead of sealant to wall or backside of window mounting flange across jambs and head. Do not apply sealant across sill.

E. Install window according to manufacturer's instructions.

F. Apply 4-inch wide strips of DuPont™ StraightFlash™ at jambs overlapping entire mounting flange. Extend jamb flashing 1-inch above top of rough opening and below bottom edge of sill flashing.

G. Apply 4-inch wide strip of DuPont™ StraightFlash™ as head flashing overlapping the mounting flange. Head flashing should extend beyond outside edges of both jamb flashings.

H. Position weather barrier head flap across head flashing. Adhere using 4-inch wide DuPont™ StraightFlash™ over the 45-degree seams.

I. Tape head flap in accordance with manufacturer recommendations

J. On interior, install backer rod in joint between frame of window and flashed rough framing. Apply sealant around entire window to create air seal. Apply sealant in accordance with sealant manufacturer's instructions and ASTM C 1193.

K. Protection required behind each vertical wood nailer: Place a minimum 2" x 2" Seam Tape tab beneath each nailing point at all vertical wood nailers.

3.07 3.8 THRU-WALL FLASHING INSTALLATION

A. Apply primer per manufacturer's written instructions.

B. Install preformed corners and end dams bedded in sealant in appropriate locations along wall.

C. Starting at a corner, remove release sheet and apply membrane to primed surfaces in lengths of

D. 8 to 10 feet.

E. Extend membrane through wall and leave ¼ inch minimum exposed to form drip edge.

F. Roll flashing into place. Ensure continuous and direct contact with substrate.

G. Lap ends and overlap preformed corners 4 inches minimum. Seal all laps with sealant.
   1. Trim exterior edge of membrane 1-inch and secure metal drip edge per manufacturer's written instructions.

3.08 3.9 THRU-WALL FLASHING / WEATHER BARRIER INTERFACE AT BASE OF WALL

A. Overlap thru-wall flashing with weather barrier by 6-inches.

B. Mechanically fasten bottom of weather barrier through top of thru-wall flashing.

C. Seal vertical and horizontal seams with tape or sealing membrane.

3.09 3.10 THRU-WALL FLASHING / WEATHER BARRIER INTERFACE AT SHELF ANGLE

A. Seal weather barrier to bottom of shelf angle with sealing membrane.

B. B.Apply thru-wall flashing to top of shelf angle. Overlap thru-wall flashing with weather barrier by

C. 6-inches.

D. Seal bottom of weather barrier to thru-wall flashing with tape or sealing membrane.

3.10 3.11 THRU-WALL FLASHING / WEATHER BARRIER INTERFACE AT WINDOW HEAD

A. Cut flap in weather barrier at window head.
B. Prime exposed sheathing.
C. Install lintel as required. Verify end dams extend 4 inches minimum beyond opening.
D. Install end dams bedded in sealant.
E. Adhere 2 inches minimum thru-wall flashing to wall sheathing. Overlap lintel with thru-wall
F. flashing and extend ¼ inch minimum beyond outside edge of lintel to form drip edge.
G. Apply sealant along thru-wall flashing edges.
H. Fold weather barrier flap back into place and tape bottom edge to thru-wall flashing.
I. Tape diagonal cuts of weather barrier.
J. Secure weather barrier flap with fasteners.

3.11 3.6 PROTECTION

A. Protect installed weather barrier from damage.

END OF SECTION

SECTION 07 2726

FLUID-APPLIED MEMBRANE AIR BARRIERS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
   1. Commercial weather barrier assemblies.
   2. Vapor permeable, fluid applied weather barriers.

B. Related Requirements:
   1. Section 06 1000 Rough Carpentry
   2. Section 072100 "Thermal Insulation" for installation of exterior insulation.
   3. Section 074646 "Fiber-Cement Siding" for installation of fiber-cement board siding.

1.03 DEFINITIONS

A. Weather Barrier: A combination of materials and accessories which:
   1. Prevents the accumulation of water as a Water-Resistive Barrier;
   2. Minimizes the air leakage into or out of the building envelope as a Continuous Air Barrier;
   3. Provides sufficient water vapor transmission to enable drying as a Vapor Permeable Membrane.

B. Water-Resistive Barrier: A combination of materials and accessories that prevent the accumulation of water within the wall assembly in accordance with International Building Code section 1403.2.
   1. Primary Layer: Water-Resistive Barrier (Fluid-Applied) installed closest to building interior with all flashings and terminations integrated to this layer.
   2. Secondary Layer: Outermost part of a double-layer system and where drainage is required behind claddings such as stucco, adhered masonry, and installation methods utilizing a lath.

C. Continuous Air Barrier: The combination of interconnected materials, assemblies, and sealed joints and components of the building envelope that minimize air leakage into or out of the building envelope in accordance with ASHRAE 90.1 section 5.4.3.1.

D. Vapor Permeable Membrane: The property of having a water-vapor permeance rating of 10 perms or greater, when tested in accordance with the desiccant method using Procedure A of ASTM E 96 in accordance with definition in International Building Code. A vapor permeable material permits the passage of moisture vapor through Vapor Diffusion.

E. Vapor Diffusion: A slow movement of individual water vapor molecules from regions of higher to lower water vapor concentration (higher to lower vapor pressure).

1.04 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.
   1. Meet with Owner, Project Manager, Manufacturer's Certified Installer, weather barrier manufacturer's designated field representative, and installers of work which interfaces with or affects weather barrier.
   2. Review methods and procedures related to weather barrier installation, including manufacturer's written instructions.
   3. Review and finalize construction, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   4. Examine substrate conditions and finishes for compliance with requirements.
   5. Review flashings, special weather barrier details, weather barrier penetrations, and condition of other construction that affects weather barrier.
   6. Review weather barrier manufacturer's Project Registration and Observation process.

1.05 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. For weather barrier, include data on air and water-vapor permeance based on testing according to referenced standards.

B. Shop Drawings: Show details of weather barrier at terminations, openings, and penetrations. Show details of weather barrier applications.

1.06 INFORMATIONAL SUBMITTALS.

A. Manufacturer's Instructions: For installation of each product specified.

B. Qualification Data: For Installer

C. Sample Warranty: For manufacturer's warranty.

1.07 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is certified by weather barrier system manufacturer to install manufacturer's product.

B. Mockups: Build mockups to set quality standards for materials and execution.
   1. Build integrated mockups of exterior wall assembly, 150 sq. ft. (14 sq. m)], incorporating backup wall construction, external cladding, window, door frame and sill, insulation, ties and other penetrations, and flashing to demonstrate surface preparation, crack and joint treatment, application of air barriers, and sealing of gaps, terminations, and penetrations of air-barrier assembly.
      a. Include junction with building corner condition, and foundation wall intersection [fenestration and wall interface.
      b. If Architect determines mockups do not comply with requirements, reconstruct mockups and apply weather barrier until mockups are approved.
         1) Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
         2) Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
         3) Manufacturer's Field Service: Register project with weather barrier manufacturer prior to installation of weather barrier and comply with weather barrier manufacturer's Project Registration and Observation process.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Remove and replace liquid materials that cannot be applied within their stated shelf life.

B. Protect stored materials from direct sunlight.

C. Store in a dry environment between 50 to 80 degrees Fahrenheit (10 to 27 degrees Celsius).

1.09 WARRANTY

A. Product Warranty: To repair or replace weather barrier product that fails in materials within specified warranty period.
   1. Warranty Period: 10 years.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain weather barrier assembly components, including weather barrier weather barrier flashing from the same manufacturer as weather barrier or manufacturer approved by weather barrier manufacturer.

B. Basis-of-Design Product: DuPont Protection Solutions: (E. I. du Pont de Nemours and Company); Tyvek® Fluid Applied WB+TM or comparable product by one of the following:
   1. Sto Corporation: Sto Gold Coat TA; StoGuard Air and Moisture Barrier System: www.stocorp.com
   2. W. Meadows: The Air-Shield: www.wrmeadows.com

2.02 PERFORMANCE REQUIREMENTS

A. General Performance: Installed weather barrier and accessories shall withstand specified wind pressures, liquid water penetration, and water vapor pressures, without failure due to defective manufacture of products.

B. High Performance Installations:

C. For installation with one of the following building envelope performance or structural characteristics:
   1. Exceeding 65 mph (104.6 km/h) equivalent structural load.
   2. Exceeding 15 mph (24.14 km/h) equivalent wind-driven rain water infiltration.
   3. Buildings with a total height more than 60 ft (18.3 m) above grade plane, as defined in the International Building Code.
   4. Construction with gypsum or cement-based exterior sheathing.
   5. Non-Wood based primary structure such as: steel, light gauge steel, masonry or concrete.

2.03 WEATHER BARRIER

A. Fluid-Applied Membrane: ASTM E 2357 passed, ABAA evaluated air barrier assembly, and assembly water resistance in accordance with ASTM E 331; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized for 9-month exposure; and acceptable to authorities having jurisdiction.
   1. Air Permeance, Product: Not more than 0.001 cfm/sq. ft. at 1.57 lbf/sq. ft. (0.005 L/s x sq. M at 75 Pa) when tested according to ASTM E 2178.
   2. Air Permeance, Assembly: Not more than 0.04 cfm/sq. ft. at 1.57 lbf/sq. ft. (0.2 L/s x sq. M at 75 PA) when tested in accordance with ASTM E 2357 and evaluated by Air Barrier Association of America (ABAA).
   3. Water Penetration Resistance, Product: Hydrostatic head resistance greater than 235 cm according to AATTC127.
   4. Water Penetration Resistance, Assembly: Assembly wall specimen described in ASTM E 2357 to water resistance in accordance with ASTM E 331 to [2.86 lbf/sq. ft. (137 Pa)][6.24 lbf/sq. ft. (300 Pa)][10.0 lbf/sq. ft. (479 Pa)][12.5 lbf/sq. ft. (575 Pa)].
   5. Water-Vapor Permeance: Not less than 10 perms (1300 ng/Pa x s x sq. m) in accordance with ASTM E 96/E 96M, Desiccant Method (Procedure A) or not less than 20 perms (1600 ng/Pa x s x sq. m) in accordance with ASTM E 96/E 96M, Water Method (Procedure B).
   6. Allowable UV Exposure Time: Not less than nine months when tested according to ASTM G 155 (Accelerated Weathering).
   7. Flame Propagation Test: Materials and construction shall be as tested according to NFPA 285.

2.04 WEATHER BARRIER FLASHING

A. Conformable Weather Barrier Flashing: Composite flashing material composed of micro-creped, polyethylene laminate with a 100 percent butyl-based adhesive layer; AAMA 711 Class A (no primer), Level 3 Thermal Exposure (176 degrees F/80 degrees C for 7 days).
   1. Basis-of-Design Product: DuPont Protection Solutions: E. I. du Pont de Nemours and Company; FlexWrap™ NF or comparable product by one of the following:
      a. W.R. Meadows: www.wrmeadows.com
      b. W.R. Grace: www.grace.com
         1) Conformability: Able to create a seamless sill pan extending up the jambs without cuts, patches, or fasteners.
         2) Water Penetration: No leakage at 15 psf (720 Pa) in accordance with ASTM E 331.
         3) Low Temperature Adhesion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm) at 25 degrees F (-4 degrees C) as Class A (without primer use).
         4) Adhesion After Water Immersion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm), after AAMA 800, Sections 2.4.1.3.1/2.4.1.4.3 Test B.

B. Strip Flashing: Composite flashing material composed of spunbonded polyethylene laminate with a 100 percent butyl-based adhesive layer; AAMA 711 Class A (no primer), Level 3 Thermal Exposure (80 degrees C/176 degrees F for 7 days).
   1. Basis-of-Design Product: DuPont Protection Solutions: E. I. du Pont de Nemours and Company; StraightFlash™or comparable product by one of the following:
      a. WR Meadows: www.wrmeadows.com
      b. W.R. Grace: www.grace.com
   2. Water Penetration: No leakage at 15 psf (720 Pa) in accordance with ASTM E 331.
   3. Low Temperature Adhesion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm) at 25 degrees F (-4 degrees C) as Class A without primer use.
   4. Adhesion After Water Immersion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm), after AAMA 800, Sections 2.4.1.3.1/2.4.1.4.3 Test B.
   5. Primer for Flashings: Synthetic Rubber Based product. Spray applied. Strengthen the adhesive bond at low temperature applications between weather products, such as self-adhered Flashing Products, Commercial Building Wraps, and common building sheathing materials.
      a. Basis-of-Design Product:
      b. DuPont Protection Solutions: E. I. du Pont de Nemours and Company, DuPont™ Adhesive Primer or comparable product by one of the following:
         1) W.R. Meadows: www.wrmeadows.cm
         2) W.R. Grace: www.grace.com
         3) Peel Adhesion Test: Passes according ASTM D 3330 "Standard Test Method for Peel Adhesion of Pressure-Sensitive Tape," Test Method F for the following.
            (a) Peel Angles: 0, 25, 72, and 180 degrees.
            (b) Substrates: Concrete masonry units (CMU), exterior gypsum sheathing, oriented strand board (OSB), aluminum, and vinyl.
         4) Chemical Compatibility: Pass, AAMA 713
         5) Flame Spread Index: 5, ASTM E 84
         6) Smoke Development Index: 0, ASTM E 84

2.05 FLUID APPLIED FLASHING AND SEALANT

A. Fluid Applied Flashing: Trowel or brush applied, non-water soluble, single component, silyl terminated polyether technology (STPE), vapor permeable, flashing material.
   1. Basis-of-Design Product: DuPont Protection Solutions: E. I. du Pont de Nemours and Company; Tyvek® Fluid Applied Flashing and Joint Compound+ or comparable product recommended by manufacturer.

B. Fluid Applied Sealant: ASTM C920
   1. Extension-Recovery/Adhesion: ASTM C736, 100 percent recovery
   2. Accelerated Weathering / Low Temperature Flexibility: ASTM C793, Pass/Fail: Pass
   3. VOC Percentage by Weight: ASTM C1250, less than 2 percent
   4. VOC (g/L): ASTM C1250, less than 30 g/L

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
   1. Verify substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.
   2. Verify substrates have cured and aged for minimum time recommended in writing by weather barrier manufacturer.
   3. Verify that substrates are visibly dry and frost-free.
      a. Fluid applied weather barrier may be applied to damp surfaces.
      b. A surface is considered damp if there is no visible water on the surface and no transfer of water to the skin when touched.
      c. All other accessory products must be applied to clean dry surface.

d. Verify substrates are free of efflorescence and mold.
e. Verify masonry joints are flush and filled with mortar.
f. Verify top of wall system has been capped or covered to prevent water getting behind the façade and into the wall cavity.
g. Verify continuous path for moisture drainage.
1) A continuous path for drainage is not blocked or disrupted, which can result in excess moisture buildup in the wall cavity.
h. Verify surfaces to receive weather barrier are above grade.

B. Verify substrate and surface conditions are in accordance with commercial weather barrier manufacturer recommendations prior to installation.
1. Verify rough sill framing for doors and windows is sloped downwards towards the exterior and is level across width of the opening.

C. Verify air and surface temperatures are above 25 degrees F and a maximum surface temperature of 140 degrees F. Do not install once ambient temperature exceeds 95 degrees F, unless surface is shaded.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 SURFACE PREPARATION

A. Clean, prepare, treat, fill, and seal substrate and joints and cracks in substrate according to manufacturer's written instructions and details. Provide clean, dust-free, and dry substrate for air-barrier application.

B. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

C. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate-patching material.

D. Remove excess mortar from masonry ties, shelf angles, and other obstructions.

E. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.

F. 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.

G. When spraying is method of application, taper ends of the joint treatment to assist maintaining a wall system free of pinholes and voids.

H. Treat all non-moving transition joints to beams, columns, and dissimilar materials by applying a 2-inch wide, 60 mil thick coat of fluid applied flashing across the joint.

I. Apply 25 mil thick coat of fluid applied flashing, extending a minimum of 2 inches onto each surface, to treat following conditions:
1. Joints up to 1/4-inch.
2. Joints 1/4-inch to 1/2-inch joints; reinforce with fiberglass mesh tape.
3. Joints and transitions up to 1-inch; treat using strip flashing.

J. Bridge expansion joints and discontinuous wall-to-wall, deck-to-wall, and deck-to-deck joints with air-barrier accessory material that accommodates joint movement according to manufacturer's written instructions and details.

K. When spraying is method of application, taper ends of the fluid applied corner treatment to the wall substrate.

L. Treat all inside and outside corners by applying a 25 mil thick coat of fluid applied weather barrier a minimum of 2 inches onto each adjoining surface. Apply fillet bead of fluid applied sealant to inside corners to ensure continuity. Alternatively, treat corners using strip flashing. Press strip flashing into inside corners; ensure fully adhered to substrate.

M. Seal penetrations using fluid applied flashing or sealant. Extend fillet bead 1/2-inch onto both surfaces.

N. Treat embedded masonry anchors by applying a coat of fluid applied weather barrier or fluid applied flashing around base of the anchor.

3.03 ACCESSORIES INSTALLATION

A. Install accessory materials according to air-barrier manufacturer's written instructions and details to form a seal with adjacent construction and ensure continuity of air and water barrier.
   1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
   2. Install transition strip on roofing membrane or base flashing so that a minimum of 3 inches (75 mm) of coverage is achieved over each substrate.
   3. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
   4. Use recommended primer when applying DuPontTM Self-Adhered Flashing products on concrete, masonry, and fiber faced exterior gypsum board substrates. Priming is generally not required for adhering DuPontTM Self-Adhered Flashing products to wood. However, adverse weather conditions or colder temperatures may require a primer to promote adhesion. Priming is not required when applying Tyvek® Fluid Applied products, except on cut edges of exterior gypsum sheathing.
   5. Apply pressure along entire surface of strip flashing for good bond using a J-roller or firm hand pressure. Remove all wrinkles and bubbles by smoothing surface and repositioning as necessary.

B. Connect and seal exterior wall air-barrier material 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.

C. When applying DuPontTM Self-Adhered Flashing products over a cured fluid applied membrane, first apply a wet bed of DuPontTM Tyvek® Fluid Applied product.

D. Seal fasteners of mechanically attached supports or furring strips in high performance building envelope designs.
   1. Apply double-sided butyl tape to back of support bracket at fastener location; or
   2. Embed support bracket into an additional wet bed of fluid applied product; or
   3. Adhere DuPont™ Tyvek® StraightFlash™ patch to wall at fastener location; or
   4. Use alternate method as approved by the manufacturer.

E. At end of each working day, seal top edge of strips and transition strips to substrate with manufacturer approved product.

F. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

G. Flashing sill area for windows and doors.
   1. Use 6-inch wide conformable flashing for 2 x 4-inch framing and 9-inch wide conformable flashing for 2 x 6-inch framing. When rigid back dams are required or desired, an option would be to use a 3/4-inch corner guard (back dam) cut to the length of the sill and nail into place on the interior edge of the sill prior to installation of 9-inch wide conformable flashing. Then install 9-inch wide conformable flashing over sill and corner guard back dam.
   2. Install without stretching conformable flashing when installing along sills or jambs. Conformable flashing is intended to be stretched when covering corners or curved sections.

H. Apply fluid applied flashing products from the head of the opening down. A corner trowel may be used to smooth corners.

I. Repairs.
   1. Coat small damaged areas with layer of fluid applied product.
   2. Reinforce large damaged areas with fiberglass mesh or replace damaged substrate before reapplying fluid applied product.

3.04 PRIMARY AIR-BARRIER MATERIAL INSTALLATION

A. Apply air-barrier material to form a seal with strips and transition strips and to achieve a continuous air barrier according to air-barrier manufacturer's written instructions and details. Apply air-barrier material within manufacturer's recommended application temperature ranges.
   1. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
   2. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.
   3. Where multiple prime coats are needed to achieve required bond, allow adequate drying time between coats.
   4. Fluid applied products may be overcoated once a touch-free skin has formed. Exterior insulation and cladding may be installed once the membrane has cured sufficiently to resist damage during installation.

B. Apply air barrier material in accordance with air barrier manufacturer's written instructions and recommendations.
   1. When applying by roller:
      a. Nap rolling: Use a roller cover with a 1/2-inch to 3/4-inch nap.
      b. When applying by spray:
         1) Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.
         2) Use spray guard.
         3) Back rolling. Use a roller cover with a 1/2-inch to 3/4-inch nap. Apply DuPontTM Tyvek® Fluid Applied WB+TM in a single coat at 25 mils thick. Control thickness by applying appropriate volume over a marked area and spot checking with a wet mil gauge.

C. Integrate DuPontTM Tyvek® Fluid Applied WB+TM with through wall flashing and window and door flashing by overlapping the flashing with DuPontTM Tyvek® Fluid Applied WB+TM by a minimum of 2 inches. Upon completion, inspect the membrane to ensure that it is continuous and free of any void or pinholes.

D. Inspect surfaces to ensure fluid applied products are continuous and free of any voids or pinholes.

E. Do not cover air barrier until it has been tested and inspected by testing agency.

F. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air-barrier components.

3.05 FIELD QUALITY CONTROL

A. ABAA Quality Assurance Program: Perform examinations, preparation, installation, testing, and inspections under ABAA's Quality Assurance Program.

B. Testing Agency: [Owner will engage] [Engage] a qualified testing agency to perform tests and inspections.

C. Inspections: Air-barrier materials, accessories, 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, holes, or pinholes.
   2. Air-barrier dry film thickness.
   3. Continuous structural support of air-barrier system has been provided.
   4. Masonry and concrete surfaces are smooth, clean, and free of cavities, protrusions, and mortar droppings.
   5. Site conditions for application temperature and dryness of substrates have been maintained.
   6. Maximum exposure time of materials to UV deterioration has not been exceeded.
   7. Surfaces have been primed, if applicable.

8. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.
9. Termination mastic has been applied on cut edges.
10. Strips and transition strips have been firmly adhered to substrate.
11. Compatible materials have been used.
12. Transitions at changes in direction and structural support at gaps have been provided.
13. Connections between assemblies (air-barrier and sealants) have complied with requirements for cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
14. All penetrations have been sealed.

D. Field Quality Control Testing: Perform the following test on [representative areas of structural-sealant-glazed curtain walls] [mockups] <Insert requirements>.
1. Air Infiltration Whole Building: ASTM E 779 at not more than [0.40 cfm/sf (2.00 L/s per sq. m)] [0.25 cfm/sf (1.25 L/s per sq. m)] [0.15 cfm/sf (0.75 L/s per sq. m)] at 1.57 lb/sq. ft. (75 Pa).
2. Water Penetration: ASTM E 1105 at a minimum [uniform] [and] [cyclic] static-air-pressure differential of 0.67 times the static-air-pressure differential specified for laboratory testing in "Performance Requirements" article, but not less than [2.86 lbf/sq. ft. (137 Pa)] [6.24 lbf/sq. ft. (300 Pa)] [10.0 lbf/sq. ft. (479 Pa)] [12.5 lbf/sq. ft. (600 Pa)]. No water penetration shall occur as defined in ASTM E 1105.
    a. Perform tests in each test area as directed by Architect. Perform at least three tests, prior to [10, 30, and 70 percent completion] <Insert requirements>.
    b. Adhesion Testing: Air-barrier assemblies will be tested for required adhesion to substrate according to ASTM D 4541 for each [600 sq. ft. (56 sq. m)] <Insert value> of installed air barrier or part thereof.

E. Air barriers will be considered defective if they do not pass tests and inspections.
1. Apply additional air-barrier material, according to manufacturer's written instructions, where inspection results indicate insufficient thickness.
2. Remove and replace deficient air-barrier components for retesting as specified above.

F. Repair damage to air barriers caused by testing; follow manufacturer's written instructions.
1. Prepare test and inspection reports.

3.06 CLEANING AND PROTECTION

A. Protect air-barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.
1. Protect air barrier from exposure to UV light and harmful weather exposure as recommended in writing by manufacturer. If exposed to these conditions for longer than recommended, remove and replace air barrier or install additional, full-thickness, air-barrier application after repairing and preparing the overexposed materials according to air-barrier manufacturer's written instructions.
2. Protect air barrier from contact with incompatible materials and sealants not approved by air-barrier manufacturer.

B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

C. Remove masking materials after installation.

END OF SECTION

SECTION 07 3113
ASPHALT SHINGLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Asphalt shingle roofing.

B. Flexible sheet membranes for eave protection, underlayment, and valley protection.

C. Associated metal flashings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Roof sheathing.

B. Section 07 2100 - Thermal Insulation: Nailable rigid insulation.

C. Section 07 6200 - Sheet Metal Flashing and Trim: Edge and cap flashings.

D. Section 07 7123 - Manufactured Gutters and Downspouts.

1.03 REFERENCE STANDARDS

A. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2013.

B. ASTM D3161/D3161M - Standard Test Method for Wind-Resistance of Steep Slope Roofing Products (Fan-Induced Method); 2016.

C. ASTM D3462/D3462M - Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules; 2010a.

D. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012).

E. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.

F. ICC-ES AC188 - Acceptance Criteria for Roof Underlayments; 2012.

G. Miami (APD) - Approved Products Directory; Miami-Dade County; database at www.miamidade.gov/development/product-control.asp.

H. NRCA (RM) - The NRCA Roofing Manual; 2017.

I. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

J. UL 2390 - Shingle Uplift Load Calculation Method with minimum safety factor of 2.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating material characteristics.

C. Shop Drawings: For metal flashings, indicate specially configured metal flashings.

D. Manufacturer's Installation Instructions: Indicate installation criteria and procedures.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.05 FIELD CONDITIONS

A. Do not install shingles or eave protection membrane when surface temperatures are below 45 degrees F.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Asphalt Shingles:
   1. GAF; Timberline HD Reflector Series: www.gaf.com/sle.
   2. Owens Corning Corp; TrueDefinition, SureNail Technology: www.owenscorning.com.
   3. Atlas HP42 Series: www.atlasroofing.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 ASPHALT SHINGLES

A. Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462.
   1. Wind Resistance: Class H, when tested in accordance with ASTM D3161.
   2. Calculated Wind Resistance: Based on UL 2390 uning a Factor of Safety of 2.
   3. Warranted Wind Speed: 140 mph.
   4. Miami-Dade County approved.
   5. Algae Resistant.
   6. Self-sealing type.
   7. Style: Square.
   8. Basis of Design: GAF Advanced Protection Shingle.
   9. Color: As selected.

2.03 SHEET MATERIALS

A. Underlayment: Self-adhering rubber-modified asphalt sheet complying with ASTM D1970/D1970M; 22 mil total thickness; with strippable release film and woven polypropylene sheet top surface.
   1. Minimum Requirements: Comply with requirements of ICC-ES AC188 for non-self-adhesive sheet.
   2. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.
   3. Low Temperature Flexibility: Passing test specified in ASTM D1970/D1970M.
   4. Water Vapor Permeance: 0.067 perm, when tested in accordance with ASTM E96/E96M Procedure A (desiccant method).
   5. Performance: Meet or exceed requirements for ASTM D226/D226M, Type II asphalt-saturated organic felt.
   6. Liquid Water Transmission: Passes ASTM D4869/D4869M.
   7. Functional Temperature Range: Minus 70 degrees F to 212 degrees F.
   8. Manufacturers:
      a. System Components Corporation, Inc; FelTex SA300: www.systemcomponents.net.
      b. Substitutions: See Section 01 6000 - Product Requirements.

B. Flexible Flashing: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970/D1970M; 40 mil total thickness; with strippable treated release paper and polyethylene sheet top surface.
   1. Manufacturers:
      a. W. R. Meadows: Air-Shield : www.wrmeadows.com.
      b. W. R. Grace: Vycor Plus: www.wrgrace.com.
      c. Substitutions: See Section 01 6000 - Product Requirements.

2.04 ACCESSORIES

A. Nails: Standard round wire shingle type, of hot-dipped zinc coated steel, 10 wire gage, 0.1019 inch shank diameter, 3/8 inch head diameter, of sufficient length to penetrate through roof sheathing or 3/4 inch into roof sheathing or decking.

B. Plastic Cement: ASTM D4586/D4586M, asphalt roof cement.

2.05 METAL FLASHINGS

A. Metal Flashings: Provide sheet metal eave edge, gable edge, ridge, open valley flashing, and other flashing indicated.
   1. Form flashings to profiles indicated on Drawings.
   2. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.
   3. Hem exposed edges of flashings minimum 1/4 inch on underside.
   4. Coat concealed surfaces of flashings with bituminous paint.

B. Bituminous Paint: Acid and alkali resistant type; black color.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions prior to beginning work.

B. Verify that deck is of sufficient thickness to accept fasteners.

C. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surface.

D. Verify roof openings are correctly framed.

E. Verify deck surfaces are dry, free of ridges, warps, or voids.

3.02 PREPARATION

A. Seal roof deck joints wider than 1/16 inch as recommended by shingle manufacturer.

B. At areas where eave protection membrane is to be adhered to substrate, fill knot holes and surface cracks with latex filler.

C. Broom clean deck surfaces before installing underlayment or eave protection.

D. Install eave edge flashings tight with fascia boards. Weather lap joints 2 inches and seal with plastic cement. Secure flange with nails spaced 4" inches on center.

3.03 INSTALLATION - EAVE PROTECTION MEMBRANE

A. Install eave protection membrane from eave edge to minimum 4 ft up-slope beyond interior face of exterior wall.

B. Install eave protection membrane in accordance with manufacturer's instructions and in accordance with Class H High Wind requirements..

3.04 INSTALLATION - UNDERLAYMENT

A. Items projecting through or mounted on roof: Weather lap and seal watertight with plastic cement.

3.05 INSTALLATION - SHINGLES

A. Install shingles in accordance with manufacturer's instructions manufacturer's instructions and NRCA (RM) applicable requirements.
   1. Fasten individual shingles using 2 nails per shingle, or as required by code, whichever is greater.
   2. Fasten strip shingles using 4 nails per strip, or as required by code, whichever is greater.

B. Place shingles in straight coursing pattern with 5 inch weather exposure to produce double thickness over full roof area. Provide double course of shingles at eaves.

C. Project first course of shingles 3/4 inch beyond fascia boards.

D. Extend shingles 1/2 inch beyond face of gable edge fascia boards.

E. Complete installation to provide weather tight service.

END OF SECTION

SECTION 07 4646

FIBER CEMENT SIDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wood-fiber cement siding.

B. Individual Shingles - Simulated Cedar

C. Trims and Corner Boards

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Siding substrate.

B. Section 07 2500 - Weather Barriers: Weather barrier under siding.

C. Section 07 2726 - Fluid Applied Membrane Air Barrier

D. Section 07 9200 - Joint Sealants: Sealing joints between siding and adjacent construction and fixtures.

E. Section 09 9113 - Exterior Painting: Field painting.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

B. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.

C. ASTM C1186 - Standard Specification for Flat Fiber Cement Sheets; 2008 (Reapproved 2012).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Manufacturer's requirements for related materials to be installed by others.
   2. Preparation instructions and recommendations.
   3. Storage and handling requirements and recommendations.
   4. Installation methods, including nail patterns.

C. Test Report: Applicable model code authority evaluation report (e.g. ICC-ES).

D. Maintenance Instructions: Periodic inspection recommendations and maintenance procedures.

E. Warranty: Submit copy of manufacturer’s warranty, made out in Owner’s name, showing that it has been registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified in this section with minimum 3 years of experience.

B. Mock-up - Field construct one section of approved product that contains full range of anticipated conditions such as corner turns, window trim, flashing and calking to be used as quality control reference if approved by Architect.

C. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.

D. Refinish mock-up area as required to produce acceptable work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store products under waterproof cover and elevated above grade, on a flat surface.

B. Protect edges and corners from all damages.

C. Store in unopened containers

1.07 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.

1.08 WARRANTY

A. Product Warranty: Basis of Design: Provide manufacturer's Limited, non-pro-rated product warranty.
   1. Coastal Zone application standards for lap siding for 30 years.
   2. Coastal Zone application standards for siding for 30 years.
   3. Coastal Zone application standards for boards for 15 years.

B. Finish Warranty: Limited product warranty against manufacturing finish defects.
   1. When used for its intended purpose, properly installed and maintained according to Manufacturer's published installation instructions, Manufacturer's approved finish for a period of 15 years from the date of purchase: 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

2.01 SIDING

A. Lap Siding: Individual horizontal boards made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186 Type A Grade II; with machined edges, for nail attachment.
   1. Style: Standard lap style.
   2. Texture: Simulated rough sawn grain.
   3. Length: 12 ft, nominal.
   4. Width (Height): 6 inches.
   5. Thickness: 7/16 inch, nominal or as would be appropriate or otherwise recommended by manufacturer for local wind load requirements.
   6. Finish: Factory applied topcoat.
   7. Color: As selected by Architect from manufacturers full range of available colors.
   8. Warranty: 50 year limited; transferable.
   9. Lap Siding Manufacturers:
      a. Allura, a division of Plycem USA, Inc: www.allurausa.com.
      b. James Hardie Building Products, Inc: www.jameshardie.com.
      c. Nichiha USA, Inc: www.nichiha.com.
      d. Substitutions: See Section 01 6000 - Product Requirements.

B. Trim Boards - Provide manufacturer's recommended trim accessories at all building corners, windows and doors.

C. Shingles: Individual simulated wood shingles made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186 Type A Grade II; with machined edges, for nail attachment.
   1. Style: Stagger cut edge.
   2. Texture: Simulated cedar grain.
   3. Length (Height): 18 inches, nominal.
   4. Width: 6 inches, nominal.
   5. Width: Randomized widths of 6, 8, and 12 inches, nominal.
   6. Thickness: 1/4 inch, nominalor as would be appropriate or otherwise recommended by manufacturer for local wind load requirements.
   7. Finish: Factory applied topcoat.
   8. Color: As selected by Architect from manufacturers full range of available colors.
   9. Warranty: 30 year limited; transferable.
   10. Shingle Manufacturers:

a. James Hardie Building Products, Inc: www.jameshardie.com .

2.02 ACCESSORIES

A. Trim: At corner turns, doors frames and windows.Provide manufacturer's recommended trim accessories at all building corners, windows and doors.
   1. Style: To match existing.
   2. Texture: Smooth.
   3. Length: 12 ft, nominal.
   4. Width (Height): 3 1/2" inches Or as otherwise noted on drawings.
   5. Thickness: 7/16 inch, nominal.
   6. Finish: Factory applied topcoat.
   7. Color: As selected by Architect from manufacturers full range of available colors.
   8. Warranty: 50 year limited; transferable.

B. Fasteners: Galvanized or corrosion resistant; length as required to penetrate minimum 1-1/4 inch.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrate and clean and repair as required to eliminate conditions that would be detrimental to proper installation.

B. Verify that weather barrier has been installed over substrate completely and correctly.

C. Do not begin until unacceptable conditions have been corrected.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Install sheet metal flashing:
   1. Above door and window trim and casings.
   2. Above horizontal trim in field of existing base siding.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions and recommendations.
   1. Read warranty and comply with all terms necessary to maintain warranty coverage.
   2. Install in accordance with conditions stated in model code evaluation report applicable to location of project.
   3. Align vertical joints of the planks over framing members.
   4. Maintain recommended clearance between siding and adjacent finished grade.
   5. Locate splices at least one stud cavity away from window and door openings.
   6. Use trim details indicated on drawings.
   7. Wind Resistance: Install to framing members and secure with fasteners as recommended by Manufacturer.
   8. Touch up all field cut edges before installing.
   9. Pre-drill nail holes if necessary to prevent breakage.

B. Trim Installation
   1. Trim inside corner with a single board trim both side of corner.
   2. Outside Corner Board Attach Trim on both sides of corner with 16 gage 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.
   3. Overlay siding with single board of outside corner board then align second corner board to outside edge of first corner board.
   4. Allow 1/8 inch gap between trim and siding.
   5. Seal gap with high quality, paint-able caulk.
   6. Shim frieze board as required to align with corner trim.
   7. Fasten through overlapping boards. Do not nail between lap joints.

C. Over Wood and Wood-Composite Sheathing: Fasten siding through sheathing into studs.
   1. Face nail to vertical furring field applied over weather barrier.
   2. Allow space for thermal movement between both ends of siding panels that butt against trim; seal joint between panel and trim with specified sealant.
   3. Joints in Horizontal Siding: Avoid joints in lap siding except at corners; where joints are inevitable stagger joints between successive courses.
   4. Do not install siding less than 6 inches from surface of ground nor closer than 1 inch to roofs, patios, porches, and other surfaces where water may collect.
   5. After installation, seal all joints except lap joints of lap siding. Seal around all penetrations. Paint all exposed cut edges.
   6. Finish Painting of existing siding to remain: Specified in Section 09 9113.

3.04 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 07 6200

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts, and other items indicated in Schedule.

B. Sealants for joints within sheet metal fabrications.

C. Precast concrete splash pads.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wood nailers for sheet metal work.

B. Section 07 9200 - Joint Sealants: Sealing non-lap joints between sheet metal fabrications and adjacent construction.

1.03 REFERENCE STANDARDS

A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2012.

B. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2015.

C. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2013.

D. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2013.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

F. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.

G. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).

H. ASTM B101 - Standard Specification for Lead-Coated Copper Sheet and Strip for Building Construction; 2012.

I. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.

J. ASTM D2178/D2178M - Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing; 2013a.

K. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012).

L. CDA A4050 - Copper in Architecture - Handbook; current edition.

M. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

C. Samples: Submit two samples, 6 x 6 inch in size illustrating material of typical standing seam.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

B. Maintain one copy of each document on site.

C. Fabricator and Installer Qualifications: Company specializing in sheet metal work with ____ years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239 inch) thick base metal.

B. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239) inch thick base metal, shop pre-coated with PVDF coating.
   1. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
   2. Color: As selected by Architect from manufacturer's standard colors.

C. Pre-Finished Aluminum: ASTM B209 (ASTM B209M); 20 gage, (0.032 inch) thick; plain finish shop pre-coated with modified silicone coating.
   1. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.
   2. Color: As selected by Architect from manufacturer's standard colors.

D. Lead Coated Copper: ASTM B101, 24 oz/sq ft weight of bare copper sheet, HOO (cold-rolled) temper.

2.02 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside 1/2 inch; miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

2.03 GUTTER AND DOWNSPOUT FABRICATION

A. Gutters: Profile as indicated to match existing.

B. Downspouts: Profile as indicated to match existing.

C. Gutters and Downspouts: Size indicated or to match existing.

D. Accessories: Profiled to suit gutters and downspouts.
   1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.
   2. Gutter Supports: Straps.
   3. Downspout Supports: Straps.

E. Splash Pads: Precast concrete type, of size and profiles indicated; minimum 3000 psi at 28 days, with minimum 5 percent air entrainment.

F. Seal metal joints.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..

B. Apply plastic cement compound between metal flashings and underlayment.

C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

D. Seal metal joints watertight.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for field inspection requirements.

B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

3.05 SCHEDULE

A. Fascia and Cornices at edges of roof.:

B. Gutters and Downspouts:

C. Flashings Associated with Shingle Roofing, including Valley, Hip, Ridge, Eave, Gutter Edge, Gable Edge, Chimney:

D. Counterflashings at Roofing Terminations (over roofing base flashings):

E. Roofing Penetration Flashings, for Pipes, Structural Steel, and Equipment Supports:

F. Termite Shields:

G. Column Covers:

END OF SECTION

SECTION 07 9005
JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sealants and joint backing.

B. Precompressed foam sealers.

C. Hollow gaskets.

1.02 RELATED REQUIREMENTS

A. Section 07 2500 - Weather Barriers: Sealants required in conjunction with air barriers and vapor retarders:

B. Section 08 8000 - Glazing: Glazing sealants and accessories.

C. Section 09 2116 - Gypsum Board Assemblies: Acoustic sealant.

1.03 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants; 2014.

B. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2012.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.

D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.

E. ASTM C1311 - Standard Specification for Solvent Release Sealants; 2014.

F. ASTM D1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber; 2014.

G. ASTM D1667 - Standard Specification for Flexible Cellular Materials--Poly(Vinyl Chloride) Foam (Closed-Cell); 2005 (Reapproved 2011).

H. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2005 (Reapproved 2010).

I. ASTM D2628 - Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements; 1991 (Reapproved 2011).

J. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating sealant chemical characteristics.

C. Manufacturer's Installation Instructions: Indicate special procedures.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

B. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.

1.06 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Gunnable and Pourable Sealants:
   1. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
   2. Bostik Inc: www.bostik-us.com.
   3. Dow Corning Corporation: www.dowcorning.com.
   4. Pecora Corporation: www.pecora.com.
   5. Tremco Global Sealants: www.tremcosealants.com.
   6. Sika Corporation: www.usa-sika.com.
   7. W.R. Meadows, Inc: www.wrmeadows.com.
   8. Substitutions: See Section 01 6000 - Product Requirements.

B. Polyurethane Sealants:
   1. Tremco; Dymeric 511
   2. Tremco; Vulkem 922

C. Preformed Compressible Foam Sealers:
   1. EMSEAL Joint Systems, Ltd: www.emseal.com.
   2. Tremco Global Sealants: www.tremcosealants.com.
   3. Substitutions: See Section 01 6000 - Product Requirements.
   4. Multi-component Pourable Polysulfide Sealant

2.02 SEALANTS

A. Type 1 - General Purpose Exterior Sealant: Polyurethane; ASTM C 920, Grade NS, Class 50, Uses NT, T, M, G, and A; multi- component.
   1. Color: To be selected by Architect from manufacturer's standard range.
   2. Product: Dymeric 511 manufactured by Tremco.
   3. Product: Vulkem 922 manufactured by Tremco.

      Applications: Use for:
      a. Control, expansion, and soft joints in masonry.
      b. Joints between concrete and other materials.
      c. Joints between metal frames and other materials.
      d. Other exterior joints for which no other sealant is indicated.
   4. Polyurethane Products:
      a. Pecora Corporation; DynaTrol I-XL General Purpose One Part Polyurethane Sealant: www.pecora.com.
      b. Pecora Corporation; DynaTrol II General Purpose Two Part Polyurethane Sealant: www.pecora.com.
      c. Sika Corporation; Sikaflex-1a: www.usa-sika.com.
      d. Sika Corporation; Sikaflex-15 LM: www.usa-sika.com.
      e. Sika Corporation; Sikaflex-2c NS EZ Mix: www.usa-sika.com.
      f. Substitutions: See Section 01 6000 - Product Requirements.

B. Type 4 - Interior Floor Joint Sealant: Pourable multi-componentPolyurethane, self-leveling; ASTM C 920, Grade P, Class 25, Uses T, NT, M and A; multi- component.
   Approved by manufacturer for wide joints up to 1-1/2 inches.
   1. Color: Match adjacent finished surfaces.
      Color: Standard colors matching finished surfaces.
   2. Product: Elastoseal 227 Type I (pourable): manufactured by Pacific Polymers, Inc.;
      Applications: Use for:
      a. Expansion joints in floors.
      b. Joint between concrete block and floor slab.
   3. Products:
      a. Bostik Inc: www.bostik-us.com.

b. Pecora Corporation; NR-201 Self-Leveling Traffic and Loop Sealant: www.pecora.com.
c. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
d. Sherwin-Williams Company; Stampede 1SL Polyurethane Sealant: www.sherwin-williams.com.

2.03 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant; ASTM D1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Perform acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

E. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
1. Width/depth ratio of 2:1.
2. Neck dimension no greater than 1/3 of the joint width.
3. Surface bond area on each side not less than 75 percent of joint width.

F. Install bond breaker where joint backing is not used.

G. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

H. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

I. Tool joints concave.

J. Precompressed Foam Sealant: Do not stretch; avoid joints except at corners, ends, and intersections; install with face 1/8 to 1/4 inch below adjoining surface.

K. Compression Gaskets: Avoid joints except at ends, corners, and intersections; seal all joints with adhesive; install with face 1/8 to 1/4 inch below adjoining surface.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

3.05 PROTECTION

A. Protect sealants until cured.

3.06 SCHEDULE

A. Exterior Joints for Which No Other Sealant Type is Indicated: Type 1; colors as selected.

B. Control and Expansion Joints in Paving: Type 4.

C. Exterior Wall Expansion Joints: Type 1.

D. Vertical Control, Expansion, and Soft Joints in Masonry, and Between Masonry and Adjacent Work: Type 5.

E. Lap Joints in Exterior Sheet Metal Work: Type 1.

F. Under Exterior Door Thresholds: Type 1.

G. Horizontal Control and Expansion Joints in Interior Concrete Slabs and Floors: Type 4.

H. Joints Between Plumbing Fixtures and Walls and Floors, and Between Countertops and Walls: Type 2.

I. In STC-Rated Walls, Between Metal Stud Track/Runner and Adjacent Construction: Type 3.

END OF SECTION

SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated hollow metal doors and frames.

B. Hollow metal frames for metal doors.

C. Thermally insulated hollow metal doors with frames.

1.02 RELATED REQUIREMENTS

A. Section 08 7100 - Door Hardware.

B. Section 08 8000 - Glazing: Glass for doors and borrowed lites.

C. Section 09 9113 - Exterior Painting: Field painting.

D. Section 09 9123 - Interior Painting: Field painting.

1.03 ABBREVIATIONS AND ACRONYMS

A. ANSI - American National Standards Institute.

B. ASCE - American Society of Civil Engineers.

C. HMMA - Hollow Metal Manufacturers Association.

D. NAAMM - National Association of Architectural Metal Manufacturers.

E. NFPA - National Fire Protection Association.

F. SDI - Steel Door Institute.

G. UL - Underwriters Laboratories.

1.04 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ANSI/SDI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Coatings for Steel Doors and Frames; 2007 (R2011).

C. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2011.

D. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2014.

E. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2011.

F. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2010, with 2013 Supplements and Errata.

G. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

H. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.

I. 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 Hardenable; 2015.

J. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.

K. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.

L. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014.

M. ASTM E413 - Classification for Rating Sound Insulation; 2010.

N. ASTM E1332 - Standard Classification for Rating Outdoor-Indoor Sound Attenuation; 2010a.

O. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2014.

P. FBC TAS 202 - Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components Using Uniform Static Air Pressure; Testing Application Standard; 1994.

Q. FBC TAS 203 - Criteria for Testing Products Subject To Cyclic Wind Pressure Loading; Testing Application Standard; 1994.

R. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.

S. ITS (DIR) - Directory of Listed Products; current edition.

T. NAAMM HMMA 805 - Recommended Selection and Usage Guide for Hollow Metal Doors and Frames; 2012.

U. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.

V. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2011.

W. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; 2007.

X. NAAMM HMMA 850 - Fire-Protection and Smoke Control Rated Hollow Metal Door and Frame Products; 2014.

Y. NAAMM HMMA 860 - Guide Specifications for Hollow Metal Doors and Frames; 2013.

Z. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2006.

AA. NAAMM HMMA 862 - Guide Specifications for Commercial Security Hollow Metal Doors and Frames; 2013.

AB. NAAMM HMMA 865 - Guide Specifications for Sound Control Hollow Metal Doors and Frames; 2013.

AC. NAAMM HMMA 866 - Guide Specifications for Stainless Steel Hollow Metal Doors and Frames; 2012.

AD. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.

AE. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2012.

AF. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames; 2013.

AG. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

AH. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

1.06 QUALITY ASSURANCE

A. Maintain at project site copies of reference standards relating to installation of products specified.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:
   1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com.
   2. Republic Doors: www.republicdoor.com.
   3. Steelcraft, an Allegion brand: www.allegion.com/us.
   4. Technical Glass Products; SteelBuilt Window & Door Systems: www.tgpamerica.com.
   5. Substitutions: See Section 01 6000 - Product Requirements.

2.02 DESIGN CRITERIA

A. Requirements for Hollow Metal Doors and Frames:
   1. Steel used for fabrication of doors and frames shall comply with one or more of the following requirements; Galvannealed steel conforming to ASTM A653/A653M, cold-rolled steel conforming to ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel conforming to ASTM A1011/A1011M, Commercial Steel (CS) Type B for each.
   2. Accessibility: Comply with ICC A117.1 and ADA Standards.
   3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
   4. Door Edge Profile: Manufacturers standard for application indicated.
   5. Typical Door Face Sheets: Flush.
   6. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturers standard.
   7. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
   8. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
      a. Based on SDI Standards: Provide at least A40/ZF120 (galvannealed) when necessary, coating not required for typical interior door applications, and at least A60/ZF180 (galvannealed) for corrosive locations.

2.03 HOLLOW METAL DOORS

A. Door Finish: Factory finished.

B. Exterior Doors: Thermally insulated.
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 1 - Standard-duty.
      b. Physical Performance Level C, 250,000 cycles; in accordance with ANSI/SDI A250.4.
      c. Model 1 - Full Flush.
      d. Door Face Metal Thickness: 18 gage, 0.042 inch, minimum.
   2. Core Material: Polyurethane, 1.8 lbs/cu ft minimum density.
   3. Door Thermal Resistance: R-Value of 8.7, minimum, for installed thickness of polyurethane.
   4. Door Thickness: 1-3/4 inch, nominal.
   5. Weatherstripping: Refer to Section 08 7100.

2.04 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Frame Finish: Factory finished.

C. Exterior Door Frames: Face welded type.

1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
2. Frame Metal Thickness: 16 gage, 0.053 inch, minimum.
3. Weatherstripping: Separate, see Section 08 7100.

2.05 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

2.06 ACCESSORIES

A. Glazing: As specified in Section 08 8000, factory installed.

B. Astragals for Double Doors: Specified in Section 08 7100.

C. Grout for Frames: Portland cement grout with maximum 4 inch slump for hand troweling; thinner pumpable grout is prohibited.

D. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

E. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Coordinate frame anchor placement with wall construction.

C. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

D. Install door hardware as specified in Section 08 7100.

E. Comply with glazing installation requirements of Section 08 8000.

F. Touch up damaged factory finishes.

3.03 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.

B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.04 ADJUSTING

A. Adjust for smooth and balanced door movement.

3.05 SCHEDULE

A. Refer to Door and Frame Schedule on the drawings.

END OF SECTION

SECTION 08 5400

COMPOSIT WINDOWS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wood-casement and picture windows complete with glazing, grilles-between-the-glass, simulated divided lite, jamb extension, and standard or specified anchors, trim and attachments.

1.02 RELATED SECTIONS

A. Section 01 33 23 - Submittal Procedures: Shop Drawings, Product Data, and Samples

B. Section 01 63 00 - Product Substitution Procedures

C. Section 01 73 00 - Execution

D. Section 07 92 00 - Joint Sealants: Sill sealant and perimeter caulking

E. Section 09 90 00 - Paints and Coatings: Paint or stain other than factory-applied finish

1.03 REFERENCES

A. American Society for testing and Materials (ASTM):
   1. E283: Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors
   2. E330: Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
   3. E547: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential
   4. E2190: Specification for Sealed Insulating Glass Units
   5. C1036: Standard Specification for Flat Glass
   6. E2068: Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
   7. Window and Door Manufacturer's Association (WDMA): I.S.4: Industry Standard for Water Repellent Preservative Treatment for Millwork
   8. Sealed Insulating Glass Manufacturer's Association/Insulating Glass Certification (SIGMA/IGCC)
   9. American Architectural Manufacturer's Association/Window and Door Manufacturer's Association/Canadian Specifications Association (AAMA/WDMA/CSA):
      a. AAMA/WDMA/CSA 101/I.S.2/A440-05: Voluntary Performance Specification for Windows, Skylights, and Glass Doors
      b. AAMA/WDMA/CSA 101/I.S.2/A440-08: Voluntary Performance Specification for Windows, Skylights, and Glass Doors
   10. Window and Door Manufacturer's Association (WDMA): Hallmark Certification Program
   11. American Architectural Manufacturer's Association (AAMA): 624-10: Voluntary Specification, Performance Requirements and Test Procedures for Organic Coatings on Fiber Reinforced Thermoset Profiles
   12. National Fenestration Rating Council (NFRC):
      a. 101: Procedure for Determining Fenestration Product Thermal Properties

1.04 SYSTEM DESCRIPTION

A. Design and Performance Requirements:

Product	Air Tested to psf	Water Tested to psf	Certification Rating	Max Overall Width	Max Overall Height
Integrity Wood Casement (3771)	1.57	7.5	LC-PG50-C	36	71 1/8
Integrity Wood Awning (4947)	1.57	7.5	LC-PG50-AP	48	47 1/8
Integrity Wood Picture (7359)	1.57	7.5	LC-PG50-FW	72	59 1/8
Integrity Wood Picture (5771)	1.57	8.25	LC-PG50-FW	56	71 1/8

Product	Air Tested to psf	Water Tested to psf	Certification Rating	Max Overall Width	Max Overall Height
Integrity Wood Casement (3771) Impact Rated	1.57	8.25	LC-PG55-C	36	71 1/8
Integrity Wood Awning (4947) Impact Rated	1.57	8.25	LC-PG55-AP	48	47 1/8
Integrity Wood Picture (5771) Impact Rated	1.57	8.25	LC-PG55-FW	56	71 1/8
Integrity Wood Picture (5771) Impact Rated	1.57	8.25	LC-PG55-FW	72	55 1/8

a. Window units shall be designed to comply with ASTM E1996 Wind Zone 3 Missile Level D Rating +55/-55 psf.
b. Air leakage shall not exceed the following when tested at 1.57 psf according to ASTM E283: 0.30 cfm per square foot of frame.
c. No water penetration when tested at the following pressure according to ASTM E547:9.75 psf
d. Assembly shall with stand a positive or negative uniform static air pressure difference of psf without damage when tested according to ASTM E330.
e. Impact and Cycling per ASTME1996 and E1886 with passing results for Missile Level D and Pressure Cycling of +55/-55 psf.

1.05 SUBMITTALS

A. Shop Drawings: Submit shop drawings under provision of Section 01 33 23.

B. Product Data: Submit catalog data under provision of Section 01 33 23.

C. Samples:
1. Include glazing system, quality of construction, and specified finish.
2. Quality Control Submittals: Certificates: Submit manufacturer's certification indicating compliance with specified performance and design requirement under provision of section 01 33 23.

1.06 QUALITY ASSURANCE

A. Requirements: Consult local code for IBC [International Building Code] and IRC [International Residential Code] adoption year and pertinent revisions for information on:
1. Windows shall comply with DP-50 impact resistance rating.

1.07 STORAGE AND HANDLING

A. Prime and seal wood surfaces, including to be concealed by wall construction, if more than thirty (30) days will expire between delivery and installation.

B. Store window units in an upright position in a clean and dry storage area above ground to protect from weather under provision of Section 01660.

1.08 WARRANTY

A. Clear insulating glass with stainless steel spacers is warranted against seal failure caused by manufacturing defects and resulting in visible obstruction through the glass for twenty (20) years from the original date of purchase. Glass is warranted against stress cracks caused by manufacturing defects from ten (10) years from the original date of purchase.
1. Hardware and other non-glass components are warranted to be free from manufacturing defects for ten (10) years from the original date of purchase.

1.09 2

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

A. Marvin Integrity Series is specified as "Basis of Design". See other acceptable manfuactueres.

B. Acceptable Manufacturers subject to full compliance include:
1. Pella - HurricaneShield
2. Geld-Win - Impact Guard

C. Description: Wood- exterior fixed impact resistant IZ3 windows with simulated divided lites.

2.02 FRAME DESCRIPTION

A. Interior: clear pine exposed surfaces
   1. Kiln-dried to moisture content no greater than twelve (12) percent at the time of fabrication
   2. Water repellant, preservative treated in accordance with ANSI/NWWDA I.S.4.
   3. Exterior: Fiberglass reinforce Ultrex®, 0.080” (2mm) thick
   4. Composite frame thickness: 1 5/16” (33mm).
   5. Frame depth: 4 9/16” (116mm).

2.03 SASH/PANEL DESCRIPTION

A. Interior: pine
   1. Kiln-dried to moisture content no greater than twelve (12) percent at time of fabrication
   2. Water repellant preservative treated in accordance with ANSI/NWWDA I.S.4.
   3. Exterior: fiberglass reinforced Ultrex®, 0.080” (2mm) thick
   4. Composite sash thickness: 1 9/16” (40mm) - standard glass; 1 31/32” (50mm) - Tri-pane.

2.04 GLAZING

A. Select quality complying with ASTMC1036. Insulating glass SIGMA/IGCC certified to performance level CBA when tested in accordance with ASTM E2190.

B. Glazing Method: 11/16 (17mm) inch insulating glass.

C. Glass Type: Low E2.

D. Glazing Seal: Silicone bead at interior and exterior.
   1. Glazing option: STC/OITC upgrade.
   2. Impact Zone 3 for windows up to 140 miles per hour. Glass is laminated insulated Low E2 consisting of annealed or tempered glass to the exterior and laminated glass to the interior. The laminated glass is made up of two pieces of glass with either SGP laminate layer between. The interior and exterior glazing compound is silicone, in a sandwich style glazing.

2.05 CERTIFIED MULLING

A. For Standard
   1. For Impact
      a. Directional mull limits 1H or 1W only. Maximum span for vertical mull is 71 1/8” (1807mm).

2.06 FINISH

A. Exterior:
   1. Pultruded Fiberglass.
   2. Factory baked on acrylic urethane.
   3. Meets AAMA 624-10 requirements.
   4. Color: Stone White, Pebble Gray, Bronze, Evergreen, Cashmere, Ebony.
   5. Interior:
      a. Bare treated pine.

2.07 JAMB EXTENSION

A. Furnish jamb extension 6 9/16 inches (167mm) - factory-installed; 6 13/16 inches (160mm) - shipped loose.
   1. Finish: treated bare wood or white interior factory finish.

2.08 SIMULATED DIVIDED LITES (SDL)

A. 7/8” (22mm) wide (available with optional interior spacer bar).
   1. Exterior muntins: Ultrex® - finished to match exterior.
   2. Interior muntins: Pine bare wood or optional white interior finish.
   3. Pattern: rectangle, 9 lite Cottage style cut.
   4. Simulated check rail option: 2 11/32” (60mm)

2.09 ACCESSORIES AND TRIM

A. Exterior Casing:
   1. Non-integral to the unit - fastened to the exterior wall with barb and kerf.
   2. 3 1/2” (89mm) Flat Casing as a full surround or with sill nosing.
   3. Color: Stone White, Pebble Gray, Bronze, Evergreen, Cashmere, or Ebony.
   4. Installation Accessories:
      a. Factory-installed nailing fin at head, sill and side jambs.
      b. Installation Brackets: Brackets for 4 9/16” (116mm); 6 9/16” (167mm).
      c. Installation clips standard with nailing fin on impact glazed windows.

2.10 3

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Condition: Before installation, verify openings are plumb, square and of proper dimensions as required in Section 01 71 00. Report frame defects or unsuitable conditions to the General contractor before proceeding.

B. Acceptance of Condition: Beginning on installation confirms acceptance of existing conditions.

3.02 INSTALLATION

A. Comply with Section 01 73 00.

B. Assemble and install window/door unit(s) according to manufacturer’s instruction and reviewed shop drawing.

C. Install sealant and related backing materials at perimeter of unit or assembly in accordance with Section 07 92 00 Joint Sealants. Do not use expansive foam sealant.

D. Install accessory items as required.

E. Use finish nails to apply wood trim and mouldings.

3.03 CLEANING

A. Remove visible labels and adhesive residue according to manufacturer’s instruction.

B. Leave windows and glass in a clean condition. Final cleaning as required in Section 01 74 00.

3.04 PROTECTING INSTALLED CONSTRUCTION

A. Protecting windows from damage by chemicals, solvents, paint or other construction operations that may cause damage.

END OF SECTION

SECTION 08 7100

DOOR HARDWARE

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes commercial door hardware for the following:
   1. Swinging doors.
   2. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:
   1. Mechanical door hardware.

C. Related Sections:
   1. Division 08 Section “Hollow Metal Doors and Frames”.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
   2. ICC/IBC - International Building Code.
   3. NFPA 101 - Life Safety Code.
   4. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards:
   1. ANSI/BHMA Certified Product Standards - A156 Series

1.03 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. 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 the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
   1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
   2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
   3. Content: Include the following information:
      a. Type, style, function, size, label, hand, and finish of each door hardware item.
      b. Manufacturer of each item.
      c. Fastenings and other pertinent information.
      d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
      e. Explanation of abbreviations, symbols, and codes contained in schedule.
      f. Mounting locations for door hardware.
      g. Door and frame sizes and materials.
      h. Warranty information for each product.
   4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data,

Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

D. Informational Submittals:
   1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

1.04 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
   1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.

E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

F. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.06 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check

Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.07 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
   1. Structural failures including excessive deflection, cracking, or breakage.
   2. Faulty operation of the hardware.
   3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:
   1. Ten years for mortise locks and latches.
   2. Five years for standard duty cylindrical (bored) locks and latches.
   3. Five years for exit hardware.
   4. Twenty five years for manual surface door closer bodies.

1.08 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 PRODUCTS

2.01 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

C. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

D. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.02 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Sets.
   1. Quantity: Provide the following hinge quantity, unless otherwise indicated:
      a. Two Hinges: For doors with heights up to 60 inches.
      b. Three Hinges: For doors with heights 61 to 90 inches.

c. Four Hinges: For doors with heights 91 to 120 inches.
d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
   a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
   a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
   b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
4. Hinge Options: Comply with the following where indicated in the Hardware Sets or on Drawings:
   a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
5. Acceptable Manufacturers:
   a. Hager Companies (HA).
   b. McKinney Products (MK).

2.03 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.

C. Cylinders: Original manufacturer cylinders complying with the following:
   1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
   2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
   3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
   4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
   5. Keyway: Manufacturer's Standard.

D. Keying System: Reuse existing.

2.04 MECHANICAL DOUBLE DOOR COORDINATOR DEVICES

A. Bar Coordinator
   1. Acceptable Manufacturers:
      a. Ives – COR Series.

2.05 MANUAL FLUSH BOLTS

A. Manual Flushbolt top and bottom w/ receivers

B. Acceptable Manufacturer:
   1. Ives - Model # FB458-12 US26D

2.06 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
   1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.

B. Standards: Comply with the following:
   1. Strikes for Mortise Locks and Latches: BHMA A156.13.
   2. Strikes for Bored Locks and Latches: BHMA A156.2.
   3. Strikes for Auxiliary Deadlocks: BHMA A156.36.

4. Dustproof Strikes: BHMA A156.16.

2.07 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:
   1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
   2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
   3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
   4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
   5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
   6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
   7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Commercial Duty): ANSI/BHMA 156.4, Grade 1 certified surface mounted, institutional grade door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck, closing sweep, and latch speed control valves. Provide non-handed units standard.
   1. Acceptable Manufacturers:
      a. Corbin Russwin Hardware (RU) - DC6000 Series.
      b. Norton Door Controls (NO) - 8500 Series.
      c. Yale Locks and Hardware (YA) - 3500 Series.

2.08 ARCHITECTURAL TRIM

A. Door Protective Trim
   1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
   2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
   3. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
      a. Stainless Steel: 300 grade, 050-inch thick.
   4. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
   5. Acceptable Manufacturers:
      a. Hiawatha, Inc. (HI).
      b. Rockwood Manufacturing (RO).
      c. Trimco (TC).

2.09 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
   1. Acceptable Manufacturers:
      a. Hiawatha, Inc. (HI).
      b. Rockwood Manufacturing (RO).
      c. Trimco (TC).

2.10 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

C. Acceptable Manufacturers:
   1. National Guard Products (NG).
   2. Pemko Manufacturing (PE).
   3. Reese Enterprises, Inc. (RE).

2.11 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.12 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.02 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

3.03 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
   1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

B. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

C. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

D. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.04 FIELD QUALITY CONTROL

A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.05 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.06 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.07 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.08 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

B. The supplier is responsible for handing and sizing all products as listed in the door hardware sets. Quantities listed are for each pair of doors, or for each single door.

C. Manufacturer’s Abbreviations:
1. MK - McKinney
2. YA - Yale
3. RO - Rockwood

4. PE - Pemko

3.09 HARDWARE SCHEDULE

SET: 1.0

DOORS: 101

DESCRIPTION: HM EXTERIOR - EGRESS - PAIR

A.	6 ea	Hinge	TA2314 x NRP 4-1/2" x 4-1/2"		US32D	MK
B.	2 ea	Hiawatha 509B 1" x 9" White				
C.	2 ea	Push Plate	To match existing			
D.	2 ea	Surface Closer	UNI3501	689	YA	
E.	2 ea	Manual Flush Bolts	IVES FB458-12 US26D			
F.	1 ea	Door Bar Coordinator				
G.	1 ea	Existing Deadbolt - reused				
H.	2 ea	Kick Plate	K1050 10" x 2" LDW 4BE CSK		US32D	RO
I.	1 ea	Threshold	2005AT x LAR		PE	
J.	Gasketing [Head]		2891APK	PE		
K.	Gasketing [Jamb]		290APK	PE		
L.	2 ea	Sweep	315CN x door width		PE	

SET: 2.0

DOORS: 102

DESCRIPTION: HM EXTERIOR

A. Reuse all existing hardware.

END OF SECTION

SECTION 09 2116
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Performance criteria for gypsum board assemblies.

B. Metal stud wall framing.

C. Metal channel ceiling framing.

D. Gypsum sheathing.

E. Gypsum wallboard.

F. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

A. Section 05 4000 - Cold-Formed Metal Framing: Exterior wind-load-bearing metal stud framing.

B. Section 06 1000 - Rough Carpentry: Wood blocking product and execution requirements.

C. Section 07 2100 - Thermal Insulation: Acoustic insulation.

D. Section 07 2500 - Weather Barriers: Water-resistive barrier over sheathing.

E. Section 07 9200 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

F. Section 09 2216 - Non-Structural Metal Framing.

1.03 REFERENCE STANDARDS

A. AISI S100-12 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2012.

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.

D. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2015.

E. ASTM C514 - Standard Specification for Nails for the Application of Gypsum Board; 2004 (Reapproved 2014).

F. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing; 2003 (Reapproved 2009).

G. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2014.

H. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.

I. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2015.

J. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.

K. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2015.

L. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2014.

M. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base; 2014a.

N. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2013.

O. ASTM C1178/C1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel; 2013.

P. ASTM C1278/C1278M - Standard Specification for Fiber-Reinforced Gypsum Panel; 2007a (Reapproved 2011).

Q. ASTM C1280 - Standard Specification for Application of Gypsum Sheathing Board; 2013.

R. ASTM C1325 - Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units; 2014.

S. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

T. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels; 2013.

U. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.

V. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.

W. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.

X. ASTM E413 - Classification for Rating Sound Insulation; 2010.

Y. GA-216 - Application and Finishing of Gypsum Board; 2013.

Z. GA-600 - Fire Resistance Design Manual; 2015.

AA. ICC (IBC) - International Building Code; 2015.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

D. Test Reports: For stud framing products that do not comply with ASTM C645 or ASTM C754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

B. Interior Partitions: Provide completed assemblies with the following characteristics:
   1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

2.02 METAL FRAMING MATERIALS

A. Manufacturers - Metal Framing, Connectors, and Accessories:
   1. Clarkwestern Dietrich Building Systems LLC: www.clarkdietrich.com.
   2. Marino: www.marinoware.com.
   3. Phillips Manufacturing Company: www.phillipsmfg.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

B. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf.
   1. Studs: "C" shaped with flat or formed webs with knurled faces.
   2. Runners: U shaped, sized to match studs.

3. Ceiling Channels: C-shaped.
4. Furring: Hat-shaped sections, minimum depth of 7/8 inch.

C. Exterior Non-Loadbearing Studs and Furring for Application of Gypsum Board: As specified in Section 09 2216.

D. Loadbearing Studs for Application of Gypsum Board: As specified in Section 05 4000.

E. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.

F. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100-12.
2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot dipped galvanized coating.

2.03 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
1. American Gypsum Company: www.americangypsum.com.
2. CertainTeed Corporation: www.certainteed.com.
3. Georgia-Pacific Gypsum: www.gpgypsum.com.
4. National Gypsum Company: www.nationalgypsum.com.
5. USG Corporation: www.usg.com.
6. Substitutions: See Section 01 6000 - Product Requirements.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
2. Glass mat faced gypsum panels as defined in ASTM C1658/C1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
   a. Mold-resistant board is required whenever board is being installed before the building is enclosed and conditioned.
4. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
5. Thickness:
   a. Vertical Surfaces: 5/8 inch.
   b. Ceilings: 5/8 inch.
   c. Multi-Layer Assemblies: Thicknesses as indicated on drawings.

C. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Ceilings, unless otherwise indicated.
2. Thickness: 1/2 inch.
3. Edges: Tapered.

2.04 ACCESSORIES

A. Acoustic Insulation: As specified in Section 07 2100.

B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
1. Products:
   a. Franklin International, Inc; Titebond GREENchoice Professional Acoustical Smoke and Sound Sealant: www.titebond.com/sle.
   b. Substitutions: See Section 01 6000 - Product Requirements.

C. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless noted otherwise.
1. Types: As detailed or required for finished appearance.

2. Special Shapes: In addition to conventional corner bead and control joints, provide U-bead at exposed panel edges.
3. Products:
    a. Same manufacturer as framing materials.
    b. Substitutions: See Section 01 6000 - Product Requirements.

D. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
1. Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
2. Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
3. Chemical hardening type compound.

E. Textured Finish Materials: Latex-based compound; plain.

F. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inch in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion resistant.

G. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws, corrosion resistant.

H. Nails for Attachment to Wood Members: ASTM C514.

I. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
1. Level ceiling system to a tolerance of 1/1200.
2. Laterally brace entire suspension system.
3. Install bracing as required at exterior locations to resist wind uplift.

C. Studs: Space studs at 16 inches on center.
1. Extend partition framing to structure where indicated and to ceiling in other locations.
2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
3. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.

D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
1. Place one bead continuously on substrate before installation of perimeter framing members.
2. Place continuous bead at perimeter of each layer of gypsum board.
3. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

3.04 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
   1. Exception: Tapered edges to receive joint treatment at right angles to framing.

C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

D. Exposed Gypsum Board in Interior Wet Areas: Seal joints, cut edges, and holes with water-resistant sealant.

E. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.
   1. Seal joints, cut edges, and holes with water-resistant sealant.
   2. Paper-Faced Sheathing: Immediately after installation, protect from weather by application of water-resistive barrier.

F. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.

G. Installation on Wood Framing: For rated assemblies, comply with requirements of listing authority. For non-rated assemblies, install as follows:
   1. Single-Layer Applications: Screw attachment.
   2. Double-Layer Application: Install base layer using screws or nails. Install face layer using adhesive.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
   1. Not more than 30 feet apart on walls and ceilings over 50 feet long.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

3.06 JOINT TREATMENT

A. Glass Mat Faced Gypsum Board and Exterior Glass Mat Faced Sheathing: Use fiberglass joint tape, bedded and finished with chemical hardening type joint compound.

B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
   2. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   3. Level 3: Walls to receive textured wall finish.
   4. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
   5. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.

C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch.
   2. Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile and fixed cabinetry.
   3. Taping, filling and sanding is not required at base layer of double layer applications.

D. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

3.07 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

SECTION 09 9000

PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints and stains.

C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
   1. Stain all exposed pressure treated southern yellow pine wood decking material.
   2. Exposed surfaces of steel lintels and ledge angles.
   3. Prime surfaces to receive wall coverings.

D. Do Not Paint or Finish the Following Items:
   1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   5. Stainless steel, anodized aluminum, bronze, terne, and lead items.
   6. Floors, unless specifically so indicated.
   7. Glass.
   8. Concealed pipes, ducts, and conduits.
   9. IPE wood decking and railing.

1.02 RELATED REQUIREMENTS

A. Section 06 0573 - Wood Treatment

B. Section 06 1500 - Wood Decking

C. Section 09 2116 - Gypsum Board Assemblies

1.03 DEFINITIONS

A. Conform to ASTM D16 for interpretation of terms used in this section.

1.04 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2014.

C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.

D. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Fourth Edition.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of all products to be used, with the following information for each:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
   2. MPI product number (e.g. MPI #47).
   3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
   1. Where sheen is specified, submit samples in only that sheen.
   2. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens definitely not required.

D. Samples: Submit two paper chip samples, 2" x 2" inch in size illustrating range of colors and textures available for each surface finishing product scheduled.

E. Deck Stain Samples: Submit two stained samples, illustrating selected colors for each color and system selected with specified coats cascaded. Submit on pressure treated southern yellow pine, 6" x 6" inch in size.

F. Manufacturer's Instructions: Indicate special surface preparation procedures.

G. Maintenance Data: Submit data including product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and coated surfaces, and color samples of each color and finish used.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

1.07 MOCK-UP

A. See Section 01 4000 - Quality Requirements, for general requirements for mock-up.

B. Provide panel, 4 feet long by 4 feet wide, illustrating special coating color, texture, and finish.

C. Mock-up may remain as part of the work.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.09 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.

B. Provide all paint and coating products from the same manufacturer to the greatest extent possible.
   1. Substitution of other products by the same manufacturer is preferred over substitution of products by a different manufacturer.

C. Paints:

1. Base Manufacturer: Sherwin - Williams.
2. Behr Process Corporation: www.behr.com.
3. Benjamin Moore & Co: www.benjaminmoore.com.
4. PPG Paints: www.ppgpaints.com.
5. Pratt & Lambert Paints: www.prattandlambert.com.
6. Sherwin-Williams Company: www.sherwin-williams.com.

D. Stains:
1. Base Manufacturer: Sherwin Williams.
2. Olympic: Olympic Elite Advanced Stanin+Sealant
3. Behr Process Corporation: Behr Solid Waterproofing Wood Stain www.behr.com.
4. Sherwin-Williams Company: SuperDeck: www.sherwin-williams.com.

E. Primer Sealers: Same manufacturer as top coats.

F. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PAINTS AND COATINGS - GENERAL

A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
2. Supply each coating material in quantity required to complete entire project's work from a single production run.
3. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.

B. Primers: As follows unless other primer is required or recommended by manufacturer of top coats; where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
1. Gypsum Board: Interior Latex Primer Sealer; MPI #50.
2. Wood: Latex Primer for Interior Wood; MPI #39.
3. Wood: Interior Alkyd Primer Sealer; MPI #45.
4. Steel, Uncoated: Anti-Corrosive Alkyd Primer for Metal; MPI #79.
5. Steel, Uncoated: Interior Rust-Inhibitive Water Based Primer; MPI #107.
6. Steel -- Shop Primer: Interior/Exterior Quick Dry Alkyd Primer for Metal; MPI #76.
7. Galvanized Steel: Interior Water Based Galvanized Primer; MPI #134.
8. Galvanized Steel: Cementious primer.
9. Aluminum: Interior/Exterior Quick Dry Primer for Aluminum; MPI #95.
10. Products:
a. Behr Premium Plus Interior All-In-One Primer and Sealer [No. 75].
b. Behr Premium Plus Interior Drywall Primer and Sealer [No. 73].
c. Behr Premium Plus Exterior Multi-Surface Primer and Sealer [No. 436]. (MPI #3, 107, 134)

C. Colors: To be selected from manufacturer's full range of available colors.
1. Selection to be made by Architect after award of contract.
2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

2.03 PAINT SYSTEMS - EXTERIOR

A. Paint E-OP - All Exterior Surfaces Indicated to be Painted, Unless Otherwise Indicated: Including concrete, concrete masonry, and cement board.
1. Preparation as specified by manufacturer.
2. Two top coats and one coat primer recommended by manufacturer.
3. Top Coat(s): Exterior Pigmented Elastomeric, Water Based; MPI #113.

B. Paint E-TR-W - Stain on Wood, Unless Otherwise Indicated:
1. 2 coats stain.

2. Stain: Exterior Solid Stain for Wood, Water Based; MPI #16.

2.04 PAINT SYSTEMS - INTERIOR

A. Paint I-OP - All Interior Surfaces Indicated to be Painted, Unless Otherwise Indicated: Including gypsum board, wood, plaster, uncoated steel, shop primed steel, galvanized steel, and aluminum.
   1. Two top coats and one coat primer.
   2. Top Coat(s): High Performance Architectural Interior Latex; MPI #138-141.
   3. Primer(s): As recommended by manufacturer of top coats.

B. Paint I-OP-MD-DT - Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals and wood:
   1. Two top coats and one coat primer.
   2. Top Coat(s): Interior Epoxy-Modified Latex; MPI #115, 215.

C. Paint WI-OP-2A - Wood, Opaque, Alkyd, 2 Coat:
   1. One coat of alkyd primer sealer.
   2. Semi-gloss: One coat of alkyd enamel; To match existing.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   1. Gypsum Wallboard: 12 percent.
   2. Plaster and Stucco: 12 percent.
   3. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
   4. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
   5. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to coating application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

G. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.

H. Plaster Surfaces to be Painted: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

I. Aluminum Surfaces to be Painted: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.

J. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

K. Corroded Steel and Iron Surfaces to be Painted: Prepare using at least SSPC-SP 2 (hand tool cleaning) or SSPC-SP 3 (power tool cleaning) followed by SSPC-SP 1 (solvent cleaning).

L. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.

M. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.

N. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.

O. Exterior Wood Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after prime coat has been applied. Back prime concealed surfaces before installation.

P. Exterior Wood to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior calking compound after sealer has been applied. Prime concealed surfaces.

Q. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with clear sealer.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Exterior Wood to Receive Opaque Finish: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 4 weeks.

C. Apply products in accordance with manufacturer's instructions.

D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

E. Apply each coat to uniform appearance.

F. Sand wood and metal surfaces lightly between coats to achieve required finish.

G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

H. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

A. Protect finished coatings until completion of project.

B. Touch-up damaged coatings after Substantial Completion.

END OF SECTION

SECTION 32 1313

CONCRETE PAVING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Side walks.
   2. Handicapped Ramps.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each exposed product and for each color and texture specified.

C. Other Action Submittals:
   1. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.03 QUALITY ASSURANCE

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301 unless otherwise indicated.

PART 2 PRODUCTS

2.01 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, fabricated from as-drawn steel wire into flat sheets.

B. Plain-Steel Wire: ASTM A 82/A 82M, as drawn.

C. Dowel Bars: ASTM A 615/A 615M, Grade 60 plain-steel bars. Cut bars true to length with ends square and free of burrs.

D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified.

2.02 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source throughout Project:
   1. Portland Cement: ASTM C 150, portland cement.
      a. Fly Ash: ASTM C 618.
      b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, uniformly graded. Provide aggregates from a single source.

C. Water: Potable and complying with ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

F. Color Pigment: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, nonfading, and resistant to lime and other alkalis.
   1. Color: As selected by Landscape Architect from manufacturer's full range.

2.03 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. White, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B, dissipating.

2.04 RELATED MATERIALS

A. Joint Fillers: ASTM D 1752, cork or self-expanding cork in preformed strips.

2.05 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, with the following properties:
   1. Compressive Strength (28 Days): As specified in the Construction Plans.
   2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.
   3. Slump Limit: 2.0 inches.
   4. Air Content: 2.0-6.0% by volume.

B. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

C. Synthetic Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions.

2.06 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

A. Tamp and compact prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

B. Remove loose material from compacted subbase surface immediately before placing concrete.

3.02 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

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

3.03 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.04 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness.

E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.05 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed.

B. Comply with ACI 301 requirements for measuring, mixing, transporting, placing, and consolidating concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

D. Screed paving surface with a straightedge and strike off.

E. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.06 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.

3.07 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these.

3.08 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 and as follows:

1. Elevation: 1/2 inch
2. Thickness: Plus 3/8 inch, minus 1/4 inch,
3. Surface: Gap below 10-foot- long, unleveled straightedge not to exceed 1/2 inch
4. Joint Spacing: 3 inches. See Construction Plans.

5. Contraction Joint Depth: Plus 1/4 inch , no minus.
6. Joint Width: Plus 1/2 inch, no minus.

3.09 REPAIRS AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.

B. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

SECTION 32 1373

CONCRETE PAVING JOINT SEALANTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Cold-applied joint sealants.
   2. Joint-sealant backer materials.
   3. Primers.

1.02 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at: see cover sheet for address.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each kind and color of joint sealant required.

C. Paving-Joint-Sealant Schedule: Include the following information:
   1. Joint-sealant application, joint location, and designation.
   2. Joint-sealant manufacturer and product name.
   3. Joint-sealant formulation.
   4. Joint-sealant color.

1.04 INFORMATIONAL SUBMITTALS

A. Product certificates.

PART 2 PRODUCTS

2.01 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.02 COLD-APPLIED JOINT SEALANTS

A. Single-Component, Nonsag, Silicone Joint Sealant: ASTM D 5893/D 5893M, Type NS.
   1. Products <http://www.specagent.com/LookUp/?ulid=5212&mf=04&mf=95&src=wd&mf=&src=wd>: Subject to compliance with requirements products that may be incorporated into the Work include, but are not limited to, the following:
      a. Crafco Inc <http://www.specagent.com/LookUp/?uid=123456790881&mf=&src=wd>., an ERGON company; RoadSaver Silicone.
      b. Dow Corning Corporation <http://www.specagent.com/LookUp/?uid=123456790882&mf=&src=wd>; 888.
      c. Pecora Corporation <http://www.specagent.com/LookUp/?uid=123456790883&mf=&src=wd>; 301 NS.

2.03 JOINT-SEALANT BACKER MATERIALS

A. Round Backer Rods for Cold- and Hot-Applied Joint Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

B. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D 5249, Type 3, of diameter and density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.

C. Backer Strips for Cold- and Hot-Applied Joint Sealants: ASTM D 5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

2.04 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

PART 3 EXECUTION

3.01 INSTALLATION OF JOINT SEALANTS

A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Cleaning of Joints: Clean out joints immediately to comply with joint-sealant manufacturer's written instructions.

C. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer.

D. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions.

E. Install joint-sealant backings to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
   1. Do not leave gaps between ends of joint-sealant backings.
   2. Do not stretch, twist, puncture, or tear joint-sealant backings.
   3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.

F. Install joint sealants immediately following backing installation, using proven techniques that comply with the following:
   1. Place joint sealants so they fully contact joint substrates.
   2. Completely fill recesses in each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

G. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:
   1. Remove excess joint sealant from surfaces adjacent to joints.
   2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.

H. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

I. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.

END OF SECTION

SECTION 32 9113
SOIL PREPARATION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes planting soils specified by composition of the mixes.

B. Related Requirements:
   1. Section 311000 "Site Clearing" for topsoil stripping and stockpiling.

1.02 DEFINITIONS

A. Duff Layer: A surface layer of soil, typical of forested areas, that is composed of mostly decayed leaves, twigs, and detritus.

B. Imported Soil: Soil that is transported to Project site for use.

C. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.

D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

E. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

F. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

G. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil"; but in disturbed areas such as urban environments, the surface soil can be subsoil.

H. USCC: U.S. Composting Council.

1.03 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at: see cover sheet for address.

1.04 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each bulk-supplied material in sealed containers labeled with content, source, and date obtained; providing an accurate representation of composition, color, and texture.

1.05 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.06 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent, state-operated, or university-operated laboratory; experienced in soil science, soil testing, and plant nutrition; with the experience and capability to conduct the testing indicated; and that specializes in types of tests to be performed.

PART 2 PRODUCTS

2.01 MATERIALS

A. Regional Materials: Imported soil, manufactured planting soil, and soil amendments and fertilizers shall be manufactured within 100 miles of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within 100 miles of Project site.

2.02 PLANTING SOILS SPECIFIED BY COMPOSITION

A. See landscape Architects details and general notes for planting soil requirements.

2.03 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:
   1. Class: T, with a minimum of 99 percent passing through a No. 8 sieve and a minimum of 75 percent passing through a No. 60 sieve.
   2. Class: O, with a minimum of 95 percent passing through a No. 8 sieve and a minimum of 55 percent passing through a No. 60 (sieve.
   3. Form: Provide lime in form of ground, dolomitic limestone, calcitic limestone, mollusk shells.

B. Sulfur: Granular, biodegradable, and containing a minimum of 90 percent elemental sulfur, with a minimum of 99 percent passing through a No. 6 sieve and a maximum of 10 percent passing through a No. 40 sieve.

C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.

D. Perlite: Horticultural perlite, soil amendment grade.

E. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through a No. 50 sieve.

F. Sand: Clean, washed, natural or manufactured, free of toxic materials, and according to ASTM C 33/C 33M

2.04 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter produced by composting feedstock, and bearing USCC's "Seal of Testing Assurance," and as follows:
   1. Feedstock: May include animal waste.
   2. Reaction: pH of 5.5 to 8
   3. Soluble-Salt Concentration: Less than 4 dS/m.
   4. Moisture Content: 35 to 55 percent by weight.
   5. Organic-Matter Content: 40-50% percent of dry weight.
   6. Particle Size: Minimum of 98 percent passing through a 1/2-inch sieve.

B. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture with 100 percent passing through a 1/2-inch sieve, a pH of 3.4 to 4.8, and a soluble-salt content measured by electrical conductivity of maximum 5 dS/m.

C. Wood Derivatives: Shredded and composted, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.

D. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, debris, and material harmful to plant growth.

2.05 FERTILIZERS

A. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.

B. 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 formaldehyde, phosphorous, and potassium in the following composition:
   1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
   2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified testing agency.

C. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
   1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.

2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified testing agency.

PART 3 EXECUTION

3.01 GENERAL

A. Place planting soil and fertilizers according to requirements in other Specification Sections.

B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.

3.02 PREPARATION OF UNAMENDED, ON-SITE SOIL BEFORE AMENDING

A. Excavation: Excavate soil from designated area(s) to a depth as specified by Geotechnical Subsurface Report and stockpile until amended.

B. Unacceptable Materials: Clean soil of concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.

C. Unsuitable Materials: Excavate and remove per Geotechnical Subsurface Report.

3.03 PLACING AND MIXING PLANTING SOIL OVER EXPOSED SUBGRADE

A. General: Apply and mix unamended soil with amendments on-site to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.

B. Subgrade Preparation: Till subgrade to a minimum depth as specified by Geotechnical Subsurface Report. Remove stones larger than 3 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

C. Mixing: Spread unamended soil to total depth 6 inches, but not less than required to meet finish grades after mixing with amendments and natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.

D. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.04 BLENDING PLANTING SOIL IN PLACE

A. General: Mix amendments with in-place, unamended soil to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.

B. Preparation: Till unamended, existing soil in planting areas to a minimum depth indicated on Landscape Architect’s drawings/details. Remove stones larger than 3 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

C. Mixing: Apply soil amendments and fertilizer, if required, evenly on surface, and thoroughly blend them into full depth of unamended, in-place soil to produce planting soil.
   1. Mix lime and sulfur with dry soil before mixing fertilizer.
   2. Mix fertilizer with planting soil no more than seven days before planting.

D. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.05 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Perform the following tests:
   1. Compaction: Test planting-soil compaction after placing each lift and at completion using a densitometer or soil-compaction meter calibrated to a reference test value based on laboratory testing according to ASTM D 698. Space tests at no less than one for each 1000 sq. ft. of in-place soil or part thereof.

C. Soil will be considered defective if it does not pass tests[and inspections].

D. Prepare test reports.

E. Label each sample and test report with the date, location keyed to a site plan or other location system, visible conditions when and where sample was taken, and sampling depth.

3.06 PROTECTION AND CLEANING

A. Protection Zone: Identify protection zones according to Section 015639 "Temporary Tree and Plant Protection."

B. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:
   1. Storage of construction materials, debris, or excavated material.
   2. Parking vehicles or equipment.
   3. Vehicle traffic.
   4. Foot traffic.
   5. Erection of sheds or structures.
   6. Impoundment of water.
   7. Excavation or other digging unless otherwise indicated.

C. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.
   1. Dispose of excess subsoil and unsuitable materials on-site where directed by Owner.

END OF SECTION

SECTION 32 9200
TURF AND GRASSES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Sodding.

1.02 DEFINITIONS

A. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

B. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329113 "Soil Preparation" and drawing designations for planting soils.

1.03 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at: see cover sheet for address.

1.04 INFORMATIONAL SUBMITTALS

A. Certification of grass seed.
   1. Certification of each seed mixture for turfgrass sod.

B. Product certificates.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf establishment.
   1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
   2. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:
      a. Landscape Industry Certified Technician - Exterior.
      b. Landscape Industry Certified Lawncare Manager.
      c. Landscape Industry Certified Lawncare Technician.
   3. Pesticide Applicator: State licensed, commercial.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.

PART 2 PRODUCTS

2.01 TURFGRASS SOD

A. Turfgrass Sod: Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.

B. Turfgrass Species: Bermuda:

2.02 FERTILIZERS

A. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
   1. Composition: 12 percent nitrogen, 5 percent phosphorous, and 8 percent potassium, by weight.

2.03 MULCHES

A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

2.04 PESTICIDES

A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

PART 3 EXECUTION

3.01 TURF AREA PREPARATION

A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation”.

B. Reduce elevation of planting soil to allow for soil thickness of sod.

C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

D. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.02 SODDING

A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.

B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
   1. Lay sod across slopes exceeding 3:1.
   2. Anchor sod on slopes exceeding 2:1 with wood pegs or steel staples spaced as recommended by sod manufacturer but not less than two anchors per sod strip to prevent slippage.

C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.03 TURF MAINTENANCE

A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

B. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings.

3.04 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Landscape Architect:

1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.

B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

END OF SECTION