FORT WAYNE HOUSING AUTHORITY
Tall Oaks and Whispering Oaks Community Garden

FORT WAYNE housing authority

2

ADDENDUM 2 - October 15, 2024

ADDENDUM 1 - October 7, 2024

7300 Decatur Avenue
Fort Wayne, Indiana 46816

Architect:

MARTINRILEY
architects · engineers

221 West Baker Street
Fort Wayne, Indiana, 46802

PROJECT MANUAL:
Commission Number: F24074

October 2024

Set No. _____

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PROCUREMENT AND CONTRACTING REQUIREMENTS

SPECIFICATIONS

END OF SECTION

ADDENDUM TWO

Tall Oaks and Whispering Oaks Community Garden
7300 Decatur Road
Fort Wayne, IN 46816

MARTINRILEY architects/engineers
221 West Baker Street
Fort Wayne, Indiana 46802
260-422-7994

Commission No.: F24074

Addendum Date: 15 October 2024

Conditions: The following clarifications, amendments, additions, deletions, revisions and modifications are a part of the contract documents and change the original documents only in the manner and to the extent stated.

Copies of the Addendum shall be bound with all contract sets of drawings and specifications.

CLARIFICATIONS:

No additional clarifications are to be made at this time.

CHANGES TO SPECIFICATIONS:

OVERALL - There were some unknown instances within the Specification Volume including many sections with distorted formatting. We have included correctly formatted Specification Sections to replace those pertaining to this issue:

Section *000101 Title Sheet*, **REPLACE** attached section to volume.
Section *000110 Table of Contents*, **REPLACE** attached section to volume.
HUD 5369 – Instructions to Bidders for Contracts Public and Indian Housing Programs, **REPLACE** attached section to volume.
HUD 5369-A Representation, Certifications, and Other Statements of Bidders Form 96, **REPLACE** attached section to volume.
HUD 5370 – General Conditions of the Contract for Construction, **REPLACE** attached section to volume.
HUD 50070 – Certification for a Drug-Free Workplace, **REPLACE** attached section to volume
Section *004150 Contractor's Bid Supplement to Form 96*, **REPLACE** attached section to volume.
Section *005000 Contracting Forms and Supplements*, **REPLACE** attached section to volume.
Section *005200 Agreement Form*, **REPLACE** attached section to volume.
Section *011000 Summary*, **REPLACE** attached section to volume.
Section *012000 Price and Payment Procedures*, **REPLACE** attached section to volume.
Section *012500 Substitution Procedures*, **REPLACE** attached section to volume.

Section *013000 Administrative Requirements*, **REPLACE** attached section to volume.
Section *014000 Quality Requirements*, **REPLACE** attached section to volume.
Section *014219 Reference Standards*, **ADD** attached section to volume.
Section *015000 Temporary Facilities and Controls*, **REPLACE** attached section to volume.
Section *016000 Product Requirements*, **REPLACE** attached section to volume.
Section *017000 Execution and Closeout Requirements*, **REPLACE** attached section to volume.
Section *017800 Closeout Submittals*, **REPLACE** attached section to volume.
Section *024100 Demolition*, **REPLACE** attached section to volume.
Section *033000 Cast-in-Place Concrete*, **REPLACE** attached section to volume.
Section *033533 Stamped Concrete Finishing*, **REPLACE** attached section to volume.
Section *061000 Rough Carpentry*, **REPLACE** attached section to volume.
Section *061053 Miscellaneous Rough Carpentry*, **REPLACE** attached section to volume.
Section *066600 Cellular PVC Fabrications*, **REPLACE** attached section to volume.
Section *072500 Weather Barriers,* **REPLACE** attached section to volume.
Section *072500 Weather Barriers,* **REPLACE** attached section to volume.
Section *074113 Metal Roof Panels,* **REPLACE** attached section to volume.
Section *076200 Sheet Metal Flashing and Trim,* **REPLACE** attached section to volume.
Section *079200 Joint Sealants,* **REPLACE** attached section to volume.
Section *099113 Exterior Painting,* **REPLACE** attached section to volume.
Section *220010 Basic Plumbing Materials and Methods,* **REPLACE** attached section to volume.
Section *260505 Selective Demolition for Electrical,* **REPLACE** attached section to volume.
Section *260519 Low-Voltage Electrical Power Conductors and Cables,* **REPLACE** attached section to volume.
Section *260526 Grounding and Bonding for Electrical Systems,* **REPLACE** attached section to volume.
Section *260529 Hangers and Supports for Electrical Systems,* **REPLACE** attached section to volume.
Section *260533.13 Conduit for Electrical Systems,* **REPLACE** attached section to volume.
Section *260533.16 Boxes for Electrical Systems*, **REPLACE** attached section to volume.
Section *262726 Wiring Devices,* **REPLACE** attached section to volume.
Section *265100 Interior Lighting*, **REPLACE** attached section to volume.
Section *312200 Grading,* **REPLACE** attached section to volume.
Section *312316 Excavation,* **REPLACE** attached section to volume.
Section *312323 Fill,* **REPLACE** attached section to volume.
Section *321313 Concrete Paving,* **REPLACE** attached section to volume.
Section *323300 Site Furnishings,* **REPLACE** attached section to volume.
Section *329219 Seeding,* **REPLACE** attached section to volume.
Section *331416 Site Water Utility Distribution Piping,* **REPLACE** attached section to volume.

CHANGES TO DRAWINGS:

Sheet **T101** – SEE ATTACHED SHEET for revisions: **REPLACE** Sheet, in entirety.

Sheet **C200** – SEE ATTACHED SHEET for revisions:

- 1/C200:
  - **MODIFY** (1) Work Description Note from #3 to #1 within the garden area.
  - **ADD** All necessary control joints within the concrete sidewalk within the garden area.

Sheet **A502** – SEE ATTACHED SHEET for revisions:

- WORK DESCRIPTION NOTES – P:
  - **UPDATE** Work Description Note #P1 to state, "2x8 LUMBER, CUT TO FIT. STAIN AND SEAL."
  - **UPDATE** Work Description Note #P3 to state, "2x10 LUMBER. STAIN AND SEAL."
  - **UPDATE** Work Description Note #P4 to state, "2x6 LUMBER CAP. STAIN AND SEAL."
  - **UPDATE** Work Description Note #P7 to state, "2x4 LUMBER. STAIN AND SEAL."
  - **UPDATE** Work Description Note #P8 to state, "2x6 LUMBER, NOTCHED AT BOTH ENDS TO FIT. STAIN AND SEAL."

- 16/A502:
  - **ADD** Work Description Note #P10 to the sketch.
  - **ADD** Work Description Note #P11 to the sketch.
  - **ADD** Work Description Note #P12 to the sketch.
  - **ADD** Work Description Note #P13 to the sketch.

- 17/A502:
  - **ADD** Work Description Note #P10 to the sketch.
  - **ADD** (2) instances of Work Description Note #P11 to the sketch.
  - **ADD** (2) instances of Work Description Note #P12 to the sketch.
  - **ADD** (2) instances of Work Description Note #P13 to the sketch.

Sheet **A503** – SEE ATTACHED SHEET for revisions:

- WORK DESCRITPTION NOTES - M:
  - **UPDATE** Work Description Note #M10 to state, "4x4 WOOD BRACES. PRIME AND (2) COATS FINISH PAINT."
  - **ADD** Work Description Note #M27 to state, "PAINT EXISTING/RELOCATED MAILBOX POSTS."

- 1/A503:
  - **ADD** Work Description Note #M27 to the sketch/plan.
  - **ADD** (3) Control Joints (CJ) within the mailbox foundation.

- 2/A503:
  - **ADD** Work Description Note #M27 to the sketch/elevation with (2) leaders.
  - **ADD** Work Description Note #M5 to the sketch/elevation.
  - **REPOSITION** Work Description Note #M4.

- 3/A503:
  - **ADD** Work Description Note #M27 to the sketch/elevation with (2) leaders.
  - **ADD** Work Description Note #M5 to the sketch/elevation.
  - **REPOSITION** Work Description Note #M4.

- 6/A503: **ADD** Work Description Note #M5 to the sketch/elevation.

- 8/A503: **REPLACE** entire sketch/section, in entirety.

Sheet **E101** – SEE ATTACHED SHEET for revisions:

- 1/E101: **UPDATE** (2) Outlets within the Shed to weather-proof GFCI receptacle.

ATTACHMENTS:
000101 Title Sheet.pdf
000110 Table of Contents.pdf
HUD 5369 – Instructions to Bidders for Contracts Public and Indian Housing Programs.pdf
HUD 5369-A Representation, Certifications, and Other Statements of Bidders Form 96.pdf
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011000 Summary.pdf
012000 Price and Payment Procedures.pdf
012500 Substitution Procedures.pdf
013000 Administrative Requirements.pdf
014000 Quality Requirements.pdf
014219 Reference Standards.pdf
015000 Temporary Facilities and Controls.pdf
016000 Product Requirements.pdf
017000 Execution and Closeout Requirements.pdf
017800 Closeout Submittals.pdf
024100 Demolition.pdf
033000 Cast-in-Place Concrete.pdf
033533 Stamped Concrete Finishing.pdf
061000 Rough Carpentry.pdf
061053 Miscellaneous Rough Carpentry.pdf
066600 Cellular PVC Fabrications.pdf
072500 Weather Barriers.pdf
074113 Metal Roof Panels.pdf
076200 Sheet Metal Flashing and Trim.pdf
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312316 Excavation.pdf
312323 Fill.pdf
321313 Concrete Paving.pdf
323300 Site Furnishings.pdf
329219 Seeding.pdf
331416 Site Water Utility Distribution Piping.pdf
T101.pdf
C200.pdf
A502.pdf
A503.pdf
E101.pdf

END OF ADDENDUM NUMBER TWO

W:\2024 Projects\F24074 FWHA Tall Oaks Comm Garden\Project Management\05-Bidding\ADDENDUM 2

U.S. Department of Housing and Urban Development

Office of Public and Indian Housing

Representations, Certifications, and Other Statements of Bidders

Public and Indian Housing Programs

Representations, Certifications, and Other Statements of Bidders

Public and Indian Housing Programs

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1. Certificate of Independent Price Determination

(a) The bidder certifies that--

(1) The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to (i) those prices, (ii) the intention to submit a bid, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a competitive proposal solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.

(b) Each signature on the bid is considered to be a certification by the signatory that the signatory--

(1) Is the person in the bidder's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(l) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(l) through (a)(3) above.

_____ [insert full name of person(s) in the bidder's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the bidder's organization];

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the bidder deletes or modifies subparagraph (a)2 above, the bidder must furnish with its bid a signed statement setting forth in detail the circumstances of the disclosure.

[X] [Contracting Officer check if following paragraph is applicable]

(d) Non-collusive affidavit. (applicable to contracts for construction and equipment exceeding $50,000)

(1) Each bidder shall execute, in the form provided by the PHA/IHA, an affidavit to the effect that he/she has not colluded with any other person, firm or corporation in regard to any bid submitted in response to this solicitation. If the successful bidder did not submit the affidavit with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the affidavit by that date may render the bid nonresponsive. No contract award will be made without a properly executed affidavit.

(2) A fully executed "Non-collusive Affidavit" [ ] is, [ ] is not included with the bid.

2. Contingent Fee Representation and Agreement

(a) Definitions. As used in this provision:

"Bona fide employee" means a person, employed by a bidder and subject to the bidder's supervision and control as to time, place, and manner of performance, who neither exerts, nor proposes to exert improper influence to solicit or obtain contracts nor holds out as being able to obtain any contract(s) through improper influence.

"Improper influence" means any influence that induces or tends to induce a PHA/IHA employee or officer to give consideration or to act regarding a PHA/IHA contract on any basis other than the merits of the matter.

(b) The bidder represents and certifies as part of its bid that, except for full-time bona fide employees working solely for the bidder, the bidder:

(1) [ ] has, [ ] has not employed or retained any person or company to solicit or obtain this contract; and

(2) [ ] has, [ ] has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(c) If the answer to either (a)(1) or (a)(2) above is affirmative, the bidder shall make an immediate and full written disclosure to the PHA/IHA Contracting Officer.

(d) Any misrepresentation by the bidder shall give the PHA/IHA the right to (1) terminate the contract; (2) at its discretion, deduct from contract payments the amount of any commission, percentage, brokerage, or other contingent fee; or (3) take other remedy pursuant to the contract.

3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (applicable to contracts exceeding $100,000)

(a) The definitions and prohibitions contained in Section 1352 of title 31, United States Code, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The bidder, by signing its bid, hereby certifies to the best of his or her knowledge and belief as of December 23, 1989 that:

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of a contract resulting from this solicitation;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the bidder shall complete and submit, with its bid, OMB standard form LLL, "Disclosure of Lobbying Activities;" and

(3) He or she will include the language of this certification in all subcontracts at any tier and require that all recipients of subcontract awards in excess of $100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than $10,000, and not more than $100,000, for each such failure.

(d) Indian tribes (except those chartered by States) and Indian organizations as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) are exempt from the requirements of this provision.

4. Organizational Conflicts of Interest Certification

The bidder certifies that to the best of its knowledge and belief and except as otherwise disclosed, he or she does not have any organizational conflict of interest which is defined as a situation in which the nature of work to be performed under this proposed contract and the bidder's organizational, financial, contractual, or other interests may, without some restriction on future activities:

(a) Result in an unfair competitive advantage to the bidder; or,

(b) Impair the bidder's objectivity in performing the contract work.

[ ] In the absence of any actual or apparent conflict, I hereby certify that to the best of my knowledge and belief, no actual or apparent conflict of interest exists with regard to my possible performance of this procurement.

5. Bidder's Certification of Eligibility

(a) By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

(1) Be awarded contracts by any agency of the United States Government, HUD, or the State in which this contract is to be performed; or,

(2) Participate in HUD programs pursuant to 24 CFR Part 24.

(b) The certification in paragraph (a) above is a material representation of fact upon which reliance was placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal contract programs.

6. Minimum Bid Acceptance Period

(a) "Acceptance period," as used in this provision, means the number of calendar days available to the PHA/IHA for awarding a contract from the date specified in this solicitation for receipt of bids.

(b) This provision supersedes any language pertaining to the acceptance period that may appear elsewhere in this solicitation.

(c) The PHA/IHA requires a minimum acceptance period of [Contracting Officer insert time period] calendar days.

(d) In the space provided immediately below, bidders may specify a longer acceptance period than the PHA's/IHA's minimum requirement. The bidder allows the following acceptance period: calendar days.

(e) A bid allowing less than the PHA's/IHA's minimum acceptance period will be rejected.

(f) The bidder agrees to execute all that it has undertaken to do, in compliance with its bid, if that bid is accepted in writing within (1) the acceptance period stated in paragraph (c) above or (2) any longer acceptance period stated in paragraph (d) above.

7. Small, Minority, Women-Owned Business Concern Representation

The bidder represents and certifies as part of its bid/ offer that it --

(a) [ ] is, [ ] is not a small business concern. "Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding, and qualified as a small business under the criteria and size standards in 13 CFR 121.

(b) [ ] is, [ ] is not a women-owned business enterprise. "Women-owned business enterprise," as used in this provision, means a business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.

(c) [ ] is, [ ] is not a minority business enterprise. "Minority business enterprise," as used in this provision, means a business which is at least 51 percent owned or controlled by one or more minority group members or, in the case of a publicly owned business, at least 51 percent of its voting stock is owned by one or more minority group members, and whose management and daily operations are controlled by one or more such individuals. For the purpose of this definition, minority group members are:

(Check the block applicable to you)

[ ] Black Americans	[ ] Asian Pacific Americans
[ ] Hispanic Americans	[ ] Asian Indian Americans
[ ] Native Americans	[ ] Hasidic Jewish Americans

8. Indian-Owned Economic Enterprise and Indian Organization Representation (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

The bidder represents and certifies that it:

(a) [ ] is, [ ] is not an Indian-owned economic enterprise. "Economic enterprise," as used in this provision, means any commercial, industrial, or business activity established or organized for the purpose of profit, which is at least 51 percent Indian owned. "Indian," as used in this provision, means any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act.

(b) [ ] is, [ ] is not an Indian organization. "Indian organization," as used in this provision, means the governing body of any Indian tribe or entity established or recognized by such governing body. Indian "tribe" means any Indian tribe, band, group, pueblo, or

community including Native villages and Native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

9. Certification of Eligibility Under the Davis-Bacon Act (applicable to construction contracts exceeding $2,000)

(a) By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of the contract resulting from this solicitation shall be subcontracted to any person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

10. Certification of Nonsegregated Facilities (applicable to contracts exceeding $10,000)

(a) The bidder's attention is called to the clause entitled **Equal Employment Opportunity** of the General Conditions of the Contract for Construction.

(b) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(c) By the submission of this bid, the bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Employment Opportunity clause in the contract.

(d) The bidder further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) prior to entering into subcontracts which exceed $10,000 and are not exempt from the requirements of the Equal Employment Opportunity clause, it will:

(1) Obtain identical certifications from the proposed subcontractors;

(2) Retain the certifications in its files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

Notice to Prospective Subcontractors of Requirement for Certifications of Nonsegregated Facilities

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal Employment Opportunity clause of the prime contract. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

Note: The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

11. Clean Air and Water Certification (applicable to contracts exceeding $100,000)

The bidder certifies that:

(a) Any facility to be used in the performance of this contract [ ] is, [ ] is not listed on the Environmental Protection Agency List of Violating Facilities:

(b) The bidder will immediately notify the PHA/IHA Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the bidder proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and,

(c) The bidder will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

12. Previous Participation Certificate (applicable to construction and equipment contracts exceeding $50,000)

(a) The bidder shall complete and submit with his/her bid the Form HUD-2530, "Previous Participation Certificate." If the successful bidder does not submit the certificate with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the certificate by that date may render the bid nonresponsive. No contract award will be made without a properly executed certificate.

(b) A fully executed "Previous Participation Certificate"

[ ] is, [ ] is not included with the bid.

13. Bidder's Signature

The bidder hereby certifies that the information contained in these certifications and representations is accurate, complete, and current.

_____
(Signature and Date)

_____
(Typed or Printed Name)

_____
(Title)

_____
(Company Name)

(Company Address)

U.S. Department of Housing and Urban Development

Office of Public and Indian Housing

Instructions to Bidders for Contracts Public and Indian Housing Programs

Instructions to Bidders for Contracts

Public and Indian Housing Programs

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1. Bid Preparation and Submission

(a) Bidders are expected to examine the specifications, drawings, all instructions, and, if applicable, the construction site (see also the contract clause entitled **Site Investigation and Conditions Affecting the Work** of the *General Conditions of the Contract for Construction*). Failure to do so will be at the bidders' risk.

(b) All bids must be submitted on the forms provided by the Public Housing Agency/Indian Housing Authority (PHA/IHA). Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidder's name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of that agent's authority. (Bidders should retain a copy of their bid for their records.)

(c) Bidders must submit as part of their bid a completed form HUD-5369-A, "Representations, Certifications, and Other Statements of Bidders."

(d) All bid documents shall be sealed in an envelope which shall be clearly marked with the words "Bid Documents," the Invitation for Bids (IFB) number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.

(e) If this solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "No Bid" in the space provided for any item on which no price is submitted.

(f) Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.

(g) Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph or facsimile (fax) machines will not be considered.

(h) If the proposed contract is for a Mutual Help project (as described in 24 CFR Part 905, Subpart E) that involves Mutual Help contributions of work, material, or equipment, supplemental information regarding the bid advertisement is provided as an attachment to this solicitation.

2. Explanations and Interpretations to Prospective Bidders

(a) Any prospective bidder desiring an explanation or interpretation of the solicitation, specifications, drawings, etc., must request it at least 7 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written amendment to the solicitation, if that information is necessary in submitting bids, or if the lack of it would be prejudicial to other prospective bidders.

(b) Any information obtained by, or provided to, a bidder other than by formal amendment to the solicitation shall not constitute a change to the solicitation.

3. Amendments to Invitations for Bids

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date on the bid form, or (3) by letter, telegram, or facsimile, if those methods are authorized in the solicitation. The PHA/IHA must receive acknowledgement by the time and at the place specified for receipt of bids. Bids which fail to acknowledge the bidder's receipt of any amendment will result in the rejection of the bid if the amendment(s) contained information which substantively changed the PHA's/IHA's requirements.

(c) Amendments will be on file in the offices of the PHA/IHA and the Architect at least 7 days before bid opening.

4. Responsibility of Prospective Contractor

(a) The PHA/IHA will award contracts only to responsible prospective contractors who have the ability to perform successfully under the terms and conditions of the proposed contract. In determining the responsibility of a bidder, the PHA/IHA will consider such matters as the bidder's:

(1) Integrity;

(2) Compliance with public policy;

(3) Record of past performance; and

(4) Financial and technical resources (including construction and technical equipment).

(b) Before a bid is considered for award, the bidder may be requested by the PHA/IHA to submit a statement or other documentation regarding any of the items in paragraph (a) above. Failure by the bidder to provide such additional information shall render the bidder nonresponsible and ineligible for award.

5. Late Submissions, Modifications, and Withdrawal of Bids

(a) Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it:

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th);

(2) Was sent by mail, or if authorized by the solicitation, was sent by telegram or via facsimile, and it is determined by the PHA/IHA that the late receipt was due solely to mishandling by the PHA/IHA after receipt at the PHA/IHA; or

(3) Was sent by U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee, not later than 5:00 p.m. at the place of mailing two working days prior to the date specified for receipt of proposals. The term "working days" excludes weekends and observed holidays.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerk to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the PHA/IHA is the time/date stamp of PHA/IHA on the proposal wrapper or other documentary evidence of receipt maintained by the PHA/IHA.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by Express Mail Next Day Service-Post Office to Addressee is the date entered by the post office receiving clerk on the "Express Mail Next Day Service-Post Office to Addressee" label and the postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. "Postmark" has the same meaning as defined in paragraph (c) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and Failure by a bidder to acknowledge receipt of the envelope or wrapper.

(f) Notwithstanding paragraph (a) of this provision, a late modification of an otherwise successful bid that makes its terms more favorable to the PHA/IHA will be considered at any time it is received and may be accepted.

(g) Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids; provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

6. Bid Opening

All bids received by the date and time of receipt specified in the solicitation will be publicly opened and read. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present.

7. Service of Protest

(a) Definitions. As used in this provision:

"Interested party" means an actual or prospective bidder whose direct economic interest would be affected by the award of the contract.

"Protest" means a written objection by an interested party to this solicitation or to a proposed or actual award of a contract pursuant to this solicitation.

(b) Protests shall be served on the Contracting Officer by obtaining written and dated acknowledgement from —

[Contracting Officer designate the official or location where a protest may be served on the Contracting Officer]

(c) All protests shall be resolved in accordance with the PHA's/IHA's protest policy and procedures, copies of which are maintained at the PHA/IHA.

8. Contract Award

(a) The PHA/IHA will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the PHA/IHA considering only price and any price-related factors specified in the solicitation.

(b) If the apparent low bid received in response to this solicitation exceeds the PHA's/IHA's available funding for the proposed contract work, the PHA/IHA may either accept separately priced items (see 8(e) below) or use the following procedure to determine contract award. The PHA/IHA shall apply in turn to each bid (proceeding in order from the apparent low bid to the high bid) each of the separately priced bid deductible items, if any, in their priority order set forth in this solicitation. If upon the application of the first deductible item to all initial bids, a new low bid is within the PHA's/IHA's available funding, then award shall be made to that bidder. If no bid is within the available funding amount, then the PHA/IHA shall apply the second deductible item. The PHA/IHA shall continue this process until an evaluated low bid, if any, is within the PHA's/IHA's available funding. If upon the application of all deductibles, no bid is within the PHA's/IHA's available funding, or if the solicitation does not request separately priced deductibles, the PHA/IHA shall follow its written policy and procedures in making any award under this solicitation.

(c) In the case of tie low bids, award shall be made in accordance with the PHA's/IHA's written policy and procedures.

(d) The PHA/IHA may reject any and all bids, accept other than the lowest bid (e.g., the apparent low bid is unreasonably low), and waive informalities or minor irregularities in bids received, in accordance with the PHA's/IHA's written policy and procedures.

(e) Unless precluded elsewhere in the solicitation, the PHA/IHA may accept any item or combination of items bid.

(f) The PHA/IHA may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(g) A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

9. Bid Guarantee (applicable to construction and equipment contracts exceeding $25,000)

All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. In the case where the work under the contract will be performed on an Indian reservation area, the bid guarantee may also be an irrevocable Letter of Credit (see provision 10, Assurance of Completion, below). Certified checks and bank drafts must be made payable to the order of the PHA/IHA. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in the rejection of the bid. Bid guarantees submitted by unsuccessful bidders will be returned as soon as practicable after bid opening.

10. Assurance of Completion

(a) Unless otherwise provided in State law, the successful bidder shall furnish an assurance of completion prior to the execution of any contract under this solicitation. This assurance may be [Contracting Officer check applicable items] —

[X] (1) a performance and payment bond in a penal sum of 100 percent of the contract price; or, as may be required or permitted by State law;

[ ] (2) separate performance and payment bonds, each for 50 percent or more of the contract price;

[ ] (3) a 20 percent cash escrow;

[ ] (4) a 25 percent irrevocable letter of credit; or,

[ ] (5) an irrevocable letter of credit for 10 percent of the total contract price with a monitoring and disbursements agreement with the IHA (applicable only to contracts awarded by an IHA under the Indian Housing Program).

(b) Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. Individual sureties will not be considered. U.S. Treasury Circular Number 570, published annually in the Federal Register, lists companies approved to act as sureties on bonds securing Government contracts, the maximum underwriting limits on each contract bonded, and the States in which the company is licensed to do business. Use of companies listed in this circular is mandatory. Copies of the circular may be downloaded on the U.S. Department of Treasury website **http://www.fms.treas.gov/c570/index.html**, or ordered for a minimum fee by contacting the Government Printing Office at (202) 512-2168.

(c) Each bond shall clearly state the rate of premium and the total amount of premium charged. The current power of attorney for the person who signs for the surety company must be attached to the bond. The effective date of the power of attorney shall not precede the date of the bond. The effective date of the bond shall be on or after the execution date of the contract.

(d) Failure by the successful bidder to obtain the required assurance of completion within the time specified, or within such extended period as the PHA/IHA may grant based upon reasons determined adequate by the PHA/IHA, shall render the bidder ineligible for award. The PHA/IHA may then either award the contract to the next lowest responsible bidder or solicit new bids. The PHA/IHA may retain the ineligible bidder's bid guarantee.

11. Preconstruction Conference (applicable to construction contracts)

After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the PHA/IHA and its architect/engineer, and other interested parties convened by the PHA/IHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract (e.g., Equal Employment Opportunity, Labor Standards). The PHA/IHA will provide the successful bidder with the date, time, and place of the conference.

12. Indian Preference Requirements (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

(a) HUD has determined that the contract awarded under this solicitation is subject to the requirements of section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e(b)). Section 7(b) requires that any contract or subcontract entered into for the benefit of Indians shall require that, to the greatest extent feasible

(1) Preferences and opportunities for training and employment (other than core crew positions; see paragraph (h) below) in connection with the administration of such contracts or subcontracts be given to qualified "Indians." The Act defines "Indians" to mean persons who are members of an Indian tribe and defines "Indian tribe" to mean any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians; and,

(2) Preference in the award of contracts or subcontracts in connection with the administration of contracts be given to Indian organizations and to Indian-owned economic enterprises, as defined in section 3 of the Indian Financing Act of 1974 (25 U.S.C. 1452). That Act defines "economic enterprise" to mean any Indian-owned commercial, industrial, or business activity established or organized for the purpose of profit, except that the Indian ownership must constitute not less than 51 percent of the enterprise; "Indian organization" to mean the governing body of any Indian tribe or entity established or recognized by such governing body; "Indian" to mean any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act; and Indian "tribe" to mean any Indian tribe, band, group, pueblo, or community including Native villages and Native groups (including

corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

(b) (1) The successful Contractor under this solicitation shall comply with the requirements of this provision in awarding all subcontracts under the contract and in providing training and employment opportunities.

(2) A finding by the IHA that the contractor, either (i) awarded a subcontract without using the procedure required by the IHA, (ii) falsely represented that subcontracts would be awarded to Indian enterprises or organizations; or, (iii) failed to comply with the contractor's employment and training preference bid statement shall be grounds for termination of the contract or for the assessment of penalties or other remedies.

(c) If specified elsewhere in this solicitation, the IHA may restrict the solicitation to qualified Indian-owned enterprises and Indian organizations. If two or more (or a greater number as specified elsewhere in the solicitation) qualified Indian-owned enterprises or organizations submit responsive bids, award shall be made to the qualified enterprise or organization with the lowest responsive bid. If fewer than the minimum required number of qualified Indian-owned enterprises or organizations submit responsive bids, the IHA shall reject all bids and readvertise the solicitation in accordance with paragraph (d) below.

(d) If the IHA prefers not to restrict the solicitation as described in paragraph (c) above, or if after having restricted a solicitation an insufficient number of qualified Indian enterprises or organizations submit bids, the IHA may advertise for bids from non-Indian as well as Indian-owned enterprises and Indian organizations. Award shall be made to the qualified Indian enterprise or organization with the lowest responsive bid if that bid is -

(1) Within the maximum HUD-approved budget amount established for the specific project or activity for which bids are being solicited; and

(2) No more than the percentage specified in 24 CFR 905.175(c) higher than the total bid price of the lowest responsive bid from any qualified bidder. If no responsive bid by a qualified Indian-owned economic enterprise or organization is within the stated range of the total bid price of the lowest responsive bid from any qualified enterprise, award shall be made to the bidder with the lowest bid.

(e) Bidders seeking to qualify for preference in contracting or subcontracting shall submit proof of Indian ownership with their bids. Proof of Indian ownership shall include but not be limited to:

(1) Certification by a tribe or other evidence that the bidder is an Indian. The IHA shall accept the certification of a tribe that an individual is a member.

(2) Evidence such as stock ownership, structure, management, control, financing and salary or profit sharing arrangements of the enterprise.

(f) (1) All bidders must submit with their bids a statement describing how they will provide Indian preference in the award of subcontracts. The specific requirements of that statement and the factors to used by the IHA in determining the statement's adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement shall be rejected as nonresponsive. The IHA may require that comparable statements be provided by subcontractors to the successful Contractor, and may require the Contractor to reject any bid or proposal by a subcontractor that fails to include the statement.

(2) Bidders and prospective subcontractors shall submit a certification (supported by credible evidence) to the IHA in any instance where the bidder or subcontractor believes it is infeasible to provide Indian preference in subcontracting. The acceptance or rejection by the IHA of the certification shall be final. Rejection shall disqualify the bid from further consideration.

(g) All bidders must submit with their bids a statement detailing their employment and training opportunities and their plans to provide preference to Indians in implementing the contract; and the number or percentage of Indians anticipated to be employed and trained. Comparable statements from all proposed subcontractors must be submitted. The criteria to be used by the IHA in determining the statement(s)'s adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement(s), or that includes a statement that does not meet minimum standards required by the IHA shall be rejected as nonresponsive.

(h) Core crew employees. A core crew employee is an individual who is a bona fide employee of the contractor at the time the bid is submitted; or an individual who was not employed by the bidder at the time the bid was submitted, but who is regularly employed by the bidder in a supervisory or other key skilled position when work is available. Bidders shall submit with their bids a list of all core crew employees.

(i) Preference in contracting, subcontracting, employment, and training shall apply not only on-site, on the reservation, or within the IHA's jurisdiction, but also to contracts with firms that operate outside these areas (e.g., employment in modular or manufactured housing construction facilities).

(j) Bidders should contact the IHA to determine if any additional local preference requirements are applicable to this solicitation.

(k) The IHA [ ] does [ ] does not [Contracting Officer check applicable box] maintain lists of Indian-owned economic enterprises and Indian organizations by specialty (e.g., plumbing, electrical, foundations), which are available to bidders to assist them in meeting their responsibility to provide preference in connection with the administration of contracts and subcontracts.

General Conditions for Construction Contracts - Public Housing Programs

U.S. Department of Housing and Urban Development
Office of Public and Indian Housing
OMB Approval No. 2577-0157 (exp. 1/31/2027)

Applicability. This form is applicable to any construction/development contract greater than $250,000.

Public reporting burden for this collection of information is estimated to average 1.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding the accuracy of this burden estimate and any suggestions for reducing this burden can be sent to the Reports Management Officer, Office of Policy Development and Research, REE, Department of Housing and Urban Development, 451 7th St SW, Room 4176, Washington, DC 20410-5000. When providing comments, please refer to OMB Approval No. 2577-0157. This form includes those clauses required by OMB's common rule on grantee procurement, implemented at HUD in 2 CFR 200, and those requirements set forth in Section 3 of the Housing and Urban Development Act of 1968 and its amendment by the Housing and Community Development Act of 1992, implemented by HUD at 24 CFR Part 75. The form is required for construction contracts awarded by Public Housing Agencies (PHAs). The form is used by Housing Authorities in solicitations to provide necessary contract clauses. If the form were not used, PHAs would be unable to enforce their contracts. Responses to the collection of information are required to obtain a benefit or to retain a benefit. The information requested does not lend itself to confidentiality. HUD may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB number.

1. Definitions

(a) "Architect" means the person or other entity engaged by the PHA to perform architectural, engineering, design, and other services related to the work as provided for in the contract. When a PHA uses an engineer to act in this capacity, the terms "architect" and "engineer" shall be synonymous. The Architect shall serve as a technical representative of the Contracting Officer. The Architect's authority is as set forth elsewhere in this contract.

(b) "Contract" means the contract entered into between the PHA and the Contractor. It includes the forms of Bid, the Bid Bond, the Performance and Payment Bond or Bonds or other assurance of completion, the Certifications, Representations, and Other Statements of Bidders (form HUD-5370), these General Conditions of the Contract for Construction (form HUD-5370), the applicable wage rate determinations from the U.S. Department of Labor, any special conditions included elsewhere in the contract, the specifications, and drawings. It includes all formal changes to any of those documents by addendum, change order, or other modification.

(c) "Contracting Officer" means the person delegated the authority by the PHA to enter into, administer, and/or terminate this contract and designated as such in writing to the Contractor. The term includes any successor Contracting Officer and any duly authorized representative of the Contracting Officer also designated in writing. The Contracting Officer shall be deemed the authorized agent of the PHA in all dealings with the Contractor.

(d) "Contractor" means the person or other entity entering into the contract with the PHA to perform all of the work required under the contract.

(e) "Drawings" means the drawings enumerated in the schedule of drawings contained in the Specifications and as described in the contract clause entitled Specifications and Drawings for Construction herein.

(f) "HUD" means the United States of America acting through the Department of Housing and Urban Development including the Secretary, or any other person designated to act on its behalf. HUD has agreed, subject to the provisions of an Annual Contributions Terms and Conditions (ACC), to provide financial assistance to the PHA, which includes assistance in financing the work to be performed under this contract. As defined elsewhere in these General Conditions or the contract documents, the determination of HUD may be required to authorize changes in the work or for release of funds to the PHA for payment to the Contractor. Notwithstanding HUD's role, nothing in this contract shall be construed to create any contractual relationship between the Contractor and HUD.

(g) "Project" means the entire project, whether construction or rehabilitation, the work for which is provided for in whole or in part under this contract.

(h) "PHA" means the Public Housing Agency organized under applicable state laws which is a party to this contract.

(j) "Specifications" means the written description of the technical requirements for construction and includes the criteria and tests for determining whether the requirements are met.

(l) "Work" means materials, workmanship, and manufacture and fabrication of components.

2. Contractor's Responsibility for Work

(a) The Contractor shall furnish all necessary labor, materials, tools, equipment, and transportation necessary for performance of the work. The Contractor shall also furnish all necessary water, heat, light, and power not made available to the Contractor by the PHA pursuant to the clause entitled Availability and Use of Utility Services herein.

(b) The Contractor shall perform on the site, and with its own organization, work equivalent to at least [ ] (12 percent unless otherwise indicated) of the total amount of work to be performed under the order. This percentage may be reduced by a supplemental agreement to this order if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the PHA.

(c) At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work site a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.

(d) The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the PHA, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

(e) The Contractor shall lay out the work from base lines and bench marks indicated on the drawings and be responsible for all lines, levels, and measurements of all work executed under the contract. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from its failure to do so.

(f) The Contractor shall confine all operations (including storage of materials) on PHA premises to areas authorized or approved by the Contracting Officer.

(g) The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. After completing the work and before final inspection, the Contractor shall (1) remove from the premises all scaffolding, equipment, tools, and materials (including rejected materials) that are not the property of the PHA and all rubbish caused by its work; (2) leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer; (3) perform all specified tests; and, (4) deliver the installation in complete and operating condition.

(h) The Contractor's responsibility will terminate when all work has been completed, the final inspection made, and the work accepted by the Contracting Officer. The Contractor will then be released from further obligation except as required by the warranties specified elsewhere in the contract.

3. Architect's Duties, Responsibilities, and Authority

(a) The Architect for this contract, and any successor, shall be designated in writing by the Contracting Officer.

(b) The Architect shall serve as the Contracting Officer's technical representative with respect to architectural, **Schedule** engineering, and design matters related to the work performed under the contract. The Architect may provide direction on contract performance. Such direction shall be within the scope of the contract and may not be of a nature which: (1) institutes additional work outside the scope of the contract; (2) constitutes a change as defined in the Changes clause herein; (3) causes an increase or decrease in the cost of the contract; (4) alters the Construction Progress Schedule; or (5) changes any of the other express terms or conditions of the contract.

(c) The Architect's duties and responsibilities may include but shall not be limited to:

(1) Making periodic visits to the work site, and on the basis of his/her on-site inspections, issuing written reports to the PHA which shall include all observed deficiencies. The Architect shall file a copy of the report with the Contractor's designated representative at the site;

(2) Making modifications in drawings and technical specifications and assisting the Contracting Officer in the preparation of change orders and other contract modifications for issuance by the Contracting Officer;

(3) Reviewing and making recommendations with respect to - (i) the Contractor's construction progress schedules; (ii) the Contractor's shop and detailed drawings; (iii) the machinery, mechanical and other equipment and materials or other articles proposed for use by the Contractor; and, (iv) the Contractor's price breakdown and progress payment estimates; and,

(4) Assisting in inspections, signing Certificates of Completion, and making recommendations with respect to acceptance of work completed under the contract.

4. Other Contracts

The PHA may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with PHA employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by PHA employees

Construction Requirements

5. Pre-construction Conference and Notice to Proceed

(a) Within ten calendar days of contract execution, and prior to the commencement of work, the Contractor shall attend a preconstruction conference with representatives of the PHA, its Architect, and other interested parties convened by the PHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The PHA will provide the Contractor with the date, time, and place of the conference.

(b) The contractor shall begin work upon receipt of a written Notice to Proceed from the Contracting Officer or designee. The Contractor shall not begin work prior to receiving such notice.

6. Construction Progress

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments or take other remedies under the contract until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as required by the Contracting Officer, and immediately deliver three copies of the annotated schedule to the Contracting Officer. If the Contracting Officer determines, upon the basis of inspection conducted pursuant to the clause entitled Inspection and Acceptance of Construction, herein that the Contractor is not meeting the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the PHA. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

(c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the Default clause of this contract.

7. Site Investigation and Conditions Affecting the Work

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to, (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads;(3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is

reasonably ascertainable from an inspection of the site, including all exploratory work done by the PHA, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the PHA.

(b) The PHA assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the PHA. Nor does the PHA assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

8. Differing Site Conditions

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site(s), of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. Work shall not proceed at the affected site, except at the Contractor's risk, until the Contracting Officer has provided written instructions to the Contractor. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, the Contractor shall file a claim in writing to the PHA within ten days after receipt of such instructions and, in any event, before proceeding with the work. An equitable adjustment in the contract price, the delivery schedule, or both shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

9. Specifications and Drawings for Construction

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

(c) Where "as shown" "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place" that is "furnished and installed".

(d) "Shop drawings" means drawings, submitted to the PHA by the Contractor, subcontractor, or any lower tier subcontractor, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The PHA may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with other contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the PHA's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Architect approves any such variation and the Contracting Officer concurs, the Contracting Officer shall issue an appropriate modification to the contract, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) It shall be the responsibility of the Contractor to make timely requests of the PHA for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which shall be

required in the planning and production of the work. Such requests may be submitted as the need arises, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay.

(h) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the PHA and one set will be returned to the Contractor. As required by the Contracting Officer, the Contractor, upon completing the work under this contract, shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the work is completed and accepted.

(i) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all shop drawings prepared by subcontractors are submitted to the Contracting Officer.

10. As-Built Drawings

(a) "As-built drawings," as used in this clause, means drawings submitted by the Contractor or subcontractor at any tier to show the construction of a particular structure or work as actually completed under the contract. "As-built drawings" shall be synonymous with "Record drawings."

(b) As required by the Contracting Officer, the Contractor shall provide the Contracting Officer accurate information to be used in the preparation of permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.

(c) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all as-built drawings prepared by subcontractors are submitted to the Contracting Officer.

11. Material and Workmanship

(a) All equipment, material, and articles furnished under this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the contract to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of, and as approved by the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

(b) Approval of equipment and materials.

(1) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

(2) When required by the specifications or the Contracting Officer, the Contractor shall submit appropriately marked samples (and certificates related to them) for approval at the Contractor's expense, with all shipping charges prepaid. The Contractor shall label, or otherwise properly mark on the container, the material or product represented, its place of origin, the name of the producer, the Contractor's name, and the identification of the construction project for which the material or product is intended to be used.

(3) Certificates shall be submitted in triplicate, describing each sample submitted for approval and certifying that the material, equipment or accessory complies with contract requirements. The certificates shall include the name and brand of the product, name of manufacturer, and the location where produced.

(4) Approval of a sample shall not constitute a waiver of the PHA right to demand full compliance with contract requirements. Materials, equipment and accessories may be rejected for cause even though samples have been approved.

(5) Wherever materials are required to comply with recognized standards or specifications, such specifications shall be accepted as establishing the technical qualities and testing methods, but shall not govern the number of tests required to be made nor modify other contract requirements. The Contracting Officer may require laboratory test reports on items submitted for approval or may approve materials on the basis of data submitted in certificates with samples. Check tests will be made on materials delivered for use only as frequently as the Contracting Officer determines necessary to insure compliance of materials with the specifications. The Contractor will assume all costs of retesting materials which fail to meet contract requirements and/or testing materials offered in substitution for those found deficient.

(6) After approval, samples will be kept in the Project office until completion of work. They may be built into the work after a substantial quantity of the materials they represent has been built in and accepted.

(c) Requirements concerning lead-based paint. The Contractor shall comply with the requirements concerning lead-based paint contained in the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) as implemented by 24 CFR Part 35.

12. Permits and Codes

(a) The Contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules and regulations. Notwithstanding the requirement of the Contractor to comply with the drawings and specifications in the contract, all work installed shall comply with all applicable codes and regulations as amended by any

waivers. Before installing the work, the Contractor shall examine the drawings and the specifications for compliance with applicable codes and regulations bearing on the work and shall immediately report any discrepancy it may discover to the Contracting Officer. Where the requirements of the drawings and specifications fail to comply with the applicable code or regulation, the Contracting Officer shall modify the contract by change order pursuant to the clause entitled Changes herein to conform to the code or regulation.

(b) The Contractor shall secure and pay for all permits, fees, and licenses necessary for the proper execution and completion of the work. Where the PHA can arrange for the issuance of all or part of these permits, fees and licenses, without cost to the Contractor, the contract amount shall be reduced accordingly.

13. Health, Safety, and Accident Prevention

(a) In performing this contract, the Contractor shall:

(1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;

(2) Protect the lives, health, and safety of other persons;

(3) Prevent damage to property, materials, supplies, and equipment; and,

(4) Avoid work interruptions.

(b) For these purposes, the Contractor shall:

(1) Comply with regulations and standards issued by the Secretary of Labor at 29 CFR Part 1926. Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96), 40 U.S.C. 3701 et seq.; and

(2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.

(c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 CFR Part 1904.

(d) The Contracting Officer shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.

(e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as the PHA, the Secretary of Housing and Urban Development, or the Secretary of Labor shall direct as a means of enforcing such provisions.

14. Temporary Heating

The Contractor shall provide and pay for temporary heating, covering, and enclosures necessary to properly protect all work and materials against damage by dampness and cold, to dry out the work, and to facilitate the completion of the work. Any permanent heating equipment used shall be turned over to the PHA in the condition and at the time required by the specifications.

15. Availability and Use of Utility Services

(a) The PHA shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the PHA or, where the utility is produced by the PHA, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

(b) The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the PHA, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

16. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements

(a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed under this contract, and which do not unreasonably interfere with the work required under this contract.

(b) The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during performance of this contract, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

(c) The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. Prior to disturbing the ground at the construction site, the Contractor shall ensure that all underground utility lines are clearly marked.

(d) The Contractor shall shore up, brace, underpin, secure, and protect as necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be affected by the excavations or other operations connected with the construction of the project.

(e) Any equipment temporarily removed as a result of work under this contract shall be protected, cleaned, and replaced in the same condition as at the time of award of this contract.

(f) New work which connects to existing work shall correspond in all respects with that to which it connects and/or be similar to existing work unless otherwise required by the specifications.

(g) No structural members shall be altered or in any way weakened without the written authorization of the Contracting Officer, unless such work is clearly specified in the plans or specifications.

(h) If the removal of the existing work exposes discolored or unfinished surfaces, or work out of alignment, such surfaces shall be refinished, or the material replaced as necessary to make the continuous work uniform and harmonious. This, however, shall not be construed to require the refinishing or reconstruction of dissimilar finishes previously exposed, or finished surfaces in good condition, but in different planes or on different levels **Construction** when brought together by the removal of intervening work, unless such refinishing or reconstruction is specified in the plans or specifications.

(i) The Contractor shall give all required notices to any adjoining or adjacent property owner or other party before the commencement of any work.

(j) The Contractor shall indemnify and save harmless the PHA from any damages on account of settlement or the loss of lateral support of adjoining property, any damages from changes in topography affecting drainage, and from all loss or expense and all damages for which the PHA may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

(k) The Contractor shall repair any damage to vegetation, structures, equipment, utilities, or improvements, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

17. Temporary Buildings and Transportation of Materials

(a) Temporary buildings (e.g., storage sheds, shops, offices, sanitary facilities) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the PHA. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

(b) The Contractor shall, as directed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

18. Clean Air and Water

The contactor shall comply with the Clean Air Act, as amended, 42 USC 7401 et seq., the Federal Water Pollution Control Water Act, as amended, 33 U.S.C. 1251 et seq., and standards issued pursuant thereto in the facilities in which this contract is to be performed.

19. Energy Efficiency

The Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under the contract is performed.

20. Inspection and Acceptance of

(a) Definitions. As used in this clause -
(1) “Acceptance” means the act of an authorized representative of the PHA by which the PHA approves and assumes ownership of the work performed under this contract. Acceptance may be partial or complete.
(2) “Inspection” means examining and testing the work performed under the contract (including, when appropriate, raw materials, equipment, components, and intermediate assemblies) to determine whether it conforms to contract requirements.
(3) “Testing” means that element of inspection that determines the properties or elements, including functional operation of materials, equipment, or their components, by the application of established scientific principles and procedures.

(b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. All work is subject to PHA inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

(c) PHA inspections and tests are for the sole benefit of the PHA and do not: (1) relieve the Contractor of responsibility for providing adequate quality control measures; (2) relieve the Contractor of responsibility for loss or damage of the material before acceptance; (3) constitute or imply acceptance; or, (4) affect the continuing rights of the PHA after acceptance of the completed work under paragraph (j) below.

(d) The presence or absence of the PHA inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specifications without the Contracting Officer’s written authorization. All instructions and approvals with respect to the work shall be given to the Contractor by the Contracting Officer.

(e) The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The PHA may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The PHA shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(f) The PHA may conduct routine inspections of the construction site on a daily basis.

(g) The Contractor shall, without charge, replace or correct work found by the PHA not to conform to contract requirements, unless the PHA decides that it is in its interest to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

(h) If the Contractor does not promptly replace or correct rejected work, the PHA may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor, or (2) terminate for default the Contractor's right to proceed.

(i) If any work requiring inspection is covered up without approval of the PHA, it must, if requested by the Contracting Officer, be uncovered at the expense of the Contractor. If at any time before final acceptance of the entire work, the **Construction** PHA considers it necessary or advisable, to examine work already completed by removing or tearing it out, the Contractor, shall on request, promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray all the expenses of the examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the Contracting Officer shall make an equitable adjustment to cover the cost of the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(j) The Contractor shall notify the Contracting Officer, in writing, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection. If the Architect determines that the state of preparedness is as represented, the PHA will promptly arrange for the inspection. Unless otherwise specified in the contract, the PHA shall accept, as soon as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines and designates can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the PHA's right under any warranty or guarantee.

21. Use and Possession Prior to Completion

(a) The PHA shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the PHA intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The PHA's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the PHA has such possession or use, the Contractor shall be relieved of the responsibility for (1) the loss of or damage to the work resulting from the PHA's possession or use, notwithstanding the terms of the clause entitled Permits and Codes herein; (2) all maintenance costs on the areas occupied; and, (3) furnishing heat, light, power, and water used in the areas occupied without proper remuneration therefore. If prior possession or use by the PHA delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

22. Warranty of Title

The Contractor warrants good title to all materials, supplies, and equipment incorporated in the work and agrees to deliver the premises together with all improvements thereon free from any claims, liens or charges, and agrees further that neither it nor any other person, firm or corporation shall have any right to a lien upon the premises or anything appurtenant thereto.

23. Warranty of

(a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (j) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of _____ (one year unless otherwise indicated) from the date of final acceptance of the work. If the PHA takes possession of any part of the work before final acceptance, this warranty shall continue for a period of (one year unless otherwise indicated) from the date that the PHA takes possession.

(b) The Contractor shall remedy, at the Contractor's expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to PHA-owned or controlled real or personal property when the damage is the result of—

(1) The Contractor's failure to conform to contract requirements; or

(2) Any defects of equipment, material, workmanship or design furnished by the Contractor.

(c) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for (one year unless otherwise indicated) from the date of repair or replacement.

(d) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect or damage.

(e) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the PHA shall have the right to replace, repair or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(f) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall:

(1) Obtain all warranties that would be given in normal commercial practice;

(2) Require all warranties to be executed in writing, for the benefit of the PHA; and,

(3) Enforce all warranties for the benefit of the PHA.

(g) In the event the Contractor's warranty under paragraph (a) of this clause has expired, the PHA may bring suit at its own expense to enforce a subcontractor's, manufacturer's or supplier's warranty.

(h) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defect of material or design furnished by the PHA nor for the repair of any damage that results from any defect in PHA furnished material or design.

(i) Notwithstanding any provisions herein to the contrary, the establishment of the time periods in paragraphs (a) and (c) above relate only to the specific obligation of the Contractor to correct the work, and have no relationship to the time within which its obligation to comply with the contract may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligation other than specifically to correct the work.

(j) This warranty shall not limit the PHA's rights under the Inspection and Acceptance of Construction clause of this contract with respect to latent defects, gross mistakes or fraud.

24. Prohibition Against Liens

The Contractor is prohibited from placing a lien on the PHA's property. This prohibition shall apply to all subcontractors at any tier and all materials suppliers.

Administrative Requirements

25. Contract Period

this contract within calendar days of the effective date of the contract, or within the time schedule established in the notice to proceed issued by the Contracting Officer.

26. Order of Provisions

accordance with the terms and conditions of the

In the event of a conflict between these General Conditions and the Specifications, the General Conditions shall prevail. In the event of a conflict between the contract and any applicable state or local law or regulation, the state or local law or regulation shall prevail; provided that such state or local law or regulation does not conflict with, or is less restrictive than applicable federal law, regulation, or Executive Order. In the event of such a conflict, applicable federal law, regulation, and Executive Order shall prevail.

27. Payments

retain ten (10) percent of the amount of progress

(a) The PHA shall pay the Contractor the price as provided in this contract.

(b) The PHA shall make progress payments approximately every 30 days as the work proceeds, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer. The PHA may, subject to written determination and approval of the Contracting Officer, make more frequent payments to contractors which are qualified small businesses.

(c) Before the first progress payment under this contract, the Contractor shall furnish, in such detail as requested by the Contracting Officer, a breakdown of the total contract price showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a basis for determining progress payments. The breakdown shall be approved by the Contracting Officer and must be acceptable to HUD. If the contract covers more than one project, the Contractor shall furnish a separate breakdown for each. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price. The Contractor shall prorate its overhead and profit over the construction period of the contract.

(d) The Contractor shall submit, on forms provided by the PHA, periodic estimates showing the value of the work performed during each period based upon the approved

submitted not later than _____ days in advance of the date set for payment and are subject to correction and revision as required. The estimates must be approved by the Contracting Officer with the concurrence of the Architect prior to payment. If the contract covers more than one project, the Contractor shall furnish a separate progress payment estimate for each.

(e) Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification, or payment shall not be made: I hereby certify, to the best of my knowledge and belief, that:

(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

(2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements; and,

(3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in

subcontract.

Name:

Title:

Date:

(f) Except as otherwise provided in State law, the PHA shall

payments until completion and acceptance of all work under the contract; except, that if upon completion of 50 percent of the work, the Contracting Officer, after consulting with the Architect, determines that the Contractor's performance and progress are satisfactory, the PHA may make the remaining payments in full for the work subsequently completed. If the Contracting Officer subsequently determines that the Contractor's performance and progress are unsatisfactory, the PHA shall reinstate the ten (10) percent (or other percentage as provided in State law) retainage until such time as the Contracting Officer determines that performance and progress are satisfactory.

(g) The Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration when computing progress payments.

Material delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved by the Contracting Officer; (3) the material is insured to cover its full value; and (4) the material will be used to perform this contract. Before any progress payment which includes delivered material is made, the Contractor shall furnish such documentation as the Contracting Officer may require to assure the protection of the PHA's interest in such materials. The Contractor shall remain responsible for such stored material notwithstanding the transfer of title to the PHA.

(h) All material and work covered by progress payments made shall, at the time of payment become the sole property of the PHA, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or, (2) waiving the right of the PHA to require the fulfillment of all of the terms of the contract. In the event the work of the Contractor has been damaged by other contractors or persons other than employees of the PHA in the course of their employment, the Contractor shall restore such damaged work without cost to the PHA and to seek redress for its damage only from those who directly caused it.

(i) The PHA shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all work; and (2) presentation of release of all claims against the PHA arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned.

(j) Prior to making any payment, the Contracting Officer may require the Contractor to furnish receipts or other evidence of payment from all persons performing work and supplying material to the Contractor, if the Contracting Officer determines such evidence is necessary to substantiate claimed costs.

(k) The PHA shall not; (1) determine or adjust any claims for payment or disputes arising there under between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of the PHA to withhold moneys from the Contractor shall in nowise impair the obligations of any surety or sureties under any bonds furnished under this contract.

28. Contract Modifications

(a) Only the Contracting Officer has authority to modify any term or condition of this contract. Any contract modification shall be authorized in writing.

(b) The Contracting Officer may modify the contract unilaterally (1) pursuant to a specific authorization stated in a contract clause (e.g., Changes); or (2) for administrative matters which do not change the rights or responsibilities of the parties (e.g., change in the PHA address). All other contract modifications shall be in the form of supplemental agreements signed by the Contractor and the Contracting Officer.

(c) When a proposed modification requires the approval of HUD prior to its issuance (e.g., a change order that exceeds the PHA's approved threshold), such modification shall not be effective until the required approval is received by the PHA.

29. Changes

(a) The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract including changes:
(1) In the specifications (including drawings and designs);
(2) In the method or manner of performance of the work;
(3) PHA-furnished facilities, equipment, materials, services, or site; or,
(4) Directing the acceleration in the performance of the work.

(b) Any other written order or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances and source of the order and (2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for a adjustment based on defective specifications, no proposal for any change under paragraph (b) above shall be allowed for any costs incurred more than 20 days (5 days for oral orders) before the Contractor gives written notice as required. In the case of defective specifications for which the PHA is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause, or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting a written statement describing the general nature and the amount of the proposal. If the facts justify it, the Contracting Officer may extend the period for submission. The proposal may be included in the notice required under paragraph (b) above. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

(f) The Contractor's written proposal for equitable adjustment shall be submitted in the form of a lump sum proposal supported with an itemized breakdown of all increases and decreases in the contract in at least the following details:

(1) Direct Costs. Materials (list individual items, the quantity and unit cost of each, and the aggregate cost); Transportation and delivery costs associated with materials; Labor breakdowns by hours or unit costs (identified with specific work to be performed); Construction equipment exclusively necessary for the change; Costs of preparation and/ or revision to shop drawings resulting from the change; Worker's Compensation and Public Liability Insurance; Employment taxes under FICA and FUTA; and, Bond Costs when size of change warrants revision.

(2) Indirect Costs. Indirect costs may include overhead, general and administrative expenses, and fringe benefits not normally treated as direct costs.

(3) Profit. The amount of profit shall be negotiated and may vary according to the nature, extent, and complexity of the work required by the change. The allowability of the direct and indirect costs shall be determined in accordance with the Contract Cost Principles and Procedures for Commercial Firms in Part 31 of the Federal Acquisition Regulation (48 CFR 1-31), as implemented by HUD Handbook 2210.18, in effect on the date of this contract. The Contractor shall not be allowed a profit on the profit received by any subcontractor. Equitable adjustments for deleted work shall include a credit for profit and may include a credit for indirect costs. On proposals covering both increases and decreases in the amount of the contract, the application of indirect costs and profit shall be on the net-change in direct costs for the Contractor or subcontractor performing the work.

(g) The Contractor shall include in the proposal its request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.

(h) The Contracting Officer shall act on proposals within 30 days after their receipt, or notify the Contractor of the date when such action will be taken.

(i) Failure to reach an agreement on any proposal shall be a dispute under the clause entitled Disputes herein. Nothing in this clause, however, shall excuse the Contractor from proceeding with the contract as changed.

(j) Except in an emergency endangering life or property, no change shall be made by the Contractor without a prior order from the Contracting Officer.

30. Suspension of Work

(a) The Contracting Officer may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the PHA.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified (or within a reasonable time if not specified) in this contract an adjustment shall be made for any increase in the cost of performance of the contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor or for which any equitable adjustment is provided for or excluded under any other provision of this contract.

(c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and, (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

31. Disputes

(a) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the contract, unlike a claim relating to the contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim. The submission may be converted to a claim by complying with the requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(b) Except for disputes arising under the clauses entitled Labor Standards - Davis Bacon and Related Acts, herein, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this clause.

(c) All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the PHA against the Contractor shall be subject to a written decision by the Contracting Officer.

(d) The Contracting Officer shall, within 60 (unless otherwise indicated) days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.

(e) The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the PHA in accordance with the PHA's policy and procedures, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within (30 unless otherwise indicated) days after receipt of the Contracting Officer's decision.

(f) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.

32. Default

(a) If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with the diligence that will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within this time, the Contracting Officer may, by written notice to the Contractor, terminate the right to

proceed with the work (or separable part of the work) that has been delayed. In this event, the PHA may take over the work and complete it, by contract or otherwise, and may take possession of and use any materials, equipment, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the PHA resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the PHA in completing the work.

(b) The Contractor's right to proceed shall not be terminated or the Contractor charged with damages under this clause if—

(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God, or of the public enemy, (ii) acts of the PHA or other governmental entity in either its sovereign or contractual capacity, (iii) acts of another contractor in the performance of a contract with the PHA, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and

(2) The Contractor, within days (10 days unless otherwise indicated) from the beginning of such delay (unless extended by the Contracting Officer) notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, time for completing the work shall be extended by written modification to the contract. The findings of the Contracting Officer shall be reduced to a written decision which shall be subject to the provisions of the Disputes clause of this contract.

(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been for convenience of the PHA.

33. Liquidated Damages

(a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, as specified in the clause entitled Default of this contract, the Contractor shall pay to the PHA as liquidated damages, the sum of $ _____ Contracting Officer insert amount] for each day of delay. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another clause in this contract, liquidated damages shall not be due the PHA. The Contractor remains liable for damages caused other than by delay.

(b) If the PHA terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the PHA in completing the work.

(c) If the PHA does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

34. Termination for Convenience

(a) The Contracting Officer may terminate this contract in whole, or in part, whenever the Contracting Officer determines that such termination is in the best interest of the PHA. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which the performance of the work under the contract is terminated, and the date upon which such termination becomes effective.

(b) If the performance of the work is terminated, either in whole or in part, the PHA shall be liable to the Contractor for reasonable and proper costs resulting from such termination upon the receipt by the PHA of a properly presented claim setting out in detail: (1) the total cost of the work performed to date of termination less the total amount of contract payments made to the Contractor; (2) the cost (including reasonable profit) of settling and paying claims under subcontracts and material orders for work performed and materials and supplies delivered to the site, payment for which has not been made by the PHA to the Contractor or by the Contractor to the subcontractor or supplier; (3) the cost of preserving and protecting the work already performed until the PHA or assignee takes possession thereof or assumes responsibility therefore; (4) the actual or estimated cost of legal and accounting services reasonably necessary to prepare and present the termination claim to the PHA; and (5) an amount constituting a reasonable profit on the value of the work performed by the Contractor.

(c) The Contracting Officer will act on the Contractor's claim within days (60 days unless otherwise indicated) of receipt of the Contractor's claim.

(d) Any disputes with regard to this clause are expressly made subject to the provisions of the Disputes clause of this contract.

35. Assignment of Contract

The Contractor shall not assign or transfer any interest in this contract; except that claims for monies due or to become due from the PHA under the contract may be assigned to a bank, trust company, or other financial institution. Such assignments of claims shall only be made with the written concurrence of the Contracting Officer. If the Contractor is a partnership, this contract shall inure to the benefit of the surviving or remaining member(s) of such partnership as approved by the Contracting Officer.

36. Insurance

(a) Before commencing work, the Contractor and each subcontractor shall furnish the PHA with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:

(1) Workers' Compensation, in accordance with state or Territorial Workers' Compensation laws.

(2) Commercial General Liability with a combined single limit for bodily injury and property damage of not less than $ _____ [Contracting Officer insert amount]

per occurrence to protect the Contractor and each subcontractor against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a "claims made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract; and the extended reporting period may not be less than five years following the completion date of the Contract.

(3) Automobile Liability on owned and non -owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than $ _____ [Contracting Officer insert amount] per occurrence.

(b) Before commencing work, the Contractor shall furnish the PHA with a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the PHA as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the PHA shall carry insurance on such equipment from the time the Contractor takes possession thereof until the Contract work is accepted by the PHA. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the superstructure is started. It need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the PHA. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the PHA. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or additions and where the PHA's existing fire and extended coverage policy can be endorsed to include such work.

(c) All insurance shall be carried with companies which are financially responsible and admitted to do business in the State in which the project is located. If any such insurance is due to expire during the construction period, the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

37. Subcontracts

(a) Definitions. As used in this contract -

(1) "Subcontract" means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime contract or a subcontract.

(2) "Subcontractor" means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another subcontractor.

(b) The Contractor shall not enter into any subcontract with any subcontractor who has been temporarily denied participation in a HUD program or who has been suspended or debarred from participating in contracting programs by any agency of the United States Government or of the state in which the work under this contract is to be performed.

(c) The Contractor shall be as fully responsible for the acts or omissions of its subcontractors, and of persons either directly or indirectly employed by them as for the acts or omissions of persons directly employed by the Contractor.

(d) The Contractor shall insert appropriate clauses in all subcontracts to bind subcontractors to the terms and conditions of this contract insofar as they are applicable to the work of subcontractors.

(e) Nothing contained in this contract shall create any contractual relationship between any subcontractor and the PHA or between the subcontractor and HUD.

38. Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms

The Contractor shall take the following steps to ensure that, whenever possible, subcontracts are awarded to small business firms, minority firms, women's business enterprises, and labor surplus area firms:

(a) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(b) Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;

(c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises;

(d) Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises; and

(e) Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, and State and local governmental small business agencies.

39. Equal Employment Opportunity

During the performance of this contract, the Contractor/ Seller agrees as follows:

(a) The Contractor/Seller shall not discriminate against any employee or applicant for employment because of of race color, religion, sex, sexual orientation, gender identity, disability, or national origin.

(b) The Contractor/Seller shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, disability, or national origin. Such action shall include, but not be limited to, (1) employment, (2) upgrading demotion, (4) transfer, (5) recruitment or recruitment advertising, (6) layoff or termination, (7) rates of pay or other forms of compensation, and (8) selection for training,including apprenticeship

(c) The Contractor/Seller agrees to post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer setting forth the provisions of this nondiscrimination clause.
(d) The Contractor/Seller shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor/Seller, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
(e) The Contractor/Seller shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.
(f) The Contractor/Seller shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.
(g) The Contractor/Seller shall furnish all information and reports required by Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto. The Contractor/Seller shall permit

access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(h) In the event of a that the Contractor/Seller is in noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor/seller may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(i)The contractor/seller will include the provisions of paragraphs (a) through (h) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each sub[contractor/seller] or vendor. The [contractor/seller] will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions in cluding sanctions for noncompliance: Provided, however, that in the event the [contractor/seller] becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the [contractor/seller] may request the United States to enter into such litigation to protect the interests of the United States.

(j) Compliance with the requirements of this clause shall be to the maximum extent consistent with, but not in derogation of, compliance with section 7(b) of the Indian Self-Determination and Education Assistance Act and the Indian Preference clause of this contract.

40. Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968.

(a) The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
(b) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 75, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 75 regulations.
(c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 prioritization requirements and shall state the minimum percentages of labor hour requirements established in the Benchmark Notice (FR-6085-N-04).
(d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 75, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 75. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 75.
(e) Noncompliance with HUD's regulations in 24 CFR Part 75 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.
(f) Contracts, subcontracts, grants, or subgrants subject to Section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5307(b)) or subject to tribal preference requirements as authorized under 101(k) of the Native American Housing Assistance and Self-Determination Act (25 U.S.C. 4111(k)) must provide preferences in employment, training, and business opportunities to Indians and Indian organizations, and are therefore not subject to the requirements of 24 CFR Part 75.

41. Interest of Members of Congress

No member of or delegate to the Congress of the United States of America shall be admitted to any share or part of this contract or to any benefit that may arise therefrom.

42. Interest of Members, Officers, or Employees and Former Members, Officers, or Employees

No member, officer, or employee of the PHA, no member of the governing body of the locality in which the project is situated, no member of the governing body of the locality in which the PHA was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

43. Limitations on Payments made to Influence Certain Federal Financial Transactions

(a) The Contractor agrees to comply with Section 1352 of Title 31, United States Code which prohibits the use of Acts Federal appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.

(b) The Contractor further agrees to comply with the requirement of the Act to furnish a disclosure (OMB Standard Form LLL, Disclosure of Lobbying Activities) if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

44. Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringement of any patent rights and shall save the PHA harmless from loss on account thereof; except that the PHA shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified and the Contractor has no reason to believe that the specified design, process, or product is an infringement. If, however, the Contractor has reason to believe that any design, process or product specified is an infringement of a patent, the Contractor shall promptly notify the Contracting Officer. Failure to give such notice shall make the Contractor responsible for resultant loss.

45. Examination and Retention of Contractor's Records

(a) The PHA, HUD, or Comptroller General of the United States, or any of their duly authorized representatives shall, until 3 years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.

(b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders not exceeding $10,000.

(c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the Disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the PHA, HUD, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

46. Labor Standards - Davis-Bacon and Related

If the total amount of this contract exceeds $2,000, the Federal labor standards set forth in the clause below shall apply to the development or construction work to be performed under the contract.

(a) Minimum Wages.

(1) All laborers and mechanics employed under this contract in the development or construction of the project(s) involved will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the regular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall

be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(2) (i) Any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met: (A) The work to be performed by the classification requested is not performed by a classification in the wage determination; and (B) The classification is utilized in the area by the construction industry; and (C) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employee Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (a)(2)(ii) or (iii) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in classification.

(3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(b) Withholding of funds. HUD or its designee shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working in the construction or development of the project, all or part of the wages required by the contract, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due.

(c) Payrolls and basic records.

(1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working in the construction or development of the project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(2) (i) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph (c)(1) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The Contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1214-0149.)

(ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(A) That the payroll for the payroll period contains the information required to be maintained under paragraph (c) (1) of this clause and that such information is correct and complete;

(B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3; and

(C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirements for submission of the "Statement of Compliance" required by subparagraph (c)(2)(ii) of this clause.

(iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(3) The Contractor or subcontractor shall make the records required under subparagraph (c)(1) available for inspection, copying, or transcription by authorized representatives of HUD or its designee, the Contracting Officer, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(d) (1) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship and Training, Employer and Labor Services (OATELS), or with a State Apprenticeship Agency recognized by OATELS, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by OATELS or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event OATELS, or a State Apprenticeship Agency recognized by OATELS, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under

the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(3) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(e) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

(f) Contract termination; debarment. A breach of this contract clause may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.

(g) Compliance with Davis-Bacon and related Act requirements. All rulings and interpretations of the Davis-Bacon and related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

(h) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this clause shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the PHA, HUD, the U.S. Department of Labor, or the employees or their representatives.

(i) Certification of eligibility.

(1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a United States Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(3) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

(j) Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics, including watchmen and guards, shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions set forth in subparagraph (j)(1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic (including watchmen and guards) employed in violation of the provisions set forth in subparagraph (j)(1) of this clause, in the sum of $27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in subparagraph (j)(1) of this clause. DOL posts current fines at: https://www.dol.gov/whd/govcontracts/cwhssa.htm#cmp

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in subparagraph (j)(2) of this clause.

(k) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this clause, and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all these provisions.

47. Non-Federal Prevailing Wage Rates

(a) Any prevailing wage rate (including basic hourly rate and any fringe benefits), determined under State or tribal law to be prevailing, with respect to any employee in any trade or position employed under the contract, is inapplicable to the contract and shall not be enforced against the Contractor or any subcontractor, with respect to employees engaged under the contract whenever such non-Federal prevailing wage rate exceeds:

(1) The applicable wage rate determined by the Secretary of Labor pursuant to the Davis-Bacon Act (40 U.S.C. 3141 et seq.) to be prevailing in the locality with respect to such trade;

(b) An applicable apprentice wage rate based thereon specified in an apprenticeship program registered with the U.S. Department of Labor (DOL) or a DOL-recognized State Apprenticeship Agency; or

(c) An applicable trainee wage rate based thereon specified in a DOL-certified trainee program.

48. Procurement of Recovered Materials.

(a) In accordance with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, the Contractor shall procure items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition. The Contractor shall procure items designated in the EPA guidelines that contain the highest percentage of recovered materials practicable unless the Contractor determines that such items: (1) are not reasonably available in a reasonable period of time; (2) fail to meet reasonable performance standards, which shall be determined on the basis of the guidelines of the National Institute of Standards and Technology, if applicable to the item; or (3) are only available at an unreasonable price.

( ) Paragraph (a) of this clause shall apply to items purchased under this contract where: (1) the Contractor purchases in excess of $10,000 of the item under this contract; or (2) during the preceding Federal fiscal year, the Contractor: (i) purchased any amount of the items for use under a contract that was funded with Federal appropriations and was with a Federal agency or a State agency or agency of a political subdivision of a State; and (ii) purchased a total of in excess of $10,000 of the item both under and outside that contract.

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OMB Number: 2501-0044
Expiration Date: 2/28/2027

Public reporting burden. Public reporting burden for this collection of information is estimated to average 0.25 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding the accuracy of this burden estimate and any suggestions for reducing this burden can be sent to: U.S. Department of Housing and Urban Development, Office of the Chief Data Officer, R, 451 7th St SW, Room 8210, Washington, DC 20410-5000. Do not send completed forms to this address. This agency may not collect this information, and you are not required to complete this form, unless it displays a currently valid OMB control number. HUD is authorized to collect this information under the authority cited in the Notice of Funding Opportunity for this grant program. The information collected will provide proposed budget data for multiple programs. HUD will use this information in the selection of applicants. This information is required to obtain the benefit sought in the grant program. This information will not be held confidential and may be made available to the public in accordance with the Freedom of Information Act (5 U.S.C. §552).

Applicant ame

Program/Activity Receiving Federal Grant Funding

Acting on behalf of the above named Applicant as its Authorized Official, I make the following certifications and agreements to the Department of Housing and Urban Development (HUD) regarding the sites listed below:

I certify that the above named Applicant will or will continue to provide a drug-free workplace by:

a. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the Applicant's workplace and specifying the actions that will be taken against employees for violation of such prohibition.

b. Establishing an on-going drug-free awareness program to inform employees ---

(1) The dangers of drug abuse in the workplace;

(2) The Applicant's policy of maintaining a drug-free workplace;

(3) Any available drug counseling, rehabilitation, and employee assistance programs; and

(4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace.

c. Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph a.;

d. Notifying the employee in the statement required by paragraph a. that, as a condition of employment under the grant, the employee will ---

(1) Abide by the terms of the statement; and

(2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;

e. Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph d.(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer or other designee on whose grant activity the convicted employee was working, unless the Federalagency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;

f. Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph d.(2), with respect to any employee who is so convicted ---

(1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or

(2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

g. Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs a. thru f.

2. Sites for Work Performance. The Applicant shall list (on separate pages) the site(s) for the performance of work done in connection with the HUD funding of the program/activity shown above: Place of Performance shall include the street address, city, county, State, and zip code. Identify each sheet with the Applicant name and address and the program/activity receiving grant funding.)

Check here if there are workplaces on file that are not identified on the attached sheets.

ame of Authori□ed Official	Title
Signature	Date

form **HUD- 00 0** (3/98)
ref. Handbooks 7417.1, 7475.13, 7485.1 .3

SECTION 00 41 0
CONTRACTOR S BID SUPPLEMENT TO FORM 6

THIS FORM IS TO BE USED AS A SUPPLEMENT TO FORM 6 CURRENT EDITION AND SHALL BE INCLUDED WITH CONTRACTOR'S BID.

TO

FORT WA E HOUSI G AUTHORIT
7315 S. Hanna Street
Fort Wayne, Indiana 46816

FOR

FWHA TA OA S A D WHISPERI G OA S COMMU IT GARDE
FORT WA E, I 46816

THE FOLLOWING DOCUMENTS EITHER ENCLOSED HEREIN OR OBTAINED SEPARATELY SHALL BE INCLUDED WITH THE BIDDERS PROPOSAL IN ORDER TO QUALIFY AS A RESPONSIBLE BID.

FORM O. 96 (CURRE T EDITIO) as prescribed by Indiana State Board of Accounts
CO TRACTOR S BID SUPP EME T TO FORM 96
5 BID BO D or CERTIFIED CHEC for 5 of the Bid
DISC OSURE OF OBB I G ACTI ITIES
CERTIFICATIO FOR A DRUG-FREE WOR P ACE
CO TRACTOR'S STATEME T OF E UA EMP O ME T OPPORTU IT PO IC
CERTIFICATIO FOR CO TRACTS, GRA TS, OA S A D COOPERATI E AGREEME TS
CERTIFICATIO OF O -SEGREGATED FACI ITIES
O -CO USIO AFFIDA IT
HUD 5369A- REPRESE TATIO S, CERTIFICATIO S A D OTHER STATEME TS OF BIDDERS
HUD 2530- PRE IOUS PARTICIPATIO CERTIFICATIO
HUD 5370- GE ERA CO DITIO S OF THE CO TRACT FOR CO STRUCTIO
SECTIO 3 COMP IA CE

PURSUANT TO NOTICES GI EN THE UNDERSIGNED PROPOSES TO FURNISH ALL MATERIALS AND LABOR NECESSARY TO COMPLETE THE FOLLOWING WOR ACCORDING TO DRAWINGS AND SPECIFICATIONS AND ADDENDUM RECEIPT OF SAID ADDENDUM BEING AC NOWLEDGED AS PREPARED BY MARTINRILEY ARCHITECTS ENGINEERS. OUR BID S ARE AS FOLLOWS

BASE BID

Dollars

(Amount in words) (Figures)

ADDENDA THE UNDERSIGNED HERE AC NOWLEDGES RECEIPT OF THE FOLLOWING ADDENDUM S CO ERING RE ISIONS TO THE DRAWINGS AND OR SPECIFICATIONS THE COST OF SUCH RE ISIONS IF ANY BEING INCLUDED IN THE BID SUM QUOTED ABO E

Addendum o. Dated
Addendum o. Dated

COMPLETION TIME THE UNDERSIGNED AGREES TO BEGIN WOR PROMPTLY. AWARD OF CONSTRUCTION CONTRACT SHALL OCCUR FOLLOWING THE NO EMBER TH 202 BOARD MEETING. A NOTICE TO PROCEED SHALL BE ISSUED FOLLOWING THE BOARD MEETING AND CONSTRUCTION TO BE SUBSTANTIALLY COMPLETE BY MAY 31 202 .

GUARANTEE OF PRICES BY SIGNING THEIR PROPOSALS THE BIDDERS AGREE TO GUARANTEE THEIR PRICES FOR NINETY 0 CONSECUTI E DAYS FROM SUBMITTAL DATE AND TO ENTER INTO AGREEMENT WITH THE OWNER TO PERFORM THE WOR FOR THE STATED BID SUMS AT ANY TIME DURING THIS PERIOD.

LEGAL STATUS OF BIDDERS UNDERSIGNED BIDDER WILL RECEI E SER ED OR MAILED COMMUNICATIONS AT THE FOLLOWING LEGAL ADDRESS

STREET____

CITY ______________________________ **STATE**____________________ _**IP**________

THE UNDERSIGNED DECLARES THEIR LEGAL STATUS AS

____

(Sole Proprietor, Partnership, or Corporation)

ORGANI_ED UNDER THE LAWS OF THE STATE OF_____________________________________

NAMES AND ADDRESS OF ALL PARTIES WHO ARE PARTIED TO THIS PROPOSAL

____

(ame of Entity)

____

(Address)

____

(ame and Title)

____

(Signature)

SIGNED AND SEALED THIS

______________ **DAY OF**

____________ **20**____

END OF SECTION

SECTION 00 000
CONTRACTING FORMS AND SUPPLEMENTS

PART 1 GENERAL

1.01 AGREEMENT AND CONDITIONS OF THE CONTRACT

A. See Section 00 5200 - Agreement Form for the Agreement form to be executed.

B. See Section 00 7200 - General Conditions for the General Conditions.

C. See Section 00 7300 for the Supplementary Conditions.

D. See Section 00 5200 - Agreement Form for the Agreement and General Conditions.

1.02 FORMS

A. Use the following forms for the specified purposes unless otherwise indicated elsewhere in Contract Documents.

B. Bond Forms:
   1. Bid Bond Form: AIA A310.
   2. Performance and Payment Bond Form: AIA A312.

C. Post-Award Certificates and Other Forms:
   1. Application for Payment Forms: AIA G702 with AIA G703 (for Contractors).

D. Clarification and Modification Forms:
   1. Architect s Supplemental Instructions Form: AIA G710.
   2. Construction Change Directive Form: AIA G714.
   3. Proposal Request Form: AIA G709.
   4. Change Order Form: AIA G701.

E. Closeout Forms:
   1. Certificate of Substantial Completion Form: AIA G704.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 00 200
AGREEMENT FORM

PART 1 GENERAL

1.01 FORM OF AGREEMENT

A. AIA Document A101, Owner-Contractor Agreement Form - Stipulated Sum, current edition, forms the basis of Contract between the Owner and Contractor.

B. Copies of the Owner-Contractor Agreement Form - Stipulated Sum, AIA Document A101, are available from the Architect.

C. The Insurance and Bonds Exhibit A that is part of this agreement, between the Owner and the Contractor is attached following this page.

1.02 RELATED REQUIREMENTS

A. Section 00 7300 - Supplementary Conditions.

PART 2 PRODUCTS NOT USED

PART 3 EXECUTION NOT USED

END OF SECTION

SECTION 01 1000
SUMMARY

PART 1 GENERAL

1.01 PRO ECT

A. Project ame: FWHA Tall Oaks and Whispering Oaks Community Garden.

B. Owner s ame: Fort Wayne Housing Authority.

C. Architect s ame: MartinRiley architects engineers, 221 West Baker Street, Fort Wayne, Indiana 46802.

D. The Project consists of the alteration of the Fort Wayne Housing Authority s common space between Tall Oaks and Whispering Oaks.

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 5200 - Agreement Form.

1.03 DESCRIPTION OF ALTERATIONS WOR

A. Scope of demolition and removal work is shown on drawings.

B. Scope of alterations work is indicated on drawings.

C. Plumbing: Alter existing system and add new construction, keeping existing in operation.

D. H AC: Alter existing system and add new construction, keeping existing in operation.

E. Electrical Power and ighting: Alter existing system and add new construction, keeping existing in operation.

1.04 OWNER OCCUPANCY

A. Owner intends to continue to occupy adjacent existing building and site during the entire construction period.

B. Owner intends to occupy the Project upon Substantial Completion.

C. Cooperate with Owner to minimi e conflict and to facilitate Owner s operations.

D. Schedule the Work to accommodate Owner occupancy.

1.0 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: imited to areas noted on Drawings.

B. Provide access to and from site as required by law and by Owner:
   1. Emergency Building Exits During Construction: eep 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. Time Restrictions:
   1. imit conduct of especially noisy exterior work to the hours of 7:00 AM - 7:00 PM.

E. Utility Outages and Shutdown:
   1. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 2 working days notice to Owner and authorities having jurisdiction.
   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

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

B. Change procedures.

1.02 RELATED REQUIREMENTS

A. Section 01 2100 - Allowances: Payment procedures relating to allowances.

1.03 SCHEDULE OF ALUES

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

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

C. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet. Contractor s standard form or electronic media printout will be considered.

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

E. Format: Utili□e the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobili□ation, bonds and insurance, and accepted alternates, contingency and or other allowances shall be listed on their own separate lines.

F. Include in each line item, the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.

G. Correlate line items in the Schedule of alues with other required administrative forms and schedules, including Submittals Schedule and Application for Payment forms with Continuation Sheets.

H. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

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

. Include separately from each line item, a direct proportional amount of Contractor s overhead and profit.

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

. Provide breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.

M. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

. Provide a separate line item in the Schedule of alues for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

O. Provide separate line items in the Schedule of alues for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

P. Allowances: Provide a separate line item in the Schedule of alues for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.

. Each item in the Schedule of alues and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

1. Temporary facilities and other major cost items that are not direct cost of actual work-in place may be shown either as separate line items in the Schedule of alues or distributed

as general overhead expense, at Contractor s Option.

R. Schedule Updating: Update and resubmit the Schedule of alues before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

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

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

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

D. Present required information in typewritten form.

E. Form: AIA G702 Application and Certificate for Payment and AIA G703 - Continuation Sheet including continuation sheets when required.
   1. Execute Application on ORIGI A AIA Documents. Completed (filled out) Documents may be copied for submission. Use of illegal photocopies of AIA Documents will be cause for rejection of Application, and possible delay in payment.

F. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
   1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

G. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

H. Application Preparation: Complete every entry on form. otari e and execute by a person authori ed to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
   1. Entries shall match data on the Schedule of alues and Contractors Construction Schedule. Use updated schedules if revisions were made.
   2. Include amounts of Unit Prices, Change Orders and Construction Change Directives issued before last day of construction period covered by application.

I. Waivers of Mechanic s ien: With each Application for Payment, submit waivers of mechanic s lien from every entity who is lawfully entitled to file a mechanic s lien arising out of the Contract and related to the Work covered by the payment.
   1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
   2. When an application shows completion of an item, submit final or full waivers.
   3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
   4. Waiver Delays: Submit each Application for Payment with Contractor s Waiver of mechanic s lien for construction period covered by the application.
      a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
   1. ist of subcontractors
   2. Schedule of alues
   3. Contractor s Construction Schedule (preliminary if not final)
   4. Submittals Schedule (preliminary if not final)
   5. ist of Contractor s staff assignments
   6. Copies of building permits
   7. Copies of authori ations and licenses from authorities having jurisdiction for performance of the work

8. Certificates of insurance and insurance policies
9. Performance and payment bonds
10. Data needed to acquire Owner s insurance

. For each item, provide a column for listing each of the following:
1. Item umber.
2. Description of work.
3. Scheduled alues.
4. Previous Applications.
5. Work in Place and Stored Materials under this Application.
6. Authori□ed Change Orders.
7. Total Completed and Stored to Date of Application.
8. Percentage of Completion.
9. Balance to Finish.
10. Retainage.

. Execute certification by signature of authori□ed officer.

M. Use data from approved Schedule of alues. Provide dollar value in each column for each line item for portion of work performed and for stored Products.

. ist each authori□ed Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.

O. 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.

P. Execute certification by signature of authori□ed officer.

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

1.0 MODIFICATION PROCEDURES

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

B. Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authori□ed by the Conditions of the Contract by issuing supplemental instructions on AIA Form G710.

C. 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.

D. 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 change with 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 5 days.

E. 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.

F. 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.

G. Substantiation of Costs: Provide full information required for evaluation.
1. On request, provide the following data:
a. uantities of products, labor, and equipment.
b. Taxes, insurance, and bonds.
c. Overhead and profit.
d. ustification 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 itemi□ed account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

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

I. After execution of Change Order, promptly revise Schedule of alues and Application for Payment forms to record each authori□ed Change Order as a separate line item and adjust the Contract Sum.

. 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.

. 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.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, " Contractor s Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, " Contractor s Affidavit of Release of iens."
6. AIA Document G707, " Consent of Surety to Final Payment."
7. Evidence that claims have been settled.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 2 00
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedural requirements for proposed substitutions.

1.02 RELATED REQUIREMENTS

A. Section 00 2113 - Instructions to Bidders: Restrictions on timing of substitution requests.

B. Section 01 2100 - Allowances, for cash allowances affecting this section.

C. Section 01 2300 - Alternates, for product alternatives affecting this section.

D. Section 01 6000 - Product Requirements: Fundamental product requirements, product options, delivery, storage, and handling.

E. Section 01 6116 - olatile Organic Compound (OC) Content Restrictions: Restrictions on emissions of indoor substitute products.

1.03 DEFINITIONS

A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.

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 coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.

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.

D. imit 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 PROCUREMENT

A. Instructions to Bidders specifies time restrictions for submitting requests for substitutions during the bidding period, and the documents required.

3.03 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

A. 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 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.

3.0 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.

END OF SECTION

SECTION 01 3000
ADMINISTRATI E REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General administrative requirements.

B. Preconstruction meeting.

C. Progress meetings.

D. Construction progress schedule.

E. Submittals for review, information, and project closeout.

F. umber of copies of submittals.

G. Requests for Interpretation (RFI) procedures.

H. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Section 01 6000 - Product Requirements: General product requirements.

B. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

C. Section 01 7800 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 GENERAL ADMINISTRATI E REQUIREMENTS

A. Comply with requirements of Section 01 7000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 ELECTRONIC DOCUMENT SUBMITTAL

A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF) format that provides electronic stamping and signatures.
   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 process.
   3. It is Contractor s responsibility to submit documents in allowable format.
   4. Users 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)
   5. Paper document transmittals will not be reviewed.
   6. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.

3.02 PRECONSTRUCTION MEETING

A. Architect will schedule and administer meeting after otice of Award.

B. Attendance Required:
   1. Owner.
   2. Architect.
   3. Contractor.

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 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. Architect wiil record minutes and distribute electronically within two days after meeting to participants and those affected by decisions made.

3.03 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the work at maximum bi-monthly intervals.

B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required:
1. Contractor.
2. Owner.
3. Architect.
4. Contractor s superintendent.
5. Major subcontractors.

D. 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. Maintenance of progress schedule.
7. Corrective measures to regain projected schedules.
8. Planned progress during succeeding work period.
9. Maintenance of quality and work standards.
10. Effect of proposed changes on progress schedule and coordination.
11. Other business relating to work.

E. Record minutes and distribute electronically via email within two days after meeting to Architect, Owner, participants, and those affected by decisions made.

3.04 CONSTRUCTION PROGRESS SCHEDULE

A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of work, with a general outline for remainder of work.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. 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.

D. Within 10 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment and at each Progress Meeting.

3.0 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 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 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.

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 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 compliance with 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, 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. 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).
   4. Annotations: Field dimensions and/or description of conditions which have engendered the request.
   5. 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 og: 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. ote dates of when each request is made, and when a response is received.
3. Highlight items requiring priority or expedited response.
4. 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 authori□ation 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 og.
4. otify 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.

3.06 SUBMITTALS FOR RE IEW

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 compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTA PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

3.0 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.
7. Other types indicated.

B. Submit for Architect s knowledge as contract administrator or for Owner.

3.0 SUBMITTALS FOR PRO ECT CLOSEOUT

A. Submit Correction Punch ist for Substantial Completion.

B. Submit Final Correction Punch ist for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with 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.

D. Submit for Owner s benefit during and after project completion.

3.0 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 si□e 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.

3.10 SUBMITTAL PROCEDURES

A. General Requirements:
1. Use a separate transmittal for each item.

B. Transmit each submittal with approved form.

C. Contractor shall be responsible for submitting all documents in electronic (PDF) format and transmitted via email.
1. Provide electronic stamping and signatures.
2. Beside submittal for review, information and closeout, this procedure applies to requests for information (RFI s), progress documentation, field reports and meeting minutes.
3. Files shall be limited to 5 MB.
4. File naming convention
a. The extension should be .pdf for Acrobat files.
b. The file name should be in the form of Division umber and Document Title.
1) Example: 08 1113 Hollow Metal Doors and Frames
5. o security features shall be enabled.
6. Submittals containing information for more than one specification section shall have all sections identified on the transmittal according to the above numbering and name format.

D. Apply Contractor s stamp, □□□□□ □□□□□□□□ 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.

E. Deliver submittals to Architect at the following email address.
1. cmcelhoe martin-riley.com

F. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
1. The review period will not be shortened for failure of the Contractor to anticipate construction schedule conflicts.

G. Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents Submittals that are not required by the Contract Documents may be returned by the Architect without action.

H. The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

I. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has:
   1. Reviewed and approved them.
   2. Determined and verified materials, field measurements and field construction criteria related thereto, or will do so.
   3. Checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

. The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

. The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect s approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and:
   1. The Architect has given written approval to the specific deviation as a minor change in the Work.
   2. A Change Order or Construction Change Directive has been issued authori□ing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect s approval thereof.

. The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect s approval of a resubmission shall not apply to such revisions.

END OF SECTION

SECTION 01 4000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittals.

B. uality assurance.

C. Testing and inspection agencies and services.

D. Control of installation.

E. Mock-ups.

F. Tolerances.

G. Manufacturers field services.

H. Defect Assessment.

1.02 RELATED REQUIREMENTS

A. Section 01 4219 - Reference Standards.

B. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCE STANDARDS

A. ASTM C1021 - Standard Practice for aboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2014).

B. ASTM C1077 - Standard Practice for aboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for aboratory 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 ondestructive Testing; 2013.

G. ASTM E699 - Standard Specification for Agencies Involved in Testing, uality Assurance, and Evaluating of Manufactured Building Components; 2016.

H. IAS AC89 - Accreditation Criteria for Testing aboratories; 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 compliance with information given and the design concept expressed in the Contract Documents, or for Owner s information.

1. Include calculations that have been used to demonstrate compliance to performance and regulatory criteria provided, and to determine design solutions.
2. Include required product data and shop drawings.
3. Include a statement or certification attesting that design data complies with criteria indicated, such as building codes, loads, functional, and similar engineering requirements.
4. Include signature and seal of design professional responsible for allocated design services on calculations and drawings.

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. ame of inspector.
d. Date and time of sampling or inspection.
e. Identification of product and specifications section.
f. ocation in the Project.
g. Type of test/inspection.
h. Date of test/inspection.
i. Results of test/inspection.
j. Compliance 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 compliance 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 complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

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 compliance 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 compliance with information given and the design concept expressed in the Contract Documents.

1.0 QUALITY ASSURANCE

A. Testing Agency ualifications:
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 IST Construction Materials Reference aboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
3. ualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.

1.06 TESTING AND INSPECTION AGENCIES AND SER ICES

A. Contractor shall employ and pay for services of an independent testing agency to perform other specified testing.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

C. Contractor Employed Agency:
1. Testing agency: Comply with requirements of ASTM E329, ASTM E543, ASTM E699, ASTM C1021, ASTM C1077, ASTM C1093, and ASTM D3740.

PART 3 EXECUTION

2.01 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. erify 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 si□ed to withstand stresses, vibration, physical distortion, and disfigurement.

2.02 MOC -UPS

A. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

C. Architect will use accepted mock-ups as 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.

2.03 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.

2.04 TESTING AND INSPECTION

A. Testing Agency Duties:
   1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
   2. Perform specified sampling and testing of products in accordance with specified standards.
   3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
   5. Perform additional tests and inspections required by Architect.
   6. Submit reports of all tests/inspections specified.

B. imits 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.

C. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers facilities.
   3. 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.

4. otify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Arrange with Owner s agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

2.0 MANUFACTURERS FIELD SER ICES

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 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.

2.06 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not complying with 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 01 421
REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements relating to referenced standards.

B. Reference standards full title and edition date.

1.02 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. Comply with the 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 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. either the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Architect shall be altered by Contract Documents by mention or inference otherwise in any reference document.

1.03 DEFINITIONS

A. Definitions: Basic contract definitions are included in the Conditions of the Contract.

B. "Indicated" refers to graphic representations, notes, or schedules on the Drawings, or other paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the reader locate the reference. ocation is not limited.

C. "Directed," "requested," "authori□ed," "selected," "approved," "required," and "permitted" mean directed by the Architect, requested by the Architect, and similar phrases.

D. "Approved," when used in conjunction with the Architect s action on the Contractor s submittals, applications, and requests, is limited to the Architect s duties and responsibilities as stated in the Conditions of the Contract.

E. "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish" means supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install" describes operations at the Project Site including the actual unloading, unpacking, assembly, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide" means to furnish and install, complete and ready for the intended use.

I. "Installer" is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, or similar operations. Installers are required to be experienced in the operations they are engaged to perform.

1. The term "experienced," when used with the term "installer," means having a minimum of 5 previous projects similar in si□e and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of authorities having jurisdiction.

a. Using terms such as "carpentry" does not imply that certain work must be performed by accredited or unioni□ed individuals of a corresponding generic name, such as "carpenter."

2. Should the "Installer fail to meet the "experienced" requirements identified herein, the installer may request a waiver. Request for a waiver will be considered if received by the Architect at least two days prior to receipt of bids. The installer requesting a waiver must submit a letter which clearly states how the experience requirements cannot be met and shall be accompanied by a completed copy of the latest edition of AIA document A305: "Contractor s ualification Statement". The Architect may request additional information necessary for evaluation. The Architect reserves the right to reject or accept any or all request to waive the "experienced" requirements.

. "Project Site" is the space available to the Contractor for performing construction activities, either exclusively or in conjunction, with others performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

. "Testing Agencies": A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

. Specification Format: These Specifications are organi□ed into Divisions and Sections based on CSI s 48 Division MasterFormat numbering system.

1. Abbreviated anguage: anguage used in Specifications is abbreviated. Implied words and meanings shall be interpreted as appropriate. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Streamlined anguage: The Specifications generally use the imperative mood and streamlined language. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor or by others when so noted.

a. The words "shall be" are implied where a colon (:) is used within a sentence or phrase.

M. Copies of Standards: Copies of applicable standards are not bound with the Contract Documents. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source.

. Abbreviations and ames: Where acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recogni□ed name of the trade association, standards-generating organi□ation, authorities having jurisdiction, or other entity applicable to the context of the text provision. Refer to Gale Research Co. s "Encyclopedia of Associations," available in most libraries.

O. Permits, icenses, and Certificates: For the Owner s records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 CONSTRUCTION INDUSTRY ORGANI□ATION DOCUMENTS

2.01 AAMA -- AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION

A. AAMA/WDMA/CSA 101/I.S.2/A440 - orth American Fenestration Standard/Specification for windows, doors, and skylights; 2011.

B. AAMA 502 - oluntary Specification for Field Testing of ewly Installed Fenestration Products; 2012.

C. AAMA 609 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document); 2015.

D. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; 2015.

2.02 ACI -- AMERICAN CONCRETE INSTITUTE INTERNATIONAL

A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; 2010.

B. ACI 211.1 - Standard Practice for Selecting Proportions for ormal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

C. ACI 301 - Specifications for Structural Concrete; 2010 (Errata 2012).

D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; 2004 (Errata 2007).

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000.

F. ACI 305R - Hot Weather Concreting; 2010.

G. ACI 306R - Cold Weather Concreting; 2010.

H. ACI 308R - Guide to Curing Concrete; 2001 (Reapproved 2008).

I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2011.

. ACI 347R - Guide to Formwork for Concrete; 2014.

2.03 AWC -- AMERICAN WOOD COUNCIL

A. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2015.

2.04 AWPA -- AMERICAN WOOD-PRESER ERS ASSOCIATION

A. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.

2.0 AWS -- AMERICAN WELDING SOCIETY

A. AWS D10.12M/D10.12 - Guide for Welding Mild Steel Pipe; 2000.

2.06 CLFMI -- CHAIN LIN FENCE MANUFACTURERS INSTITUTE

A. C FMI C F-SFR0111 - Security Fencing Recommendations; 2014.

2.0 FM -- FACTORY MUTUAL GLOBAL

2.0 IAS -- INTERNATIONAL ACCREDITATION SER ICE

A. IAS AC89 - Accreditation Criteria for Testing aboratories; 2010.

2.0 IEEE -- INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

2.10 MFMA -- METAL FRAMING MANUFACTURERS ASSOCIATION

A. MFMA-4 - Metal Framing Standards Publication; 2004.

2.11 MPI -- MASTER PAINTERS INSTITUTE MASTER PAINTERS AND DECORATORS ASSOCIATION

2.12 NECA -- NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION

A. ECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); 2013.

B. ECA 111 - Standard for Installing onmetallic Raceways (R C, E T, F C); 2003.

C. ECA 120 - Standard for Installing Armored Cable (AC) and Metal-Clad Cable (MC); 2012.

D. ECA 130 - Standard for Installing and Maintaining Wiring Devices; 2010.

E. ECA/IES A 500 - Standard for Installing Indoor Commercial ighting Systems; 2006.

F. ECA/IES A 502 - Standard for Installing Industrial ighting Systems; 2006.

2.13 NEMA -- NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

A. EMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2012.

B. EMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; 2013.

C. EMA R 1 - Polyvinyl-Chloride (P C) Externally Coated Galvani□ed Rigid Steel Conduit and Intermediate Metal Conduit; 2005.

D. EMA TC 2 - Electrical Polyvinyl Chloride (P C) Conduit; 2013.

E. EMA TC 3 - Polyvinyl Chloride (P C) Fittings for Use with Rigid P C Conduit and Tubing; 2015.

F. EMA WC 70 - onshielded Power Cable 2000 or ess for the Distribution of Electrical Energy; 2009.

G. EMA WD 1 - General Color Requirements for Wiring Devices; 1999 (R 2010).

H. EMA WD 6 - Wiring Devices - Dimensional Specifications; 2012.

2.14 NETA -- INTERNATIONAL ELECTRICAL TESTING ASSOCIATION

A. ETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems; 2013.

2.1 SCAQMD -- SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

A. SCA MD 1168 - South Coast Air uality Management District Rule o.1168; current edition.

2.16 SMACNA -- SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION INC.

2.1 SPIB -- SOUTHERN PINE INSPECTION BUREAU INC.

2.1 TCNA -- TILE COUNCIL OF NORTH AMERICA INC.

A. TC A (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2015.

2.1 UL -- UNDERWRITERS LABORATORIES INC.

A. U 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.

B. U 20 - General-Use Snap Switches; Current Edition, Including All Revisions.

C. U 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.

D. U 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.

E. U 360 - iquid-Tight Flexible Steel Conduit; Current Edition, Including All Revisions.

F. U 467 - Grounding and Bonding Equipment; Current Edition, Including All Revisions.

G. U 486A-486B - Wire Connectors; Current Edition, Including All Revisions.

H. U 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.

I. U 486D - Sealed Wire Connector Systems; Current Edition, Including All Revisions.

. U 498 - Attachment Plugs and Receptacles; Current Edition, Including All Revisions.

. U 508A - Industrial Control Panels; Current Edition, Including All Revisions.

. U 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.

M. U 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.

. U 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.

O. U 514D - Cover Plates for Flush-Mounted Wiring Devices; Current Edition, Including All Revisions.

P. U 651 - Schedule 40, 80, Type EB and A Rigid P C Conduit and Fittings; Current Edition, Including All Revisions.

. U 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.

R. U 924 - Emergency ighting and Power Equipment; Current Edition, Including All Revisions.

S. U 943 - Ground-Fault Circuit-Interrupters; Current Edition, Including All Revisions.

T. U 1242 - Electrical Intermediate Metal Conduit-Steel; Current Edition, Including All Revisions.

U. U 1569 - Metal-Clad Cables; Current Edition, Including All Revisions.

. U 1598 - uminaires; Current Edition, Including All Revisions.

PART 3 UNITED STATES GO ERNMENT AND RELATED AGENCIES DOCUMENTS

3.01 FS -- FEDERAL SPECIFICATIONS AND STANDARDS GENERAL SER ICES ADMINISTRATION

A. FS RR-F-191/1D - Fencing, Wire and Post Metal (Chain- ink Fence Fabric); 1990.

B. FS W-C-596 - Connector, Electrical, Power, General Specification for; Federal Specification; Revision G, 2001.

C. FS W-S-896 - Switches, Toggle (Toggle and ock), Flush-mounted (General Specification); Federal Specification; Revision F, 1999.

3.02 PS -- PRODUCT STANDARDS

A. PS 1 - Structural Plywood; 2009.

B. PS 20 - American Softwood umber Standard; 2010.

END OF SECTION

SECTION 01 000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.

B. Temporary sanitary facilities.

C. Temporary Controls: Barriers and enclosures.

D. Security requirements.

E. ehicular access and parking.

F. Waste removal facilities and services.

G. Temporary Fire Protection.

1.02 TEMPORARY UTILITIES

A. Owner will provide the following:
   1. Electrical power, consisting of connection to existing facilities.
   2. Water supply, consisting of connection to existing facilities.

B. Use trigger-operated no□□les for water hoses, to avoid waste of water.

1.03 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobili□ation.

B. Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities. Provide toilet tissue, paper towels and similar disposable materials for each facility.

C. Toilets: Provide self-contained, single occupant chemical, or aerated recirculation type toilet units. Toilet units must be properly vented, fully enclosed with glass-fiber-reinforced polyester shell or similar non-absorbent material. Shield toilets to ensure privacy. Use of pit-type toilets will not be permitted.

D. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up. Dispose of drainage properly. Supply cleaning compounds.

E. Drinking-Water Facilities: Provide containeri□ed, tap-dispenser, bottled drinking-water units.

F. Maintain daily in clean and sanitary condition.

1.04 BARRIERS

A. Provide barriers to prevent unauthori□ed entry to construction areas, to prevent access to areas that could be ha□ardous to workers or the public, to allow for owner s use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

D. Warning Signs and ights: Comply with standards and code requirements for erection of barricades. Paint appropriate warning signs to inform personnel and the public of the ha□ard being protected against. Where needed provide lighting, including flashing lights.

1.0 INTERIOR ENCLOSURES

A. Provide temporary partitions and ceilings as indicated to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.

B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces:

1.06 SECURITY

A. Provide security and facilities to protect Work, existing facilities, and Owner s operations from unauthori□ed entry, vandalism, or theft.

1.0 EHICULAR ACCESS AND PAR ING

A. Coordinate access and haul routes with governing authorities and Owner.

B. Provide and maintain access to fire hydrants, free of obstructions.

C. Provide means of removing mud from vehicle wheels before entering streets.

D. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.0 WASTE REMO AL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site periodically.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.0 REMO AL OF UTILITIES FACILITIES AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.

B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition.

PART 3 EXECUTION

2.01 CONDITIONS OF USE

A. ocate facilities where they will service the project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. eep temporary facilities clean and neat in appearance. Operate safely and efficiently. Relocate as the Work progressed. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow ha□ardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

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. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Section 01 2500 - Substitution Procedures: Substitutions made during procurement and/or construction phases.

B. Section 01 6116 - olatile Organic Compound (OC) Content Restrictions: Requirements for OC-restricted product categories.

C. Section 01 7419 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging and substitutions.

1.03 SUBMITTALS

A. 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.

B. 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.

C. 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.

D. Indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by 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 Contract Documents.

B. Use of products having any of the following characteristics is not permitted:
   1. Made using or containing CFC s or HCFC s.
   2. Made of wood from newly cut old growth timber.
   3. Containing lead, cadmium, or asbestos.

C. Where other criteria are met, Contractor shall give preference to products that:
   1. If used on interior, have lower emissions, as defined in Section 01 6116.

2. If wet-applied, have lower OC content, as defined in Section 01 6116.
3. Result in less construction waste. See Section 01 7419
4. Are made of recycled materials.
5. If made of wood, are made of sustainably harvested wood, wood chips, or wood fiber.
6. Have a published GreenScreen Chemical Ha□ard Analysis.

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 aming 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 aming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

D. Products specified as "Basis of Design": The product has been selected as an example and standard of the performance, appearance, or function desired, or for one or more other reasons. The product named is used as the basis of comparison of other products which may be proposed or submitted for review. In some cases, other details or construction assemblies are based on the characteristics of the product named. Products named in addition to the Basis of Design product must still comply with other technical criteria and requirements listed.

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 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 minimi□e 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 minimi□e handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 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 minimi□e waste due to excessive materials handling and misapplication. See Section 01 7419.

B. Store and protect products in accordance with manufacturers instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weathertight, 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.

. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

. 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 01 000
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.

C. Pre-installation meetings.

D. Cutting and patching.

E. Surveying for laying out the work.

F. Cleaning and protection.

G. Starting of systems and equipment.

H. Demonstration and instruction of Owner personnel.

I. Closeout procedures, including Contractor s Correction Punch ist, except payment procedures.

. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - SUMMAR : imitations 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 - uality Requirements: Testing and inspection procedures.

D. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.

E. Section 07 8400 - Firestopping.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
   1. On request, submit documentation verifying accuracy of survey work.
   2. Submit a copy of site drawing signed by the and Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.
   3. Submit surveys and survey logs for the project record.

C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
   1. Structural integrity of any element of Project.
      a. Do not cut and patch structural elements in a manner that could change their load supporting capacity or load deflection ratio.
   2. Integrity of weather exposed or moisture resistant element.
   3. Efficiency, maintenance, or safety of any operational element.
      a. Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
   4. isual qualities of sight exposed elements.
      a. isual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Architect s opinion, reduce the building s aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
   5. Work of Owner or separate Contractor.

6. Include in request:
   a. Identification of Project.
   b. ocation and description of affected work.
   c. ecessity for cutting or alteration.
   d. Description of proposed work and products to be used.
   e. Effect on work of Owner or separate Contractor.
   f. Written permission of affected separate Contractor.
   g. Date and time work will be executed.

D. Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

E. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.04 QUALIFICATIONS

A. For surveying work, employ a land surveyor registered in Indiana and acceptable to Architect. Submit evidence of surveyor s Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities,

B. For field engineering, employ a professional engineer of the discipline required for specific service on Project, licensed in Indiana. Employ only individual(s) trained and experienced in establishing and maintaining hori□ontal and vertical control points necessary for laying out construction work on project of similar si□e, scope and/or complexity.

C. For design of temporary shoring and bracing, employ a Professional Engineer experienced in design of this type of work and licensed in Indiana.

1.0 PRO ECT CONDITIONS

A. Use of explosives is not permitted.

B. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

C. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

D. Perform dewatering activities, as required, for the duration of the project.

E. entilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

F. Dust Control: Execute work by methods to minimi□e 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 barriers between construction areas and areas continuing to be occupied by Owner.

G. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
   1. Comply with Indiana Handbook for Erosion Control in Developing Areas, and applicable local and State ordinances and codes.
   2. Develop and submit to authorities having jurisdiction written erosion control plan, if applicable.

1.06 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. otify affected utility companies and comply with their requirements.

C. erify 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. Utili□e spaces efficiently to maximi□e 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 minimi□e disruption of Owner s activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. ew Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and uality 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. erify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. erify 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 minimi□e waste due to over-ordering or misfabrication.

E. erify 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. otify Architect seven 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 LAYING OUT THE WOR

A. erify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Contractor shall locate and protect survey control and reference points.

D. Control datum for survey is that indicated on drawings.

E. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

F. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

G. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

H. Utili□e recogni□ed engineering survey practices.

I. Establish elevations, lines and levels. ocate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.
   3. Building foundation, column locations, ground floor elevations.

. Periodically verify layouts by same means.

. Maintain a complete and accurate log of control and survey work as it progresses.

3.0 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 hori□ontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and hori□ontal 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.

3.06 ALTERATIONS

A. Drawings showing existing construction and utilities are based on the best information available. Do not rely on drawings for locations of existing site improvements.
   1. erify 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. 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.

C. Remove existing work as indicated and as required to accomplish new work.
   1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
   2. Remove items indicated on drawings.
   3. Relocate items indicated on drawings.

4. 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.
5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

D. Services (Including but not limited to H AC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   a. Disable existing systems only to make switchovers and connections; minimi□e duration of outages.
   b. Provide temporary connections as required to maintain existing systems in service.
4. erify that abandoned services serve only abandoned facilities.
5. Remove abandoned pipe, ducts, conduits, and equipment , including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

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.

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.

. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

. Do not begin new construction in alterations areas before demolition is complete.

. Comply with all other applicable requirements of this section.

3.0 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-complying work.

D. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.

E. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimi□e damage and restore to original condition.

F. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

G. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

H. Restore work with new products in accordance with requirements of Contract Documents.

I. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

. 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.

. 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.

. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

M. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

. Patch or replace surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. Repair substrate prior to patching finish. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.0 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.

3.0 PROTECTION OF INSTALLED WOR

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.

3.10 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. otify Architect and Owner seven days prior to start-up of each item.

C. erify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

D. erify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. erify that wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Contractor personnel and manufacturer s representative in accordance with manufacturers instructions.

G. When specified in individual specification Sections, require manufacturer to provide authori□ed representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.11 DEMONSTRATION AND INSTRUCTION

A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within twelve months.

C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner s personnel.

D. The amount of time required for instruction on each item of equipment and system is that specified in individual sections.

3.12 AD USTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

B. Testing, adjusting, and balancing H AC systems: See Section 23 0593 - Testing, Adjusting, and Balancing for H AC.

3.13 FINAL CLEANING

A. Use cleaning materials that are nonha□ardous.

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. Replace filters of operating equipment.

F. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.

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.

3.14 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.
   1. Provide copies to Architect.

B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor s Correction Punch ist for Contractor s otice of Substantial Completion.

C. otify Architect when work is considered ready for Substantial Completion.
   1. Preliminary Procedures: Before requesting final verification for determining date of Substantial Completion, complete the following. ist items below that are incomplete in request.
      a. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
      b. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. abel with manufacturer s name and model number where applicable.
      c. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
   2. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor s list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
      a. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
      b. Results of completed inspection will form the basis of requirements for Final Completion.

D. Submit written certification containing Contractor s Correction Punch ist, 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 ist 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 ist and comply with requirements for access to Owner-occupied areas.

G. otify Architect when work is considered finally complete and ready for Architect s Substantial Completion final inspection.
   1. Preliminary Procedures: Before requesting final verification of compliance for determining date of Final Completion, complete the following:
      a. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."

b. Submit certified copy of Architect s Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
c. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
d. Submit a statement, accounting for changes to the Contract Sum.
e. Submit consent of surety to final payment.
f. Submit waivers of liens from subcontractors and material suppliers.
g. Submit record drawings, maintenance manuals, final project photographs, damage or settlement surveys, property surveys and similar final record information.
h. Submit sworn affidavit stating that no material containing asbestos or polychlorinated biphenyl (PCB) were used or installed under this project.
i. Complete final cleanup requirements, including touchup painting.

H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

3.1 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. Furnish service and maintenance of components indicated in specification sections during the warranty period.

D. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

E. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

F. 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 00
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project record documents.

B. Closeout Release Documents.

C. Operation and maintenance data.

D. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

B. Individual Product Sections: Specific requirements for operation and maintenance data.

C. 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.
   1. 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.
   2. Final Submission: Submit one full size set of revised final documents in final form within 10 days after final inspection.
      a. Submit one electronic set in the form of pdf documents.

B. Closeout Release Documents:

C. 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.

D. 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 PRO ECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Addenda.
   3. Change Orders and other modifications to the Contract.

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. Record Drawings: egibly 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. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

E. 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.

F. Provide servicing and lubrication schedule, and list of lubricants required.

G. Include manufacturer s printed operation and maintenance instructions.

H. Include sequence of operation by controls manufacturer.

I. Provide original manufacturer s parts list, illustrations, assembly drawings, and diagrams required for maintenance.

. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

. Include test and balancing reports.

. Additional Requirements: As specified in individual product specification sections.

3.0 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. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

D. Prepare data in the form of an instructional manual.

E. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring si□e. When multiple binders are used, correlate data into related consistent groupings.

F. Cover: Identify each binder with typed or printed title OPERATIO A D MAI TE A CE I STRUCTIO S; identify title of Project; identify subject matter of contents.

G. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.

H. Tables of Contents: ist 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.

I. 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.

. Text: Manufacturer s printed data, or typewritten data on 24 pound paper.

. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to si□e of text pages.

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. erify that documents are in proper form, contain full information, and are notari□ed.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

SECTION 02 4100
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of built site elements.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - SUMMAR : imitations on Contractor s use of site and premises.

B. Section 01 1000 - SUMMAR : Description of items to be salvaged or removed for re-use by Contractor.

C. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

D. Section 01 6000 - Product Requirements: Handling and storage of items removed for salvage and relocation.

1.03 REFERENCE STANDARDS

A. FPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

PART 3 EXECUTION

2.01 SCOPE

A. Scope of work as indicated on the drawings.

B. Remove other items indicated, for salvage, relocation, and recycling.

C. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as specified in Section 31 2200.

2.02 GENERAL PROCEDURES AND PRO ECT CONDITIONS

A. Comply with other requirements specified in Section 01 7000.

B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Comply with applicable requirements of FPA 241.
   3. Use of explosives is not permitted.
   4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   5. Provide, erect, and maintain temporary barriers and security devices.
   6. Use physical barriers to prevent access to areas that could be ha□ardous to workers or the public.
   7. Conduct operations to minimi□e effects on and interference with adjacent structures and occupants.
   8. Do not close or obstruct roadways or sidewalks without permit.
   9. Conduct operations to minimi□e obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
   10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

C. Do not begin removal until receipt of notification to proceed from Owner.

D. Do not begin removal until built elements to be salvaged or relocated have been removed.

E. Do not begin removal until vegetation to be relocated has been removed and specified measures have been taken to protect vegetation to remain.

F. Protect existing structures and other elements that are not to be removed.

1. Provide bracing and shoring.
2. Prevent movement or settlement of adjacent structures.
3. Stop work immediately if adjacent structures appear to be in danger.

G. Minimi□e production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

H. If ha□ardous materials are discovered during removal operations, stop work and notify Architect and Owner; ha□ardous materials include regulated asbestos containing materials, lead, PCB s, and mercury.

I. Perform demolition in a manner that maximi□es salvage and recycling of materials.
1. Dismantle existing construction and separate materials.
2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

2.03 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. ocate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

2.04 SELECTI E DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
1. erify that construction and utility arrangements are as indicated.
2. Report discrepancies to Architect before disturbing existing installation.
3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Remove existing work as indicated and as required to accomplish new work.
1. Remove items indicated on drawings.

C. 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.
4. Patch as specified for patching new work.

2.0 DEBRIS AND WASTE REMO AL

A. Remove debris, junk, and trash from site.

B. eave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 03 3000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete formwork.

B. Concrete reinforcement.

C. oint devices associated with concrete work.

D. Concrete curing.

1.02 REFERENCE STANDARDS

A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; 2010.

B. ACI 211.1 - Standard Practice for Selecting Proportions for ormal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

C. ACI 301 - Specifications for Structural Concrete; 2010 (Errata 2012).

D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; 2004 (Errata 2007).

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000.

F. ACI 305R - Hot Weather Concreting; 2010.

G. ACI 306R - Cold Weather Concreting; 2010.

H. ACI 308R - Guide to Curing Concrete; 2001 (Reapproved 2008).

I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2011.

. ACI 347R - Guide to Formwork for Concrete; 2014.

. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement; 2015.

. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2013.

M. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2015a.

. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2015.

O. ASTM C150/C150M - Standard Specification for Portland Cement; 2015.

P. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2007.

. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the olumetric Method; 2014.

R. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.

S. ASTM C1059/C1059M - Standard Specification for atex Agents for Bonding Fresh to Hardened Concrete; 2013.

T. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2012.

U. ASTM E1643 - Standard Practice for Selection, Design, Installation and Inspection of Water apor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2011.

1.03 SUBMITTALS

A. See Section 01 33 00 - for submittal procedures.

B. Mix Design: Submit proposed concrete mix design.
   1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
   2. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete uality, Mixing and Placing.

C. Test Reports: Submit report for each test or series of tests specified.

D. Manufacturer s Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.

1.04 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Follow recommendations of ACI 306R when concreting during cold weather.

1.0 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 FORMWOR

A. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.

B. Form Materials: Contractor s choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
   1. Form Facing for Exposed Finish Concrete: Contractor s choice of materials that will provide smooth, stain-free final appearance.
   2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces. atural rock formations that maintain a stable vertical edge may be used as side forms.
   3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
   4. Form Ties: Taper removable bolt type that will leave no metal within 1-1/2 inches of concrete surface.

2.02 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
   1. Type: Deformed billet-steel bars.
   2. Finish: Unfinished, unless otherwise indicated.

B. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch.
   2. Chairs, Bolsters, Bar Supports, Spacers: Si ed and shaped for adequate support of reinforcement during concrete placement.
   3. Provide stainless steel, galvani ed, plastic, or plastic coated steel components for placement within 1-1/2 inches of weathering surfaces.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type I - ormal Portland type.
   1. Acquire cement for entire project from same source.

B. Fine and Coarse Aggregates: ASTM C33/C33M.

2.04 ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

B. Air Entrainment Admixture: ASTM C260/C260M.

2.0 ACCESSORY MATERIALS

A. on-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plastici ing agents.

2.06 BONDING AND OINTING PRODUCTS

A. atex Bonding Agent: on-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.

B. Slab Isolation oint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.

2.0 CONCRETE MIX DESIGN

A. Proportioning ormal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
   1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

C. DO OT add water to concrete at site in amounts that would exceed the specified W/C ratio.
   1. Maintain records of water added to concrete at time of placement, indicating amounts, method, and reason.

D. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.

E. ormal Weight Concrete:
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch.
   2. Water-Cement Ratio: Maximum 50 percent by weight.
   3. Total Air Content: 5 percent, determined in accordance with ASTM C173/C173M.
   4. Maximum Slump: 3 inches.
   5. Maximum Aggregate Si□e: 3/4 inch.

2.0 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.

B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

B. erify that forms are clean and free of rust before applying release agent.

C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer s instructions.
   1. Use latex bonding agent only for non-load-bearing applications.

E. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. erify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

C. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

3.0 SLAB OINTING

A. ocate joints as indicated on drawings.

B. Anchor joint fillers and devices to prevent movement during concrete placement.

C. Isolation oints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

D. Saw Cut Contraction oints: Saw cut joints before concrete begins to cool, within 24 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.

E. Install joint devices in accordance with manufacturer s instructions.

3.06 CONCRETE FINISHING

A. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:

1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.

3.0 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

1. ormal concrete: ot less than 3 days.

3.0 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - uality Requirements.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.

D. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.

3.0 DEFECTI E CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.10 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

SECTION 03 3 33
STAMPED CONCRETE FINISHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Stamping of new full-depth concrete.

B. Coloring of stamped concrete.

1.02 REFERENCE STANDARDS

A. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2013.

B. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete; 2010.

C. ASTM C1315 - Standard Specification for iquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete; 2011.

1.03 ADMINISTRATI E REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to start of work of this section.
   1. Require attendance of parties directly affecting work of this section, including:
      a. Installer.
      b. Contractor s representative.
      c. Architect.
   2. Review mock-ups, material sequence, preparation and application, cleaning, protection and coordination with other work.

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. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Shop Drawings: Indicate location of construction and control joints.

D. Design Samples: Submit samples for approval; demonstrate pattern, color, and finishing, using specified materials and techniques, applied to plywood.
   1. umber of Samples: One of each color and pattern combination specified.
   2. Si e: 24 by 24 inches.

E. Maintenance Data: Provide data on maintenance and renewal of applied finishes.

1.0 QUALITY ASSURANCE

A. Installer ualifications: Company speciali ing in performing the work of this section with minimum five years documented experience and approved by owner.

1.06 MOC -UPS

A. Construct mock-up(s) of stamped concrete to serve as basis for evaluation of workmanship.
   1. umber of Mock-Ups to be Prepared: One.
   2. Use same materials and methods for use in the work.
   3. Use approved design samples as basis for mock-ups.
   4. Record technique, timed procedures and material used.
   5. ocate where directed.
   6. Minimum Si e: 4 by 4 feet.

B. Obtain approval of mock-up by Architect before proceeding with work.

C. Retain mock-up(s) until completion of work for use as quality standard.

1.0 DELI ERY STORAGE AND HANDLING

A. Deliver materials to site in manufacturer s original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Store and handle materials in accordance with manufacturer s instructions.

C. eep materials in manufacturer s original, unopened containers and packaging until application.

D. Store materials in clean, dry area indoors and out of direct sunlight.

E. eep materials from free ing.

F. Protect materials during storage, handling, and application to prevent contamination or damage.

1.0 FIELD CONDITIONS

A. Do not install materials when air and surface temperatures are below 55 degrees F or above 80 degrees F.

B. Do not install materials when rain, snow, or excessive moisture is expected during application or within 24 hours after application.

PART 2 PRODUCTS

2.01 STAMPED CONCRETE APPLICATIONS

A. Full Depth Stamped Concrete Slab - Type 1: Patterned new concrete.
   1. Application(s): All indicated exterior locations.
   2. Pattern: To be selected from manufacturer s full line.
   3. As last step, apply combination curing compound / clear sealer.

2.02 FULL-DEPTH CONCRETE SLAB MATERIALS

A. See other section(s) for concrete design mix, mixing, forming, and reinforcement.

B. Slump: 4.0 inches maximum.

C. Do not use calcium chloride or admixtures containing calcium chloride.

D. Aggregates: Use non-reactive fine and coarse aggregates free from deleterious material and complying with ASTM C33/C33M.

2.03 STAMPING MATERIALS

A. Stamping Mats: Mat type imprinting tools for texturing freshly placed concrete, in pattern and texture to achieve required surface profile and design.
   1. Mat Composition: Polyurethane.
   2. Pattern: As indicated on drawings..
      a. Allow for (2) patterns.
   3. Products:
      a. .M. Scofield Company; ithotex Pavecrafters: www.scofield.com/ sle.
      a. Substitutions: See Section 01 6000 - Product Requirements.

B. Release Agent: Bond breaker compound capable of releasing stamping forms from concrete without creating surface defects or leaving any residue; type as recommended by stamping mat manufacturer; compatible with concrete, form materials and specified coloring agents.

2.04 INTEGRAL COLORING AGENTS

A. Concrete Pigment: Pure, concentrated mineral pigments specifically intended for mixing into concrete and complying with ASTM C979/C979M.
   1. Concentration: Base dosage rates on weight of Portland cement, fly ash, silica fume, and other cementitious materials but not aggregate or sand.
   2. Packaging: If pigments are to be added to mix at site, furnish pigments in premeasured disintegrating bags to minimi e job site waste.
   3. Color(s): As indicated on drawings.
      a. Allow for (2) different pigment colors.
   4. Products:

a. .M. Scofield Company; ithochrome Color Hardener: www.scofield.com/ sle.
b. Substitutions: See Section 01 6000 - Product Requirements.

2.0 ACCESSORY MATERIALS

A. Curing and Sealing Compound: Clear, non-yellowing, non-staining, breathable, U stable curing agent and sealer, complying with ASTM C1315 and compatible with all components of stamped concrete systems.

B. Concrete Cleaner: Biodegradable cleaning and neutrali□ing agent for removal of curing compounds.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine surfaces and areas to receive stamped concrete.

B. erify that utility penetrations and peripheral work are complete.

C. otify Architect of conditions that would adversely affect application or subsequent use.

D. Do not begin preparation or application until unacceptable conditions are corrected.

3.02 PREPARATION

A. Protect adjacent surfaces, areas, adjoining walls, and landscaping from overspray, blown dry materials, and damage due to work of this section.

B. Immediately remove dry pigmented materials from surfaces on which they are not intended to be applied.

3.03 STAMPING

A. Match approved mock-ups for pattern, color, texture, and workmanship.

B. Use stamping mats to create patterns in concrete as indicated on drawings; comply with manufacturer s recommendations and instructions.

C. Use release agent to prevent damage to concrete surface or creation of bugholes during mat removal.

D. After removal of stamping mats, make minor surface repairs as required.

3.04 CURING

A. Protect recently placed materials from premature drying, excessive hot or cold temperatures and mechanical injury until fully cured.

3.0 SURFACE TREATMENTS

A. Match approved mock-ups for pattern, color, texture, and workmanship.

B. Wait at least 28 days before applying any surface treatment materials or mechanical finishing.

C. Clean curing agent residue off surface prior to application of surface treatment materials.
1. Apply concrete cleaner in accordance with manufacturer s instructions to remove excess form release agent, efflorescence, cement scale and curing agents.

D. Sealer/Coating Application: Apply uniformly over entire surface in accordance with manufacturer s instructions.

3.06 PROTECTION

A. Do not allow traffic on finished surfaces for the following periods after application:
1. Foot Traffic: Minimum 24 hours.

B. Protect finished work from damage during construction and ensure that, except for normal weathering, work will be without damage or deterioration at time of Substantial Completion.

END OF SECTION

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SECTION 06 1000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural dimension lumber framing.

B. onstructural dimension lumber framing.

C. Rough opening framing for doors, windows, and roof openings.

D. Sheathing.

E. Roofing nailers.

F. Miscellaneous framing and sheathing.

G. Concealed wood blocking, nailers, and supports.

H. Miscellaneous wood nailers, furring, and grounds.

1.02 RELATED REQUIREMENTS

A. Section 05 5000 - Metal Fabrications: Miscellaneous steel connectors and support angles for wood framing.

B. Section 07 2500 - Weather Barriers: Water-resistive barrier over sheathing.

C. Section 09 2116 - Gypsum Board Assemblies: Gypsum-based sheathing.

1.03 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for inc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

B. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing; 2003 (Reapproved 2009).

C. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

D. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2015.

E. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.

F. ICC (IBC) - International Building Code; 2015.

G. PS 20 - American Softwood umber Standard; 2010.

H. SPRI RP-4 - Wind Design Standard for Ballasted Single-Ply Roofing Systems; 2002 (A SI/SPRI RP-4).

I. SPIB (GR) - Grading Rules; 2014.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide technical data on application instructions.

C. Manufacturer s Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

1.0 DELI ERY 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 GENERAL REQUIREMENTS

A. Dimension umber: Comply with PS 20 and requirements of specified grading agencies.

1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.

2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American umber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

B. Provide sustainably harvested wood; see Section 01 6000 - Product Requirements for requirements.

C. Provide wood harvested within a 500 mile radius of the project site.

D. umber fabricated from recovered timber is permitted in lieu of sustainably harvested lumber, unless otherwise noted, provided it meets the specified requirements for new lumber and is free of contamination; identify source.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).

B. Si□es: ominal si□es as indicated on drawings, S4S.

C. Moisture Content: S-dry or MC19.

D. Stud Framing (2 by 2 through 2 by 6):
1. Species: Allowed under referenced grading rules.
2. Grade: o. 2.

E. Miscellaneous Framing, Blocking, ailers, Grounds, and Furring:
1. umber: S4S, o. 2 or Standard Grade.

2.03 ACCESSORIES

A. Fasteners and Anchors:
1. Metal and Finish: Hot-dipped galvani□ed steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.

B. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.

2.04 FACTORY WOOD TREATMENT

A. Treated umber 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 A SC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Preservative Pressure Treatment of umber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
1. iln dry lumber after treatment to maximum moisture content of 19 percent.
2. Treat lumber in contact with roofing, flashing, or waterproofing.
3. Treat lumber in contact with masonry or concrete.

PART 3 EXECUTION

3.01 PREPARATION

A. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.

3.02 INSTALLATION - GENERAL

A. Select material si□es to minimi□e 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 si□es, spacing, and configurations indicated, and fastener si□e and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

E. 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.

F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOC ING NAILERS AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. 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.

C. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

D. Provide the following specific nonstructural framing and blocking:
1. Cabinets and shelf supports.
2. Wall brackets.
3. Grab bars.
4. Towel and bath accessories.
5. Wall-mounted door stops.
6. Wall paneling and trim.
7. oints of rigid wall coverings that occur between studs.

3.0 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

B. Cut and fit miscellaneous carpentry accurately and securely fasten. Install members plumb and true to line and level.

C. Install perimeter wood nailers true to line and level, with the outside edge of wood nailer aligned flush with outermost wall face. Comply with recommendations of ational Roofing Contractors Association (RCA) “Roofing and Waterproofing Manual”, third edition.

D. Install perimeter wood nailers as reccommended " ow Slope membrane edge securement, except gutter, shall be designated, tested and installed for Building Code wind load requirements, and tested for resistance in accordance with A SI/SPRI ES-1.

E. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attachment of other work as follows:

F. Wood nailers installed at building corners (with corners being defined as the distance from the building corner that is 10 of the minimum building width or 40 of the building height at the eaves, whichever is smaller, but in case less than 3 feet) are to be installed and secured so that basic attachment is sufficient enough to resist a minimum of 200 pounds per foot force.

G. Wood nailers installed at perimeter sections of the roof edge located between the corners, are to be installed and secured so that the basic attachment is sufficient enough to resist a minimum of 100 pounds per foot force.

H. Blocking at all edge conditions should be a minimum thickness of 1.5 inches and be sufficient width to extend at least 1/2 inch minimum beyond the nailing flange of the roof edge flashing.

I. Install fasteners without splitting wood blocking.

. Fasten wood blocking to allow for expansion at joints, unless otherwise noted.

. Wood blocking secured to either masonry, steel or additional wood members as follows:

1. Masonry: when the bottom nailer is to be installed in direct contact with masonry, the nailer is to be secured with a corrosion resistant anchor bolt, countersunk into nailer and attached to nailer with a nut and washer. Anchor bolts should be a minimum □ inch in diameter and spaced 4 feet c/c max. apart. If nailer is larger than 6 inches, then anchor bolts should be staggered to avoid splitting the wood. Anchors are to be bent 90 degrees at the base or have heads designed to prevent rotation and slipping out. When securing nailers to hollow block masonry at roof line, fill cores or voids in the top row with full density concrete.
2. Steel deck: when bottom nailer is anchored directly to steel, a steel angle needs to be installed. ailer is anchored to steel with corrosion resistant anchor bolts, minimum 1/2 inch in diameter and spaced 4 foot center to center maximum. When the deck is a minimum 22 ga steel, the angle should be secured to the deck with fasteners having a minimum 360 pound pull out rating. Fasteners for steel angle are to be installed on maximum 12 inch centers with a minimum 5/8 inch diameter washer under the screw heads.
3. Additional Wood Blocking: when additional wood blocking is stacked onto new or existing blocking, the securement of the blocking that is being anchored too should be verified for proper securement. Additional stacked wood blocking onto existing blocking properly secured, should be fastened with corrosion resistant screws having a pull-out resistance of at least 360 pounds per fastener. Screws are to be staggered and spaced a maximum 12-inches center to center. Screws in corners are to be staggered and spaced 6-inches maximum center to center.
4. Concrete and Gypsum Decks: Wood blocking is not to be fastened directly to concrete or gypsum decks. Wood blocking needs to be installed directly to wall structure.

3.06 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer s instructions.

B. Allow preservative to dry prior to erecting members.

3.0 CLEANING

A. Waste Disposal: See 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 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 10 3
MISCELLANEOUS ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Communications and electrical room mounting boards.

B. Concealed wood blocking, nailers, and supports.

1.02 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.

B. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.

C. PS 1 - Structural Plywood; 2009.

D. PS 20 - American Softwood umber Standard; 2010.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

1.04 DELI ERY 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, and installation.

1.0 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension umber: Comply with PS 20 and requirements of specified grading agencies.
   1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
   2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American umber 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.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Si□es: ominal si□es as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

C. Miscellaneous Framing, Blocking, ailers, Grounds, and Furring:
   1. umber: S4S, o.2 or Standard Grade.
   2. Boards: Standard or o.3.

2.03 CONSTRUCTION PANELS

A. Communications and Electrical Room Mounting Boards: PS 1, A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

2.04 FACTORY WOOD TREATMENT

A. Treated umber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

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 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 si□es to minimi□e 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 BLOC ING NAILERS AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. 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.

C. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

D. Provide the following specific nonstructural framing and blocking:
   1. Cabinets and shelf supports.
   2. Wall brackets.
   3. Handrails.
   4. Grab bars.
   5. Towel and bath accessories.
   6. Wall-mounted door stops.

3.04 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

B. Provide wood curb at roof openings except where prefabricated curbs are specified and where specifically indicated otherwise. Form corners by alternating lapping side members.

3.0 INSTALLATION OF CONSTRUCTION PANELS

A. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on edges and into studs in field of board.
   1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
   2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
   3. Install adjacent boards without gaps.

3.06 CLEANING

A. Waste Disposal: See 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 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 6600
CELLULAR P C FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cellular P C fabrications including the following:
   1. Trim

1.02 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry.

1.03 REFERENCES

A. ASTM International (ASTM): ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer s data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. erification Samples: For each finish product specified, two samples, minimum si e 6 inches (150 mm) square representing actual product, color, and patterns.

1.0 QUALITY ASSURANCE

A. Installer ualifications: Minimum 2 years experience installing similar products.

1.06 DELI ERY STORAGE AND HANDLING

A. Deliver and store products in manufacturer s unopened packaging bearing the brand name and manufacturer s identification until ready for installation.

B. Comply with manufacturer s recommendations. Handle materials to avoid damage.

1.0 PRO ECT 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 recommended limits.

1.0 WARRANTY

A. Provide manufacturer s standard limited warranty for products, stating that components will be free from defects in material that occur as a direct result of the manufacturing process, occur under normal use and service, occur during the warranty period and result in blistering, peeling, flaking, cracking, splitting, cupping, rotting or structural defects from termites or fungal decay.
   1. Trim Warranty Period: 25 years.

PART 1 PRODUCTS

2.01 MANUFACTURERS

A. A E Building Products, Inc., 894 Prairie Ave.; Wilmington, OH 45177; ASD Toll Free Tel: 877-AS -A E ; Email:request info; Web:https://www.a ek.com;https://timbertech.com

B. CertainTeed Corporation, 20 Moores Road, Malvern, Pennsylvania 19355. Tel: (800) 233-8990; Email: salessupportgroup certainteed.com; Web: www.certainteed.com.

C. ersatex, 400 Steel Street; Aliquippa, PA 15001; Tel: 724-857-1171; Email: sales verstex.com; Web: www.versatex.com

D. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.02 TRIM

A. Fire Performance Characteristics: Provide products complying with the following:

1. Flame Spread Index: ess than 25, ASTM E 84.

B. P C Trim: Material shall have the following characteristics:
1. Material: Solid Cellular P C.
2. Finish: Woodgrain
3. Color: White

2.03 ACCESSORIES

A. Fasteners: Stainless steel or hot-dip galvani□ed, with thin shank, blunt point, full round head as recommended by the manufacturer.

B. Adhesives: a non-toxic, odorless, U stable, water-based P C cement.

C. Sealants: Urethane, polyurethane or acrylic based sealants without silicone.

PART 1 EXECUTION

3.01 EXAMINATION

A. erification of Conditions: Examine areas and conditions under which Work is to be performed and identify conditions that may be detrimental to proper or timely completion.

B. Do not proceed until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General: Install products in accordance with manufacturer s instructions, approved submittals, and in proper relationship with adjacent construction.
1. Use manufacturer s recommended fasteners, not more than 2 inches from ends.
2. Glue joints to eliminate joint separation.
3. Allow for expansion and contraction at ends of the runs.

3.03 CLEANING AND PROTECTION

A. Protect from damage during construction operations. Promptly repair any damaged surfaces. Remove and replace work which cannot be satisfactorily repaired.

B. Clean products, prior to Substantial Completion, using materials recommended by the manufacturer to remove stains, dirt and debris prior to final acceptance.

END OF SECTION

SECTION 0 2 00
WEATHER BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water-Resistive Barrier: Under exterior wall cladding, over sheathing or other substrate; not air tight or vapor retardant.

B. Air Barriers: Materials that form a system to stop passage of air through exterior walls, joints between exterior walls and roof, joints around frames of openings in exterior walls, and .

1.02 RELATED REQUIREMENTS

A. Section 07 9005 - oint Sealers: Sealant materials and installation techniques.

1.03 DEFINITIONS

A. Weather Barrier: Assemblies that form either water-resistive barriers, air barriers, or vapor retarders.

B. Air Barrier: Air tight barrier made of material that is relatively air impermeable but water vapor permeable, both to the degree specified, with sealed seams and with sealed joints to adjacent surfaces. ote: For the purposes of this specification, vapor impermeable air barriers are classified as vapor retarders.

C. Water-Resistive Barrier: Water-shedding barrier made of material that is moisture resistant, to the degree specified, intended to be installed to shed water without sealed seams.

1.04 REFERENCE STANDARDS

A. ASTM C920; Standard Specification for Elasomeric oint Sealants

B. ASTM C1193; Standard Guide for Use of oint Sealants

C. ASTM D882; Test Method for Tensile Properties of Thin Plastic Sheeting

D. ASTM D1117; Standard Guide for Evaluation on-woven Fabrics

E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.

F. ASTM E96/E96M - Standard Test Methods for Water apor Transmission of Materials; 2014.

G. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials; 2013.

1.0 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on material characteristics.

C. Manufacturer s Installation Instructions: Indicate preparation.

D. ABAA Manufacturer ualification: Submit documentation of current evaluation of proposed manufacturer and materials.

E. ABAA Installer ualification: Submit documentation of current contractor accreditation and current installer certification; keep copies of each contractor accreditation and installer certification on site during and after installation, and present on-site documentation upon request.

1.06 QUALITY ASSURANCE

A. Air Barrier Association of America (ABAA) uality Assurance Program (AP); www.airbarrier.org/ sle:
   1. Installer ualification: Use accredited contractor, certified installers, evaluated materials, and third-party field quality control audit.
   2. Manufacturer ualification: Use evaluated materials from a single manufacturer regularly engaged in air barrier material manufacture, and use secondary materials approved in writing by primary material manufacturer.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

A. Water-Resistive Barrier: Provide on exterior walls under exterior cladding.

B. Air Barrier:
   1. On outside surface of inside wythe of exterior masonry cavity walls use air barrier coating.

2.02 WATER-RESISTI E BARRIER MATERIALS NEITHER AIR BARRIER NOR APOR RETARDER

A. Dupont Tyvek CommercialWrap: spunbonded polyolefin, non-woven, non-perforated.
   1. Performance Characteristics:
      a. Air Penetration: 0.001 cfm/ft2 at 75 PA, when tested in accordance with ASTM E2178. Type I per ASTM E1677. 0.04 cfm/ft2 at 75 PA, when tested in accordance with ASTM E2357
      b. Water apor Transmission: 28 perms, when tested in accordance with ASTM E96, Method B
      c. Water Penetration Resistance: 280 cm when tested in accordance with AATCC Test Method 127
      d. Basis Weight: 2.7 ox/yd2, when tested in accodrance with TAPPI Test Method T-410.
      e. Air Resistance: Air Infiltration at 1500 seconds, when tested in accordance with TAPPI Test Method T-460.
      f. Tensile Strength: 38/35 lbs/in., when tested in accordance with ASTM D8822, Method A.
      g. Tear Resistance: 12/10 lbs., when tested in accordance with ASTM D1117.
      h. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E 84. Flame Spread: 10, Smoke Developed: 10.
   2. Substitutions: See Section 01 6000 - Product Requirements.

2.03 AIR BARRIER MATERIALS WATER APOR PERMEABLE AND WATER-RESISTI E

A. Air Barrier, Fluid Applied: apor permeable, elastomeric waterproofing.

B. Air Barrier Coating:
   1. Air Pemeance: 0.001 cubic feet per minute per square foor, maximum, when tested in accordance with ASTM E2178.
   2. Water apor Permeance: 18 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure B (Water Method) at 73.4 degrees F.
   3. Manufacturers:
      a. Henry Company; Air-Bloc 16MR and/or 32MR: www.henry.com/ sle.
      b. Substitutions: See Section 01 6000 - Product Requirements.

2.04 SEALANTS

A. Sealant Backers: As recommended by manufactuer and as specified in Section 07 9005.

2.0 ACCESSORIES

A. Seam Tape: as recommended by manufacturer

B. Fasteners: As recommended by manufacturer of weather barrier

C. Sealants, Tapes, and Accessories for Sealing Weather Barrier and Sealing Weather Barrier to Adjacent Substrates: As specified or as recommended by weather barrier manufacturer.

D. Provide sealants that comply with ASTM C920, elastomeric polymer sealant to maintain watertight conditions.

E. Adhesive: As recommended by manufacturere of weather barrier.

F. Flashing and PRimers: as recommended by manufactuer of barrier.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify that surfaces and conditions are ready to accept the work of this section.

3.02 PREPARATION

A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

B. Clean and prime substrate surfaces to receive adhesives in accordance with manufacturer s instructions.

3.03 INSTALLATION

A. Install materials in accordance with manufacturer s instructions.

B. Water-Resistive Barriers: Install continuous barrier over surfaces indicated, with sheets lapped to shed water but with seams not sealed.

C. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

D. Mechanically Fastened Sheets - On Exterior:
   1. Install sheets shingle-fashion to shed water, with seams generally hori□ontal.
   2. Overlap seams as recommended by manufacturer but at least 6 inches.
   3. Overlap at outside and inside corners as recommended by manufacturer but at least 12 inches.
   4. Install water-resistive barrier over jamb flashings.
   5. Install head flashings under weather barrier.
   6. At openings to be filled with frames having nailing flanges, wrap excess sheet into opening; at head, seal sheet over flange and flashing.

E. Coatings:
   1. Prepare substrate in manner recommended by coating manufacturer; treat joints in substrate and between dissimilar materials as recommended by manufacturer.
   2. Where exterior masonry veneer is to be installed, install masonry anchors before installing weather barrier over masonry; seal around anchors air tight.
   3. Use flashing to seal to adjacent construction and to bridge joints.

F. Openings and Penetrations in Exterior Weather Barriers:
   1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
   2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches wide; do not seal sill flange.
   3. At openings to be filled with non-flanged frames, seal weather barrier to each side of opening framing, using flashing at least 9 inches wide, covering entire depth of framing.
   4. At head of openings, install flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.
   5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
   6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - uality Requirements, for additional requirements.

B. Coordination of ABAA Tests and Inspections:
   1. Provide testing and inspection required by ABAA AP.
   2. otify ABAA in writing of schedule for air barrier work, and allow adequate time for testing and inspection.
   3. Cooperate with ABAA testing agency.

4. Allow access to air barrier work areas and staging.
5. Do not cover air barrier work until tested, inspected, and accepted.

3.0 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

SECTION 0 4113
METAL ROOF PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Architectural roofing system of preformed steel panels.

B. Fastening system.

C. Factory finishing.

D. Accessories and miscellaneous components.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Roof sheathing.

B. Section 07 9005 - oint Sealers: Field-installed sealants.

1.03 REFERENCE STANDARDS

1.04 GENERAL

A. The extend of the standing seam metal roof system as indicated on drawings and by provisions of this section is defined to include liner panel, roof purlins and supplementary structural framing required to support roof mounted equipment; metal roof panels; roof insulation; eave and gable trim; flashings, sealant, fasteners, and miscellaneous flashings, closures and accessories directly related to the structural standing seam metal roof system.

B. Manufacturer s standard components shall be used provided components, accessories, and complete structure conform to design appearance shown and to specified requirements.

C. Performance Requirements: Provide performed systems that comply with performance requirements indicated based on pre-testing of installed panels using the following methods.
1. Air Infiltration: ASTM E 1680
2. Water Penetration: ASTM E1680 or E1646
3. Thermal: ASTM C 236
4. Wind Uplift Resistance U 580 Class 90

D. Design Criteria:
1. For structural steel members, comply with AISC "Specifications for the Design, Fabrication a. , and Erection of Structural Steel for Buildings".
2. For light gage steel members, comply with AISI "Specifications for the Design of Cold-Formed Steel Structural Members".
3. Design secondary members and covering for applicable loads and combination of loads in accordance with Metal Building Manufacturers' Association (MBMA) " Recommended Design Practice Manual".
4. For welded connections, comply with AWS "Structural Welding Code".
5. Design oads: The standing seam metal roof system shall be designed to sustain the specific loads in accordance with the current edition of the Indiana Building Code which shall meet or exceed the County Climatic Data, as published in the 1996 Edition of the MBMA ow Rise Building Systems Manual. The basic design wind uplift loading shall be calculated from a basic wind speed of 90 miles per hour in accordance with the Indiana Building Code without exceeding the allowable working stresses.
6. Wind Uplift: Provide roof panel system including supports meeting requirements of Underwriters aboratories, Inc. for Class 90 wind uplift resistance.

E. Fire-Resistance Ratings: Provide structural standing seam metal roof system based on assemblies tested and listed by testing and inspection organi□ation acceptable to authority having jurisdiction.

F. Supplier: A single standing seam metal roof system supplier shall furnish the system specified in this section and shall be a firm that is and has been for a minimum period of one year prior to
1. bid date and an authori□ed and franchised dealer of the standing seam metal roof system manufacturer.

G. Installer: The structural standing seam metal roof system installer shall be an "experienced" firm as defined herein.

1.0 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Prior to award of contract
   1. Manufacturer s product data describing standing seam metal roof system.
   2. Supplier Certification.
   3. Installer Certification referencing project.
   4. Manufacturer s Certification stating specified warranties will be provided for project.

C. Prior to commencement of Work:
   1. Erection shop drawings showing roof framing, transverse cross sections, covering and trim details, and accessory installation details to clearly indicate proper assembly of building components.
   2. Samples: Submit two (2) each of the following for Architect s review:
      a. Twelve inch long by actual width of roofing with required finish.
      b. Fasteners
      c. Sealant and closures
      d. Twelve inch long minimum x twelve inch wide minimum of actual structural standing seam metal roof system lap seams for both sides of a typical panel.
      e. Thermal Insulation

D. Certification by manufacturer that products have been pre-tested and comply with performance requirements indicated:
   1. oading requirements indicated
   2. Codes of authorities having jurisdiction
   3. Approval that standing seam metal roof system has been tested and approved by Underwriter s aboratory as Class 90.

E. Warranty: Submit specified manufacturer s warranty and ensure that forms have been completed in Owner s name and are registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Manufacturer ualifications: Company speciali ing in the manufacture of roofing systems similar to those required for this project, with not less than 5 years of documented experience.

B. Installer ualifications: Company trained and authori ed by roofing system manufacturer.

C. Maintenance Instructions: At the time of issuance of the warranty, a full set of instructions shall be included detailing preventative maintenance and noting a list of harmful substances which may damage the roof system.

D. A qualified technical representative of the manufacturer shall be available to make recommendations necessary to ensure compliance with the specifications and to make recommendations where unforeseen conditions become apparent to the Architect.

E. Provide special protection on newly completed roofing to avoid unusual wear and tear during installation.

F. Protect building walls, rooftop units, windows and other vulnerable components during installation.

G. Comply with roofing manufacturer recommendations as to allowable weather conditions during installation. Also, take into account the effect of high winds during installation of the roofing system.

H. Coordinate application of the roofing system with other trades in such a manner that the complete installations weather tight and in accordance with all approved details and warranty requirements.

1.0 DELI ERY STORAGE AND HANDLING

A. Provide strippable plastic protection on prefinished roofing panels for removal after installation.

B. Store roofing panels on project site as recommended by manufacturer to minimi□e damage to panels prior to installation.

C. Deliver and store standing seam metal roof system components and other manufactured items so they will not be damaged or deformed. Stack materials on platforms or pallets, covered with tarpaulins or other suitable watertight ventilated covering. Store metal sheets or panels so that water accumulations will drain freely. Do not store sheets or panels in contact with other material which might cause staining.

1.0 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Roofing Contractor s Warranty: Provide roofing contractor s "Roofing Warranty" typical in form and content indicated by Midwest Roofing Contractors Association, Inc. approved guarantee form no. 1987B, except 2-years instead of 1-year as indicated on form.

C. Finish Warranty: Provide standing seam metal roof system manufacturer s standard written warranty on finish film integrity and color retention. The finish will not crack, check, peel, flake, blister, chalk in excess of ASTM D659., number 8 rating, fade in excess of 5 units per ASTM D2244, under normal weather and atmospheric conditions. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents. Period of time shall be 20 years from date of Substantial Completion.

D. Manufacturer s Weathertightness Warranty: Watertightness Warranty: Provide standing seam metal roof manufacturer’s standard product and contractor workmanship liability "Roofing Manufacturer’s Basic Roofing Guarantee" from date of Substantial Completion. Warrant against leaks in roof panels arising out of or caused by ordinary wear and tear under normal weather and atmospheric conditions, defective materials and workmanship for the following period of time: Twenty (20) years.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with the requirements, provide architectural standing seam metal roof system by one of the following manufacturers:
   1. Standing Seam Metal Roof Systems:
      a. Dimensional Metal Inc.: "I 20 16" (striations).
      b. Firestone Building Products C.; "UC-14" (striations).
      c. Request for substitutions will be considered in accordance with provisions of Section 01 6000.

B. Hot-rolled Structural Shapes: ASTM A36 or A529.

C. Members Fabricated from Plate or Bar Stock; 50,000 psi minimum yield strength; ASTM A529, A570, A572 or A607.

D. Members Fabricated by Cold Forming: ASTM A607 or A570, Grade 50.

E. Structural uality Galvani□ed Steel Sheet: Hot-dip □inc-coated steel sheet 24 Gauge (.24") Galvalume Aluminum- inc Alloy Coated Steel Grade C meeting ASTM A792.

F. Structural uality Aluminum- inc Alloy-Coated Steel Sheet: Hot-dip aluminum-□inc coated steel sheet complying with ASTM A792 with class A -50 coating; Grade 40 or to suit manufacturer s standards.

G. Fluoropolymer Coating: Manufacturer s standard two-coat, thermo-cured, full-strength 70 percent " ynar 500" coating consisting of a primer and a minimum 0.75-mil dry film thickness of
   1. 9 mill and 30 percent reflective gloss when tested in accordance with ASTM D 523.
   2. Durability: The physical characteristics of the exterior coating shall provide resistance to failure through cracking, checking, cra□ing, spotting or loss of adhesion. The physical characteristics of the coating shall be measured by the following laboratory weather
      a. simulating tests to obtain test results justifying the manufacturer’s 20 year warranty and as follows:

b. Humidity Resistance at 100F and 100 relative humidity in accordance with ASTM D2247.
c. Salt Spray Resistance at 5 salt fog per ASTM B117.
d. Reverse Impact Resistance in accordance with ASTM D2794.
e. Resistance to Dry Heat
f. Abrasion resistance in accordance with ASTM D4060.
g. Chemical/Acid/Pollution Resistance.
1) Chemical spot tests in accordance with ASTM D1308 procedure 5a, for hydrochloric Acid, Sulfuric Acid and Sodium Hydroxide.
2) Chemical spot tests in accordance with ASTM D1308 procedure 5b, for Muriatic Acid and Tincture of Iodine.
3) Resistance to sulfur dioxide in accordance with ASTM D523.
h. Gloss finish shall be maintained evenly over entire surface in accordance with ASTM D523.

3. Color: As selected by the Architect from the manufacturer s standard colors.

H. Structural Framing: Purlins, eave struts, end wall beams, flange and sag bracing; minimum 16 gauge roll formed section. Shop painted. All framing members shall be factory pre-punched, or field drilled for roof clip placement.

I. Bolts: ASTM A306 or A325 as necessary for design loads and connection details. Provide inc or cadmium-plated units when in direct contact with panels.

2.02 ARCHITECTURAL METAL ROOF PANELS

A. Architectural Metal Roofing: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.

B. Metal Panels: Factory-formed panels with factory-applied finish.
1. Steel Panels:
a. Steel Thickness: Minimum 24 ga inch.
2. Profile: Standing seam, with minimum 1.75 inch seam height; concealed fastener system for field seaming with special tool.
3. Texture: Smooth.
4. ength: Full length of roof slope, without lapped hori ontal joints.
5. Width: Maximum panel coverage of 16 inches.

2.03 ATTACHMENT SYSTEM

A. Concealed System: Provide manufacturer s standard stainless steel or nylon-coated aluminum concealed anchor clips designed for specific roofing system and engineered to meet performance requirements, including anticipated thermal movement.

2.04 SECONDARY FRAMING

A. Shop Painting: Clean surfaces to be primed of loose mill scale, rust oil, grease, and other matter precluding paint bond. Follow procedures of SSPC-SP3 for power tool cleaning, and SSPC-SP1 for solvent cleaning.

B. Structural Steel Prime: Prime structural steel secondary framing members with manufacturer’s standard rust-inhibitive primer having rust-inhibitive pigment, such as inc chromate iron-oxide alkyd (TT-P-636) pr (TT-P-664).

2.0 PANEL FINISH

A. Finish: (Fluoropolymer Coating): Manufacturer’s standard two-coat, thermocured, full-strength 70 percent " ynar 500" coating consisting of a primer and a minimum dry film thickness of 0.9 mil and 30 percent reflective gloss when tested in accordance with ASTM D523.
1. Color: as selected by owner from manufactures standard colors.

2.06 ACCESSORIES AND MISCELLANEOUS ITEMS

A. Miscellaneous Sheet Metal Items: Provide flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, and equipment curbs of the same material, thickness,

and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.

B. Sealants: As specified in Section 07 9005.
   1. Exposed sealant must cure to rubber-like consistency.
   2. Concealed sealant must be non-hardening type.
   3. As recommended by manufacturer.

C. Thermal Batt Insulation: Glass fiber blanket insulation, complying with ASTM C991, of 0.5 pounds per cubic foot density, thickness as indicated, with U. . flame spread classification of 25 or less and two inch wide continuous vapor-tight edge tabs.

D. Waterproofing Underlayment: Provide membrane (continuous layer over entire roof. Also around obstructions and penetrations. Material shall be laminated sheet of polymer rubberi□ed asphalt and elastomeric 5-mil polymer film with release paper to self adhere to substrate.
   1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to the following:
      a. Dimensional Metal Inc.; "Dynaclad Ultra HT".
      b. Firestone Building Products C; "Clad-Gard SA"

E. Sealing Tape: 99 solids, pressure sensitive gray polyisobutylene compound tape with release paper backing. ot less than 1/2 inch wide and 1/8 inch thick, non-sag, nontoxic, non-staining and permanently elastic.

2.0 FABRICATION

A. Fabrication: Shop fabricate to the si□e and section required complete with bearing plates, and other plates as required for erection, welded in place, and with all required holes for anchoring or connections pre-drilled or pre-punched to template dimensions.
   1. Shop connections welded.
   2. Field connections bolted.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed roof will be free of leaks.

B. Remove protective film from surface of roof panels immediately prior to installation. Strip film carefully, to avoid damage to prefinished surfaces.

C. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberi□ed asphalt sheet, or other permanent method approved by roof panel manufacturer.

D. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.03 INSTALLATION

A. Overall: Install roofing system in accordance with approved shop drawings and panel manufacturer s instructions and recommendations, as applicable to specific project conditions. Anchor all components of roofing system securely in place while allowing for thermal and structural movement.
   1. Install roofing system with concealed clips and fasteners, except as otherwise recommended by manufacturer for specific circumstances.
   2. Minimi□e field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.

B. Accessories: Install all components required for a complete roofing assembly, including flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, equipment curbs, rib closures, ridge closures, and similar roof accessory items.

C. Sheet Metal Accessories: Install roof curbs, ventilators, louvers and other sheet metal accessories in accordance with manufacturer s recommendations for positive anchorage to building and weather tight mounting.

D. Install hori□ontally one ply of self adhering waterproofing underlayment shingle style to serve as temporary waterproofing membrane prior to installation of new metal roof system.

E. Roof Panels: Install panels in strict accordance with manufacturer's instructions, minimi□ing transverse joints except at junction with penetrations.
   1. Form weathertight standing seams incorporating concealed clips, using an automatic mechanical seaming device approved by the panel manufacturer.
   2. Incorporate concealed clips at panel joints, and apply snap-on battens to provide weathertight joints.
   3. Provide sealant tape or other approved joint sealer at lapped panel joints.

F. Framed Openings: Provide shapes of proper design and si□e to reinforce openings to carry loads and vibrations imposed, including equipment furnished under mechanical or electrical. Securely attach to building structural frame.

G. Dissimilar Materials: Where aluminum surfaces come in contact with ferrous metal or other incompatible materials, keep aluminum surfaces from direct contact by applications to the other material as follows:
   1. One coat of □inc chromate primer, FS TT-P-645, followed by two coats of aluminum paint, SSPC-Paint 101.
   2. In lieu of two coats of aluminum paint, apply one coat of high build bituminous paint, SSPC-Paint 12, applied to a thickness of 1/16" over □inc chromate primer. Back-paint aluminum surface where impractical to paint other surface.

3.04 CLEANING

A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.0 PROTECTION

A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.

B. Touch-up, repair, or replace damaged roof panels or accessories before date of Substantial Completion.

END OF SECTION

SECTION 0 6200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts, fascia, soffit, , and other items indicated in Schedule.

B. Sealants for joints within sheet metal fabrications.

1.02 RELATED REQUIREMENTS

A. Section 04 2000 - Unit Masonry: Metal flashings embedded in masonry.

B. Section 06 1000 - Rough Carpentry: Wood nailers for sheet metal work.

C. Section 06 1000 - Rough Carpentry: Wood nailers, curbs for roofing, and items installed on the roof.

D. Section 07 7100 - Roof Specialties:

E. Section 07 9200 - oint Sealants:

1.03 REFERENCE STANDARDS

A. AAMA 2604 - oluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2013.

B. ASTM A 167 - Standard Specification for Stainless and Heat-Resisting Chromium- ickel Steel Plate, Sheet, and Strip; 1999 (Reapproved 2004).

C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.

D. ASTM A 792/A 792M - Standard Specification for Steel Sheet, 55 Aluminum- inc Alloy-Coated by the Hot-Dip Process; 2006a.

E. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).

F. SMAC A (ASMM) - Architectural Sheet Metal Manual; 2012.

G. A SI/SPRI ES-1, 2011. Wind Design Standard for Edge Systems Used with ow Slope Roofing Systems;.

1.04 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.
   1. Provide shop drawings for those items factory or shop fabricated, showing extent of the work and all required details to describe the installation.

C. Provide samples for those items shop fabricated or assembled including all accessories and anchors required for the coping, fascia, curb or other sheet metal items. Submit samples of entire assembly to Architect for review and approval prior to commencing shop fabrication. Submit samples with actual finish to be installed. Samples to be eighteen inches long minimum.

D. Provide manufacturer's guarantee on the applied finishes to the various prefinished sheet metal components against oxidation, checking, peeling, fading, chalking in excess of 8 (ASTM D 523), or other deterioration of the finish for a period of five years.

E. Edge Metal Flashings-Submit certification that edge metal is fabricated, installed and tested in compliance with A SI/SPRI ES-1, 2011.

1.0 QUALITY ASSURANCE

A. Perform work in accordance with SMAC A (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

B. Fabricator and Installer ualifications: Company speciali□ing in sheet metal work with 5 years of documented experience.

1.06 DELI ERY 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. Galvani□ed Steel: ASTM A-653/A 653M, with G-90/ 275, commercial quality, or G-90 (ASTM A653/A 653M), lock-forming quality, hot-dip galvani□ed, mill phosphati□ed where indicated for painting; not less than 20 gauge 0.0359 inch thick, unless otherwise indicated.

B. Aluminum- inc Coated Steel Sheet (A): ASTM A 792, Class A -50 coating, Grade 40, 55 aluminum, 1.6 silicon, 44.4 □inc, 20 gauge (0.0320 inch), unless noted otherwise; ASTM A 792/A 792M, Class A -150 coating, Grade 275 triple spot coat average equivalent to 0.80 mils thickness both sides.

C. Aluminum or Steel Finishes: Comply with AAMM “Metal Finishes Manual” to produce uniformly finished products. For colored finishes (prefinished), if any, provide coating as indicated and colors as selected by Architect from manufacturer’s standard colors.
   1. Fluoropolymer Coating (FP): Manufacturer’s standard two-coat, thermocured, full-strength 70 percent “ ynar 500” coating consisting of a primer and a minimum dry film thickness of 0.9 mil and 30 percent reflective gloss when tested in accordance with ASTM D 523.
   2. Durability: Provide coating that has been field tested under normal range of weathering conditions for minimum of 20 years without significant peel, blister, flake, chip, crack, or check in finish; in accordance with AAMA 2604.
      a. Color and Gloss: As selected by Architect from Manufacturer s standard colors.

D. Stainless Steel Sheet: ASTM A 167, ASTM A 666, Type 304, soft annealed, with o. 2D finish, except where harder temper is required for forming or performance; minimum 0.0187 inch thick, unless otherwise indicated.

2.02 ACCESSORIES

A. Fasteners: oncorrosive metal, with soft EPDM washers. Match finish of exposed heads with material being fastened.

B. Sealant: Type Elastomeric specified in Section 07 9200.

C. Mastic Sealant: Polyisobutylene, nonhardening, nonskinning, nondrying, nonmigrating sealant.

D. Epoxy Seam Sealer: 2-part, noncorrosive, aluminum seam-cementing compound.

E. Adhesive: Type recommended for waterproof and weather-resistant seaming and adhesive.

F. Clip Straps, Anchoring Devices and Similar Accessories: Compatible with material being installed.

2.03 FABRICATION

A. Fabricate sheet metal flashing and trim to comply with recommendations of SMAC A’s “Architectural Sheet Metal Manual” that apply to the design, dimensions, metal and other characteristics of the item indicated.

B. Fabricate sheet metal flashing and trim to comply with recommendations of A SI/SPRI ES-1 that apply to the design, dimensions, metal and other characteristics of the item indicated.

C. Form sections true to shape, accurate in si□e, square, and free from distortion or defects.

D. Form pieces in longest possible lengths.

E. Hem exposed edges on underside 1/2 inch; miter and seam corners.

F. Form material with batten seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

G. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

H. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

I. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.

. Fabricate flashings to allow toe to extend 2 inches over roofing gravel. Return and brake edges.

. Fabricate fascia and coping to profiles and coping to profiles and details shown herein and/or as indicated on the drawings. Fabrication to be free of face distortion and oil canning. Fabrication shall not mar the prefinished surfaces of exposed components. Shop form materials in their entirety with only length adjustments and attachments in the field.

1. Contractor's Option: In lieu of shop fabricated fascia, copings and gutter and downspouts as herein identified, provide manufacturer's prefabricated fascia, coping and gutter and downspouts systems produced by:
   a. W.P. Hickman Company.
   b. Metal - Era
   c. When required by roofing material manufacturer to procure "Manufacturer's Warranty", provide required fascia and coping systems as specified by roofing material manufacturer.

. Coat back-side of fabricated sheet metal with 15-mil sulfur-free bituminous coating, ASTM D 4479 Type 1, where required for water-tight construction provide hooked flanges filled with polyisobutylene mastic for 1-inch embedment or flanges. Space joints at intervals of not more than 50 feet for steel, 30 feet for □inc alloy or aluminum. Conceal expansion provisions where possible.

M. 4 inch wide flange for setting sheet metal on MBR, and flexible sheet roofing system with concealment by MBR roofing sheet stripping or elastic roofing sheet stripping.

2.04 GUTTER AND DOWNSPOUT FABRICATION

A. Gutter: Profile as indicate

B. Downspouts: Rectangular profile.

C. Gutter and Downspouts: Si□e for rainfall intensity determined by a storm occurrence of 1 in 100 years in accordance with SMAC A (ASMM).

D. Accessories: Profiled to suit gutters and downspouts.
1. Anchorage Devices: In accordance with SMAC A (ASMM) requirements.
2. Gutter Supports: Brackets.
3. Downspout Supports: Straps.

E. Splash Pads: Precast concrete type, of si□e and profiles indicated; minimum 3000 psi at 28 days, with minimum 5 percent air entrainment.

F. Downspout Boots: Steel.
1. Manufacturer: Downspout Boots; www.downspoutboots.com

G. Downspout Extenders: Same material and finish as downspouts.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. erify 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. Install surface mounted receivers where indicated true to lines and levels. Seal top of reglets with sealant.

C. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

A. Comply with manufacturer's instructions and SMAC A's "Architectural Sheet Metal Manual" allow for thermal expansion; set true to line and level as indicated. Install Work with laps, joints, and seams permanently watertight and weatherproof; conceal fasteners where possible. Corners and bends of prefinished materials to be of radius from the base metals. Refinish or regalvani□e after fabrication.

1. Coordinate handling and installation of joints and sheet metal materials, to minimi□e exposure of expansion, to damage from other work of other trades and to provide proper integration of units with membranes and flashings.
2. Expansion Provisions: Provide for thermal expansion of exposed sheet metal Work. Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

B. Anchor work in place with noncorrosive fasteners, adhesives, setting compounds, tapes and other materials and devices as recommended by manufactures of each material or system. Provide for thermal expansion and building movements. Comply with recommendations of "Architectural Sheet Metal Manual" by SMAC A.

C. Soldered oints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except where pretinned surface would show in finished Work.

1. Pretinning is not required for lead.
2. Do not solder aluminum.

D. Seal moving joints in metal work with elastomeric joint sealants, complying with requirements specified in Division 7 Section " oint Sealant".

E. Sealed oints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMAC A standards. Fill joint with sealant and form metal to completely conceal sealant.

F. Clean metal surfaces of other substances which could cause corrosion of metal or discoloring of finish.

G. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.

H. Seams: Fabricate nonmoving seams in aluminum with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

I. Separations: Separate noncompatible metals or corrosive substrates with a coating of asphalt mastic. 15-mil sulfur-free bituminous coating ASTM D 4479 Type 1 metals from corrosive substrates, including cementitious materials, wood or other absorbent materials or other permanent separation as recommended by manufacturer.

. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..

. Apply plastic cement compound between metal flashings and felt flashings.

. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

M. Connect downspouts to downspout boots, and grout connection watertight.

. See details appended to the end of this section.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - uality Requirements, for field inspection requirements.

B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

3.0 MARTIN RILEY FASCIA SYSTEM COMPONENTS

END OF SECTION

SECTION 0 200 OINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. onsag gunnable joint sealants.

B. oint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 01 6116 - olatile Organic Compound (OC) Content Restrictions: Additional requirements for sealants and primers.

B. Section 09 2116 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.

C. Section 09 3000 - Tiling: Sealant between tile and plumbing fixtures and at junctions with other materials and changes in plane.

D. Section 23 3100 - H AC Ducts and Casings: Duct sealants.

1.03 REFERENCE STANDARDS

A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2006 (Reapproved 2011).

B. ASTM C834 - Standard Specification for atex Sealants; 2014.

C. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2012.

D. ASTM C920 - Standard Specification for Elastomeric oint Sealants; 2014.

E. ASTM C1193 - Standard Guide for Use of oint Sealants; 2013.

F. SCA MD 1168 - South Coast Air uality Management District Rule o.1168; current edition.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data for Sealants: Submit manufacturer s technical data sheets for each product to be used, that includes the following.

1. Physical characteristics, including movement capability, OC content, hardness, cure time, and color availability.
2. ist of backing materials approved for use with the specific product.
3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
4. Substrates the product should not be used on.

C. Product Data for Accessory Products: Submit manufacturer s technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer s color cards showing standard colors available for selection.

1.0 QUALITY ASSURANCE

A. Manufacturer ualifications: Company speciali□ing in manufacturing the products specified in this section with minimum three years documented experience.

B. Installer ualifications: Company speciali□ing in performing the work of this section and with at least three years of documented experience.

1.06 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 that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. on-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
   1. Adhesives Technology Corporation: www.atcepoxy.com/ sle.
   2. Dow Chemical Company: consumer.dow.com/en-us/industry/ind-building-construction.html/ sle.
   3. Hilti, Inc: www.us.hilti.com/ sle.
   4. Tremco Commercial Sealants Waterproofing: www.tremcosealants.com/ sle.
   5. W.R. Meadows, Inc: www.wrmeadows.com/ sle.
   6. Substitutions: See Section 01 6000 - Product Requirements.

2.02 OINT SEALANT APPLICATIONS

A. Scope:
   1. Exterior oints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
      a. Wall expansion and control joints.
      b. oints between door, window, and other frames and adjacent construction.
      c. oints between different exposed materials.
      d. Openings below ledge angles in masonry.
      e. Other joints indicated below.
   2. Interior oints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
      a. oints between door, window, and other frames and adjacent construction.
      b. In sound-rated wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
      c. oints between counters and walls.
   3. Do not seal the following types of joints.
      a. Intentional weepholes in masonry.
      b. oints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
      c. oints where sealant is specified to be provided by manufacturer of product to be sealed.
      d. oints where installation of sealant is specified in another section.

B. Type - Interior oints: Use non-sag polyurethane sealant, unless otherwise indicated.
   1. Type - Wall and Ceiling oints in on-Wet Areas: Acrylic emulsion latex sealant.

2.03 OINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products having lower volatile organic compound (OC) content than indicated in SCA MD 1168.

B. Colors: As indicated on drawings.

2.04 NONSAG OINT SEALANTS

A. Type E - Polyurethane Sealant for Continuous Water Immersion: ASTM C920, Grade S, Uses M and A; single or multi-component; explicitly approved by manufacturer for continuous water immersion; suitable for traffic exposure when recessed below traffic surface.
   1. Movement Capability: Plus and minus 35 percent, minimum.
   2. Color: Match adjacent finished surfaces.
   3. Manufacturers:
      a. Tremco Dymonic 100 or equal..

B. Type E C - on-Sag "Traffic-Grade" Polyurethane Sealant: ASTM C920, Grade S, Uses M and A; single or multi-component; explicitly approved by manufacturer for continuous water

immersion and traffic without the necessity to recess sealant below traffic surface.

1. Movement Capability: Plus and minus 25 percent, minimum.
2. Hardness Range: 40 to 50, Shore A, when tested in accordance with ASTM C661.
3. Color: Match adjacent finished surfaces.
4. Service Temperature Range: Minus 40 to 180 degrees F.

C. Type I - Acrylic Emulsion atex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.

1. Color: Standard colors matching finished surfaces, Type OP (opaque).
2. Grade: ASTM C834; Grade Minus 18 Degrees C (0 Degrees F).
3. Manufacturers:
   a. Pecora Corporation; AC-20 Silicone: www.pecora.com/ sle.
   b. Sherwin-Williams Company; 850A Acrylic atex Caulk: www.sherwin-williams.com/ sle.

2.0 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D. oint Cleaner: on-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.

E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify that joints are ready to receive work.

B. erify that backing materials are compatible with sealants.

C. erify that backer rods are of the correct si□e.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer s instructions.

C. Perform preparation in accordance with manufacturer s instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

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. Install bond breaker backing tape where backer rod cannot be used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

F. Do not install sealant when ambient temperature is outside manufacturer s recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer s approval is obtained and instructions are followed.

G. onsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

END OF SECTION

SECTION 0 113
EXTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Materials for backpriming woodwork.

D. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
   1. Exposed surfaces of steel lintels and ledge angles.
   2. Hollow metal doors and frames.
   3. Wood frames and trim.
   4. Other exposed wood surfaces.

E. Do ot Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise 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. Floors, unless specifically indicated.
   6. Glass.
   7. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

A. 40 CFR 59, Subpart D - ational olatile 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 D4258 - Standard Practice for Surface Cleaning Concrete for Coating; 2005 (Reapproved 2012).

D. ASTM D4259 - Standard Practice for Abrading Concrete; 1988 (Reapproved 2012).

E. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.

F. MPI (AP) - Master Painters Institute Approved Products ist; Master Painters and Decorators Association; current edition, www.paintinfo.com.

G. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition, www.paintinfo.com.

H. SCA MD 1113 - South Coast Air uality Management District Rule o.1113; current edition.

I. SSPC 1 (PM1) - Good Painting Practice: Painting Manual, olume 1; Fourth Edition.

. SSPC-SP 1 - Solvent Cleaning; 2015.

. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

. SSPC-SP 13 - Surface Preparation of Concrete; (Reaffirmed 2015).; 2003.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of 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 si□e, 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, submit each color in each sheen available.
a. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens not required.

D. Certification: By manufacturer that paints and finishes comply with OC limits specified.

E. Manufacturer s Instructions: Indicate special surface preparation procedures.

1.04 QUALITY ASSURANCE

A. Manufacturer ualifications: Company speciali□ing in manufacturing the products specified, with minimum five years documented experience.

B. Applicator ualifications: Company speciali□ing in performing the type of work specified with minimum 5 years experience and approved by manufacturer.

1.0 DELI ERY STORAGE AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container abel: 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.

1.06 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the paint product manufacturer s temperature ranges.

B. Follow manufacturer s recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Paints:
1. PPG Paints: www.ppgpaints.com/ sle.
2. Sherwin-Williams Company: www.sherwin-williams.com/ sle.
3. Substitutions: See Section 01 600 - Product Requirements.

B. Primer Sealers: Same manufacturer as top coats.

C. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless required to be a field-cataly□ed paint.
1. Provide paints and finishes 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 paint material in quantity required to complete entire project s work from a single production run.
3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is described explicitly in manufacturer s product instructions.

2.03 PAINT SYSTEMS - EXTERIOR

A. Paint E-OP - Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including primed wood and primed metal.
   1. Two top coats and one coat primer.
   2. Top Coat(s): Exterior ight Industrial Coating, Water Based; MPI 161, 163, or 164.
      a. ocations: Exposed steel and hollow metal
      b. Products:
         1) PPG Paints Pitt-Tech Plus DTM Industrial Enamel, 90-1110 Series, Satin. (MPI 161)
         2) Sherwin-Williams; Pro Industrial DTM Acrylic.
         3) Substitutions: Section 01 6000 - Product Requirements.
   3. Top Coat(s): Exterior Alkyd Enamel; MPI 94 or 96.
      a. ocations: Wood door/window frames and other exposed wood sur
      b. Products:
         1) Behr Alkyd Interior/Exterior Semi-Gloss Enamel o. 3900 .
         2) Sherwin Williams; Pro Industrial Urethane Alkyd Enamel.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of paints and finishes until substrates have been properly prepared.

B. erify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

D. Test shop-applied primer for compatibility with subsequent cover materials.

E. 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. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to 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 repair existing paints or finishes that exhibit surface defects.

D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.

E. Seal surfaces that might cause bleed through or staining of topcoat.

F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

G. Masonry:
   1. Remove efflorescence and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces or if alkalinity of mortar joints exceed that permitted in manufacturer s written instructions. Allow to dry.
   2. Prepare surface as recommended by top coat manufacturer.
   3. Clean surfaces with pressuri□ed water. Use pressure range of 600 to 1,500 psi at 6 to 12 inches. Allow to dry.

H. Aluminum: Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

I. Ferrous Metal:
   1. Solvent clean according to SSPC-SP 1.
   2. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP

6 "Commercial Blast Cleaning". Protect from corrosion until coated.

. 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.

3.03 APPLICATION

A. 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.

B. Apply products in accordance with manufacturer s written instructions and recommendations in "MPI Architectural Painting Specification Manual".

C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

D. Apply each coat to uniform appearance.

E. acuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

F. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

A. Collect waste material that could constitute a fire ha□ard, place in closed metal containers, and remove daily from site.

3.0 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

SECTION 22 0010
BASIC PLUMBING MATERIALS AND METHODS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Mechanical demolition

B. Dielectric fittings.

C. Sleeves.

D. Escutcheons.

E. Piping materials and installation instructions.

F. Equipment installation requirements.

G. Supports and anchorages.

1.02 RELATED REQUIREMENTS

A. Section 08 3100 - Access Doors and Panels.

B. Section 21 0500 - Common Work Results for Fire Suppression.

C. Section 22 1005 - Plumbing Piping.

D. Section 22 1500 - General-Service Compressed-Air Systems.

1.03 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.04 REFERENCE STANDARDS

A. ASME B1.20.1 - Pipe Threads, General Purpose (Inch)- Revision and Redesignation of ASME/A SI B2.1 - 1968; 1983.

B. ASME (BP I) - Boiler and Pressure essel Code, Section I - Welding and Bra□ing ualifications; 2007.

C. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, inc-Coated, Welded and Seamless; 2007.

D. ASTM B 32 - Standard Specification for Solder Metal; 2004.

E. ASTM B 813 - Standard Specification for iquid and Paste Fluxes for Soldering Copper and Copper Alloy Tube; 2000.

F. ASTM B 828 - Standard Practice for Making Capillary oints by Soldering of Copper and Copper Alloy Tube and Fittings; 2002.

G. ASTM D 1785 - Standard Specification for Poly(inyl Chloride) (P C) Plastic Pipe, Schedules 40, 80, and 120; 2006.

H. ASTM D 2235 - Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings; 2004.

I. ASTM D 2564 - Standard Specification for Solvent Cements for Poly(inyl Chloride) (P C) Plastic Piping Systems; 2004.

. ASTM D 2661 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and ent Pipe and Fittings; 2008.

. ASTM D 2672 - Standard specification for oints for IPS P C Pipe Using Solvent Cement; 1996 RE A.

. ASTM D 2855 - Standard Practice for Making Solvent-Cemented oints with Poly(inyl Chloride) (P C) Pipe and Fittings; 1996 (Reapproved 2002).

M. ASTM D 3138 - Standard Specification for Solvent Cements for Transition oints Between Acrylonitrile- Butadiene- Styrene (ABS) and Ploy(inyl Chloride) (P C) non- Pressure Piping Components; 2004.

. ASTM F 402 - Standard Practice for Safe Handling of Solvent Cements, Primers, and Cleaners Used for oining Thermoplastic Pipe and Fittings; 2005.

O. ASTM F 493 - Standard Specification for Solvent Cements for Chlorinated Poly (inyl Chloride) (CP C) Plastic Pipe and Fittings; 2004.

P. ASTM F 656 - Standard Specification for Primers for Use in Solvent Cement oints of Poly (inyl Chloride) (P C) Plastic Pipe and Fittings; 2008.

. AWS A5.8/A5.8M - Specification for Filler Metals for Bra□ing and Bra□e Welding; 2004 and errata.

R. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2008.

S. AWS D10.12M/D10.12 - Guide for Welding Mild Steel Pipe; 2000.

1.0 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Record Drawings: Indicating deviations between construction drawings and installed work.

C. Welding certificates.

1.06 QUALITY ASSURANCE

A. Steel Support Welding: ualify processes and operators according to AWS D1.1/D1.1M, "Structural Welding Code--Steel."

B. Steel Pipe Welding: ualify processes and operators according to ASME Boiler and Pressure essel Code: Section I , "Welding and Bra□ing ualifications."
   1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
   2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Electrical Requirements of Mechanical Equipment: Equipment of with different electrical requirements may be furnished provided the proposed equipment is approved in writing and the connecting electrical services, circuit breakers, and conduit si□es are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.0 COORDINATION

A. Coordinate chases, slots, inserts, sleeves, and openings for mechanical supports, piping, and ductwork with general construction work.

B. Sequence, coordinate, and integrate installing mechanical materials and equipment for efficient flow of the Work. Coordinate installing large equipment that requires positioning before closing in the building.

C. Coordinate utility service connections to components furnished by utility companies.
   1. Coordinate installation and connection of exterior underground utilities and services, including provision for service entrances and metering components.

D. Coordinate location of access panels and doors for mechanical items that are concealed by finished surfaces. Access doors and panels are specified in Section 08 3100 "Access Doors and Panels."

E. Where identification devices are applied to field-finished surfaces, coordinate installation of identification devices with completion of finished surface.

PART 2 PRODUCTS

2.01 PRODUCTS

A. Dielectric Fittings:
   1. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.
   2. Insulating Material: Suitable for system fluid, pressure, and temperature.
   3. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F.
   4. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.
   5. Dielectric Couplings: Galvani□ed-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.
   6. Dielectric ipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.

B. Sleeves:
   1. Galvani□ed-Steel Sheet: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.
   2. Steel Pipe: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvani□ed, plain ends.
   3. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral water-stop, unless otherwise indicated.
   4. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing
   5. Under-deck Clamp: Clamping ring with set screws.
   6. Molded P C: Permanent, with nailing flange for attaching to wooden forms.
   7. P C Pipe: ASTM D 1785, Schedule 40.
   8. Molded PE: Reusable, PE, tapered-cup shaped, and smooth-outer surface with nailing flange for attaching to wooden forms.

C. Escutcheons:
   1. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.
   2. One-Piece, Cast-Brass Type: With set screw.
      a. Finish: Polished chrome-plated.
   3. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.
   4. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.
      a. Finish: Polished Chrome-plated.

D. Pipe, Tube, and Fittings:
   1. Refer to individual Specification Sections 22 0516 and 22 1005 for pipe, tube, and fitting materials and joining methods.
   2. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

E. oining Materials:
   1. Refer to individual Specification Sections 22 0516 and 22 1005 for special joining materials not listed blow.
   2. Refer to individual Division 22, and 23 piping Sections for special joining materials not listed below.

3. Plastic, Pipe-Flange Gasket, Bolts, and uts: Type and material recommended by piping system manufacturer, unless otherwise indicated.
4. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
5. Bra□ing Filler Metals: AWS A5.8, BCuP Series or BAg1, unless otherwise indicated.
6. Bra□ing Filler Metals: AWS A5.8/A5.8M, unless otherwise indicated.
7. Welding Filler Metals: Comply with AWS D10.12M/D10.12.
8. Solvent Cements for oining Plastic Piping:
   a. ABS Piping: ASTM D 2235.
   b. CP C Piping: ASTM F 493.
   c. P C Piping: ASTM D 2564. Include primer according to ASTM F 656.
   d. P C to ABS Piping Transition: ASTM D 3138.

PART 3 EXECUTION

3.01 INSTALLATION

A. Mechanical Demolition:
   1. Disconnect, demolish, and remove plumbing systems, equipment, and components indicated to be removed. o systems, equipment, piping, or other material or components shall be abandoned in place unless specifically noted. Dispose of all removed material legally.
      a. Piping to Be Removed: Remove all portions of piping indicated to be removed and cap or plug remaining popping with same or compatible piping material.
      b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
      c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
      d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, inspect, lubricate and store equipment; when appropriate, reinstall, reconnect, and make equipment operational. otify the architect of any deficiencies noted.
      e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
   2. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

B. Cutting and Patching:
   1. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit plumbingl installations. Perform cutting by skilled mechanics of trades involved.

C. Piping Systems Common Requirements:
   1. Install piping according to the following requirements and Sections 22 1005 specifying piping systems.
   2. Drawing plans, schematics, and diagrams are diagrammatic and indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to si□e pipe and calculate friction loss, expansion, pump si□ing, and other design considerations. Contractor may deviate from the routing indicated if necessary but friction loss must be reviewed. As-built drawings shall indicate actual locations.
   3. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
   4. Install all piping at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
   5. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
   6. Install piping to permit valve servicing.
   7. Install piping at indicated slopes.
   8. Install piping free of sags and bends.
   9. Install fittings for changes in direction and branch connections.
   10. Install piping to allow application of insulation.

11. Select system components with pressure rating equal to or greater than system operating pressure.
12. Install escutcheons for penetrations of walls, ceilings, and floors.
13. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.
14. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials.
15. Field verify final equipment locations for roughing-in, piping, equipment and ductwork support systems.
16. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

D. Piping oint Construction:
1. oin pipe and fittings according to the following requirements and Sections 22 1005 and 22 1500 specifying piping systems.
2. Ream ends of all pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
3. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
4. Soldered oints: Apply ASTM B 813, water-flush able flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA s "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.
5. Bra ed oints: Construct joints according to AWS s "Bra ing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus bra ing filler metal complying with AWS A5.8/A508M.
6. Threaded oints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. oin pipe fittings and valves as follows:
   a. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
   b. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
7. Plastic Piping Solvent-Cement oints: Clean and dry joining surfaces. oin pipe and fittings according to the following:
   a. Comply with ASTM F 402, for safe-handling practice of cleaners, primers, and solvent cements.
   b. ABS Piping: oin according to ASTM D 2235 and ASTM D 2661 Appendixes.
   c. P C Pressure Piping: oin schedule number ASTM D 1785, P C pipe and P C socket fittings according to ASTM D 2672. oin other-than-schedule-number P C pipe and socket fittings according to ASTM D 2855.
   d. P C onpressure Piping: oin according to ASTM D 2855.
   e. P C to ABS onpressure Transition Fittings: oin according to ASTM D 3138 Appendix.

E. Piping Connections:
1. Make connections according to the following, unless otherwise indicated:
   a. Install unions or flanges adjacent to each valve, coil or final connection to each piece of equipment.
   b. Install unions, in piping 2” PS and smaller.
   c. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

F. Equipment Installation Common Requirements:
1. Install equipment as high as possible to allow maximum possible headroom unless specific mounting heights are indicated.
2. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.
3. Install mechanical equipment to allow service, maintenance, and repair or replacement of components. Equipment connections shall be made for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

4. Install equipment to allow right of way for piping installed at required slope.

END OF SECTION

SECTION 26 0 0
SELECTI E DEMOLITION FOR ELECTRICAL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical demolition.

1.02 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work: As specified in individual sections.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify field measurements and circuiting arrangements are as indicated.

B. erify that abandoned wiring and equipment serve only abandoned facilities.

C. Demolition drawings are based on casual field observation and existing record documents.

D. Report discrepancies to Architect before disturbing existing installation.

E. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

A. Disconnect electrical systems in walls, floors, and ceilings to be removed.

B. Coordinate utility service outages with utility company.

C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energi□ed equipment or circuits, use personnel experienced in such operations.

D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimi□e outage duration.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WOR

A. Remove, relocate, and extend existing installations to accommodate new construction.

B. Remove abandoned wiring to source of supply.

C. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.

D. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.

E. Repair adjacent construction and finishes damaged during demolition and extension work.

F. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.

3.04 CLEANING AND REPAIR

A. See Section 01 7419 - Construction Waste Management and Disposal for additional requirements.

B. Clean and repair existing materials and equipment that remain or that are to be reused.

C. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

END OF SECTION

SECTION 26 0 1
LOW- OLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Single conductor building wire.

B. Metal-clad cable.

C. Wiring connectors.

D. Electrical tape.

E. Wire pulling lubricant.

F. Cable ties.

1.02 RELATED REQUIREMENTS

A. Section 07 8400 - Firestopping.

B. Section 26 0526 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.

1.03 REFERENCE STANDARDS

A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013.

B. ASTM B8 - Standard Specification for Concentric- ay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2011.

C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes; 2010 (Reapproved 2014).

D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation; 2004 (Reapproved 2014).

E. ASTM D3005 - Standard Specification for ow-Temperature Resistant inyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape; 2010.

F. ECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.

G. ECA 120 - Standard for Installing Armored Cable (AC) and Metal-Clad Cable (MC); 2012.

H. EMA WC 70 - onshielded Power Cable 2000 or ess for the Distribution of Electrical Energy; 2009.

I. ETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems; 2013.

. FPA 70 - ational Electrical Code; Most Recent Edition Adopted by Authority Having urisdiction, Including All Applicable Amendments and Supplements.

. U 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.

. U 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.

M. U 486A-486B - Wire Connectors; Current Edition, Including All Revisions.

. U 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.

O. U 486D - Sealed Wire Connector Systems; Current Edition, Including All Revisions.

P. U 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.

. U 1569 - Metal-Clad Cables; Current Edition, Including All Revisions.

1.04 ADMINISTRATI E REQUIREMENTS

A. Coordination:

1. Coordinate si□es of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor si□es increased for voltage drop.

2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
3. otify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.0 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer s standard catalog pages and data sheets for conductors and cables, including detailed information on materials, construction, ratings, listings, and available si□es, configurations, and stranding.

1.06 QUALITY ASSURANCE

A. Comply with requirements of FPA 70.

1.0 DELI ERY STORAGE AND HANDLING

A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer s instructions.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

A. Do not use conductors and cables for applications other than as permitted by FPA 70 and product listing.

B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.

C. Metal-clad cable is permitted only as follows:

2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

A. Provide products that comply with requirements of FPA 70.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.

D. Comply with EMA WC 70.

E. Thermoplastic-Insulated Conductors and Cables: isted and labeled as complying with U 83.

F. Thermoset-Insulated Conductors and Cables: isted and labeled as complying with U 44.

G. Conductor Material:
1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor si□es indicated are based on copper.
2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
3. Tinned Copper Conductors: Comply with ASTM B33.

H. Conductor Color Coding:
1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
2. Color Coding Method: Integrally colored insulation.
3. Color Code:
a. Equipment Ground, All Systems: Green.

2.03 SINGLE CONDUCTOR BUILDING WIRE

A. Description: Single conductor insulated wire.

B. Conductor Stranding:
1. Feeders and Branch Circuits:
a. Si□e 10 AWG and Smaller: Solid.

b. Si□e 8 AWG and arger: Stranded.

C. Insulation oltage Rating: 600 .

D. Insulation:
1. Copper Building Wire: Type THH /THW or THH /THW -2, except as indicated below.

2.04 METAL-CLAD CABLE

A. Description: FPA 70, Type MC cable listed and labeled as complying with U 1569, and listed for use in classified firestop systems to be used.

B. Conductor Stranding:
1. Si□e 10 AWG and Smaller: Solid.
2. Si□e 8 AWG and arger: Stranded.

C. Insulation oltage Rating: 600 .

D. Insulation: Type THH , THH /THW , or THH /THW -2.

E. Grounding: Full-si□e integral equipment grounding conductor.

F. Armor: Steel, interlocked tape.

2.0 WIRING CONNECTORS

A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with U 486A-486B or U 486C as applicable.

B. Connectors for Grounding and Bonding: Comply with Section 26 0526.

C. Wiring Connectors for Splices and Taps:
1. Copper Conductors Si□e 8 AWG and Smaller: Use twist-on insulated spring connectors.

D. Wiring Connectors for Terminations:
1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.
3. Stranded Conductors Si□e 10 AWG and Smaller: Use crimped terminals for connections to terminal screws.

E. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.

F. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.

G. Twist-on Insulated Spring Connectors: Rated 600 , 221 degrees F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed as complying with U 486D for damp and wet locations.

H. Crimped Terminals: ylon-insulated, with insulation grip and terminal configuration suitable for connection to be made.

2.06 ACCESSORIES

A. Electrical Tape:
1. inyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with U 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.

B. Wire Pulling ubricant: isted; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.

C. Cable Ties: Material and tensile strength rating suitable for application.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify that interior of building has been protected from weather.

B. erify that work likely to damage wire and cable has been completed.

C. erify that raceways, boxes, and equipment enclosures are installed and are properly si□ed to accommodate conductors and cables in accordance with FPA 70.

D. erify that field measurements are as indicated.

E. erify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

A. Circuiting Requirements:
   1. Unless dimensioned, circuit routing indicated is diagrammatic.
   2. When circuit destination is indicated without specific routing, determine exact routing required.
   3. Arrange circuiting to minimi□e splices.
   4. Include circuit lengths required to install connected devices within 10 ft of location indicated.
   5. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is not permitted.

B. Install products in accordance with manufacturer s instructions.

C. Perform work in accordance with ECA 1 (general workmanship).

D. Install metal-clad cable (Type MC) in accordance with ECA 120.

E. Installation in Raceway:
   1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
   2. Pull all conductors and cables together into raceway at same time.
   3. Do not damage conductors and cables or exceed manufacturer s recommended maximum pulling tension and sidewall pressure.
   4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.

F. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.

G. Secure and support conductors and cables in accordance with FPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.

H. Terminate cables using suitable fittings.
   1. Metal-Clad Cable (Type MC):
      a. Use listed fittings.
      b. Cut cable armor only using speciali□ed tools to prevent damaging conductors or insulation. Do not use hacksaw or wire cutters to cut armor.

I. Install conductors with a minimum of 12 inches of slack at each outlet.

. eatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.

. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with FPA 70.

. Make wiring connections using specified wiring connectors.
   1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
   2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
   3. Do not remove conductor strands to facilitate insertion into connector.
   4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.

M. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.

. Insulate ends of spare conductors using vinyl insulating electrical tape.

O. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.

P. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - uality Requirements, for additional requirements.

B. Perform inspection, testing, and adjusting in accordance with Section 01 4000.

C. Inspect and test in accordance with ETA ATS, except Section 4.

D. Perform inspections and tests listed in ETA ATS, Section 7.3.2. The insulation resistance test is required for all conductors. The resistance test for parallel conductors listed as optional is not required.

E. Correct deficiencies and replace damaged or defective conductors and cables.

END OF SECTION

SECTION 26 0 26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Grounding and bonding requirements.

B. Conductors for grounding and bonding.

C. Connectors for grounding and bonding.

1.02 RELATED REQUIREMENTS

A. Section 26 0519 - ow- oltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.

B. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. ECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.

B. ETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems; 2013.

C. FPA 70 - ational Electrical Code; Most Recent Edition Adopted by Authority Having urisdiction, Including All Applicable Amendments and Supplements.

D. U 467 - Grounding and Bonding Equipment; Current Edition, Including All Revisions.

1.04 QUALITY ASSURANCE

A. Comply with requirements of FPA 70.

1.0 DELI ERY STORAGE AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer s instructions.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING REQUIREMENTS

A. Do not use products for applications other than as permitted by FPA 70 and product listing.

B. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.

C. Where conductor si□e is not indicated, si□e to comply with FPA 70 but not less than applicable minimum si□e requirements specified.

D. Bonding and Equipment Grounding:

1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energi□ed as indicated and in accordance with FPA 70.
2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
3. Where circuit conductor si□es are increased for voltage drop, increase si□e of equipment grounding conductor proportionally in accordance with FPA 70.
4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.

2.02 GROUNDING AND BONDING COMPONENTS

A. General Requirements:
   1. Provide products listed, classified, and labeled as suitable for the purpose intended.
   2. Provide products listed and labeled as complying with U 467 where applicable.

B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 26 0526:
   1. Use insulated copper conductors unless otherwise indicated.
      a. Exceptions:
         1) Use bare copper conductors where installed underground in direct contact with earth.
         2) Use bare copper conductors where directly encased in concrete (not in raceway).

C. Connectors for Grounding and Bonding:
   1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with U 467.
   2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
   3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.

2.03 CONNECTORS AND ACCESSORIES

A. Mechanical Connectors: Bron□e.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify that work likely to damage grounding and bonding system components has been completed.

B. erify that field measurements are as indicated.

C. erify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer s instructions.

B. Perform work in accordance with ECA 1 (general workmanship).

C. Make grounding and bonding connections using specified connectors.
   1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
   2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
   3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer s recommendations.
   4. Mechanical Connectors: Secure connections according to manufacturer s recommended torque settings.
   5. Compression Connectors: Secure connections using manufacturer s recommended tools and dies.

D. Identify grounding and bonding system components in accordance with Section 26 0553.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - uality Requirements, for additional requirements.

B. Perform inspection, testing, and adjusting in accordance with Section 01 4000.

C. Inspect and test in accordance with ETA ATS except Section 4.

D. Perform inspections and tests listed in ETA ATS, Section 7.13.

E. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 48 hours does not constitute normally dry conditions.

F. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.

END OF SECTION

SECTION 26 0 2
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Concrete equipment pads.

1.03 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for inc (Hot-Dip Galvani□ed) Coatings on Iron and Steel Products; 2015.

B. ASTM A153/A153M - Standard Specification for inc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

C. ASTM B633 - Standard Specification for Electrodeposited Coatings of inc on Iron and Steel; 2013.

D. MFMA-4 - Metal Framing Standards Publication; 2004.

E. ECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.

F. FPA 70 - ational Electrical Code; Most Recent Edition Adopted by Authority Having urisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATI E REQUIREMENTS

A. Coordination:
   1. Coordinate si□es and arrangement of supports and bases with the actual equipment and components to be installed.
   2. Coordinate the work with other trades to provide additional framing and materials required for installation.
   3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
   4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
   5. otify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Do not install products on or provide attachment to concrete surfaces until concrete has fully cured in accordance with Section 03 3000.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

A. General Requirements:
   1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
   2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
   3. Where support and attachment component types and si□es are not indicated, select in accordance with manufacturer s application criteria as required for the load to be supported with a minimum safety factor of 1. Include consideration for vibration, equipment operation, and shock loads where applicable.
   4. Do not use products for applications other than as permitted by FPA 70 and product listing.
   5. Steel Components: Use corrosion resistant materials suitable for the environment where installed.

a. inc-Plated Steel: Electroplated in accordance with ASTM B633.
b. Galvani□ed Steel: Hot-dip galvani□ed after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.
1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
2. Conduit Clamps: Bolted type unless otherwise indicated.

C. Outlet Box Supports: Hangers, brackets, etc. suitable for the boxes to be supported.

D. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.
1. Comply with MFMA-4.

E. Hanger Rods: Threaded □inc-plated steel unless otherwise indicated.

F. Anchors and Fasteners:
1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.

2.02 MATERIALS

A. Hangers, Supports, Anchors, and Fasteners - General: Corrosion-resistant materials of si□e and type adequate to carry the loads of equipment and conduit, including weight of wire in conduit.

B. Supports: Fabricated of structural steel or formed steel members; galvani□ed.

C. Anchors and Fasteners:

PART 3 EXECUTION

3.01 EXAMINATION

A. erify that field measurements are as indicated.

B. erify that mounting surfaces are ready to receive support and attachment components.

C. erify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer s instructions.

B. Perform work in accordance with ECA 1 (general workmanship).

C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

D. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.

E. Unless specifically indicated or approved by Architect, do not provide support from roof deck.

F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.

G. Equipment Support and Attachment:
1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

H. Secure fasteners according to manufacturer s recommended torque settings.

I. Remove temporary supports.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - uality Requirements, for additional requirements.

B. Inspect support and attachment components for damage and defects.

C. Repair cuts and abrasions in galvani□ed finishes using □inc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.

D. Correct deficiencies and replace damaged or defective support and attachment components.

E. Install hangers and supports as required to adequately and securely support electrical system components, in a neat and workmanlike manner, as specified in ECA 1.
   1. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.

F. Rigidly weld support members or use hexagon-head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.

G. Install surface-mounted cabinets and panelboards with minimum of four anchors.

H. In wet and damp locations use steel channel supports to stand cabinets and panelboards 1 inch off wall.

I. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.

END OF SECTION

SECTION 26 0 33.13
CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Intermediate metal conduit (IMC).
B. P C-coated galvani□ed steel rigid metal conduit (RMC).
C. iquidtight flexible metal conduit (FMC).
D. Electrical metallic tubing (EMT).
E. Rigid polyvinyl chloride (P C) conduit.
F. Reinforced thermosetting resin conduit (RTRC).
G. Conduit fittings.
H. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 07 8400 - Firestopping.
B. Section 26 0526 - Grounding and Bonding for Electrical Systems.
C. Section 26 0529 - Hangers and Supports for Electrical Systems.

1.03 REFERENCE STANDARDS

A. A SI C80.3 - American ational Standard for Steel Electrical Metallic Tubing (EMT); 2005.
B. A SI C80.6 - American ational Standard for Electrical Intermediate Metal Conduit (EIMC); 2005.
C. ECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.
D. ECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); 2013.
E. ECA 111 - Standard for Installing onmetallic Raceways (R C, E T, F C); 2003.
F. EMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2012.
G. EMA R 1 - Polyvinyl-Chloride (P C) Externally Coated Galvani□ed Rigid Steel Conduit and Intermediate Metal Conduit; 2005.
H. EMA TC 2 - Electrical Polyvinyl Chloride (P C) Conduit; 2013.
I. EMA TC 3 - Polyvinyl Chloride (P C) Fittings for Use with Rigid P C Conduit and Tubing; 2015.
. EMA TC 14 (SERIES) - Reinforced Thermosetting Resin Conduit and Fittings Series; 2015.
. FPA 70 - ational Electrical Code; Most Recent Edition Adopted by Authority Having urisdiction, Including All Applicable Amendments and Supplements.
. U 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.
M. U 360 - iquid-Tight Flexible Steel Conduit; Current Edition, Including All Revisions.
. U 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.
O. U 651 - Schedule 40, 80, Type EB and A Rigid P C Conduit and Fittings; Current Edition, Including All Revisions.
P. U 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.
. U 1242 - Electrical Intermediate Metal Conduit-Steel; Current Edition, Including All Revisions.

1.04 ADMINISTRATI E REQUIREMENTS

A. Coordination:
   1. Coordinate minimum si□es of conduits with the actual conductors to be installed, including adjustments for conductor si□es increased for voltage drop.

2. Coordinate the arrangement of conduits with structural members, ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
3. erify exact conduit termination locations required for boxes, enclosures, and equipment installed under other sections or by others.
4. Coordinate the work with other trades to provide roof penetrations that preserve the integrity of the roofing system and do not void the roof warranty.
5. otify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
1. Do not begin installation of conductors and cables until installation of conduit is complete between outlet, junction and splicing points.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

A. Do not use conduit and associated fittings for applications other than as permitted by FPA 70 and product listing.

B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvani□ed steel rigid metal conduit.

C. Underground:
1. Under Slab on Grade: Use galvani□ed steel rigid metal conduit, intermediate metal conduit (IMC), P C-coated galvani□ed steel rigid metal conduit, rigid P C conduit, or reinforced thermosetting resin conduit (RTRC).

D. Concealed Within Hollow Stud Walls: Use galvani□ed steel rigid metal conduit, intermediate metal conduit (IMC), or electrical metallic tubing (EMT).

2.02 CONDUIT REQUIREMENTS

A. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Where conduit si□e is not indicated, si□e to comply with FPA 70 but not less than applicable minimum si□e requirements specified.

2.03 INTERMEDIATE METAL CONDUIT IMC

A. Description: FPA 70, Type IMC galvani□ed steel intermediate metal conduit complying with A SI C80.6 and listed and labeled as complying with U 1242.

B. Fittings:
1. on-Ha□ardous ocations: Use fittings complying with EMA FB 1 and listed and labeled as complying with U 514B.
2. Material: Use steel or malleable iron.
3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

C. Conduit Si□e: Comply with FPA 70.

2.04 P C-COATED GAL ANI□ED STEEL RIGID METAL CONDUIT RMC

A. Description: FPA 70, Type RMC galvani□ed steel rigid metal conduit with external polyvinyl chloride (P C) coating complying with EMA R 1 and listed and labeled as complying with U 6.

B. Exterior Coating: Polyvinyl chloride (P C), nominal thickness of 40 mil.

C. P C-Coated Fittings:
1. Manufacturer: Same as manufacturer of P C-coated conduit to be installed.
2. on-Ha□ardous ocations: Use fittings listed and labeled as complying with U 514B.
3. Material: Use steel or malleable iron.

4. Exterior Coating: Polyvinyl chloride (P C), minimum thickness of 40 mil.

D. P C-Coated Supports: Furnish with exterior coating of polyvinyl chloride (P C), minimum thickness of 15 mil.

2.0 LIQUIDTIGHT FLEXIBLE METAL CONDUIT LFMC

A. Description: FPA 70, Type FMC polyvinyl chloride (P C) jacketed steel flexible metal conduit listed and labeled as complying with U 360.

B. Fittings:
1. Description: Fittings complying with EMA FB 1 and listed and labeled as complying with U 514B.
2. Material: Use steel or malleable iron.

2.06 ELECTRICAL METALLIC TUBING EMT

A. Description: FPA 70, Type EMT steel electrical metallic tubing complying with A SI C80.3 and listed and labeled as complying with U 797.

B. Fittings:
1. Description: Fittings complying with EMA FB 1 and listed and labeled as complying with U 514B.
2. Material: Use steel or malleable iron.
3. Connectors and Couplings: Use compression (gland) or set-screw type.
a. Do not use indenter type connectors and couplings.

2.0 RIGID POLY INYL CHLORIDE P C CONDUIT

A. Description: FPA 70, Type P C rigid polyvinyl chloride conduit complying with EMA TC 2 and listed and labeled as complying with U 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.

B. Fittings:
1. Manufacturer: Same as manufacturer of conduit to be connected.
2. Description: Fittings complying with EMA TC 3 and listed and labeled as complying with U 651; material to match conduit.

2.0 REINFORCED THERMOSETTING RESIN CONDUIT RTRC

A. Description: FPA 70, Type RTRC reinforced thermosetting resin conduit complying with EMA TC 14 (SERIES).

B. Supports: Per manufacturer s recommendations.

C. Fittings: Same type and manufacturer as conduit to be connected.

2.0 ACCESSORIES

A. Conduit oint Compound: Corrosion-resistant, electrically conductive; suitable for use with the conduit to be installed.

B. Solvent Cement for P C Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.

C. Epoxy Adhesive for RTRC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify that field measurements are as indicated.

B. erify that mounting surfaces are ready to receive conduits.

C. erify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer s instructions.

B. Perform work in accordance with ECA 1 (general workmanship).

C. Install galvani□ed steel rigid metal conduit (RMC) in accordance with ECA 101.

D. Install intermediate metal conduit (IMC) in accordance with ECA 101.

E. Install P C-coated galvani□ed steel rigid metal conduit (RMC) using only tools approved by the manufacturer.

F. Install rigid polyvinyl chloride (P C) conduit in accordance with ECA 111.

G. Conduit Support:
   1. Secure and support conduits in accordance with FPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.
   2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

H. Connections and Terminations:
   1. Use approved □inc-rich paint or conduit joint compound on field-cut threads of galvani□ed steel conduits prior to making connections.
   2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
   3. Use suitable adapters where required to transition from one type of conduit to another.
   4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
   5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
   6. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.
   7. Secure joints and connections to provide maximum mechanical strength and electrical continuity.

I. Penetrations:
   1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
   2. Make penetrations perpendicular to surfaces unless otherwise indicated.
   3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
   4. Conceal bends for conduit risers emerging above ground.
   5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
   6. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
   7. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimi□e roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty. Include proposed locations of penetrations and methods for sealing with submittals.
   8. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.

. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
   1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
   2. Where calculated in accordance with FPA 70 for rigid polyvinyl chloride (P C) conduit installed above ground to compensate for thermal expansion and contraction.
   3. Where calculated in accordance with FPA 70 for reinforced thermosetting resin conduit (RTRC) conduit installed above ground to compensate for thermal expansion and contraction.
   4. Where conduits are subject to earth movement by settlement or frost.

. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:
   1. Where conduits pass from outdoors into conditioned interior spaces.
   2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.

. Provide grounding and bonding in accordance with Section 26 0526.

M. Unless specifically indicated on plan drawings or approved by architect do not use exposed conduit in finished areas. Exposed conduit in unfinished areas is an acceptable means of installation.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - uality Requirements, for additional requirements.

B. Repair cuts and abrasions in galvani□ed finishes using □inc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.

C. Where coating of P C-coated galvani□ed steel rigid metal conduit (RMC) contains cuts or abrasions, repair in accordance with manufacturer s instructions.

D. Correct deficiencies and replace damaged or defective conduits.

3.04 CLEANING

A. Clean interior of conduits to remove moisture and foreign matter.

3.0 PROTECTION

A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

END OF SECTION

SECTION 26 0 33.16
BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.

B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches.

1.02 RELATED REQUIREMENTS

A. Section 26 0529 - Hangers and Supports for Electrical Systems.

B. Section 26 2726 - Wiring Devices:
   1. Wall plates.

1.03 REFERENCE STANDARDS

A. ECA 1 - Standard for Good Workmanship in Electrical Construction; 2010.

B. ECA 130 - Standard for Installing and Maintaining Wiring Devices; 2010.

C. EMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2012.

D. EMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; 2013.

E. EMA 250 - Enclosures for Electrical Equipment (1000 olts Maximum); 2014.

F. FPA 70 - ational Electrical Code; Most Recent Edition Adopted by Authority Having urisdiction, Including All Applicable Amendments and Supplements.

G. U 50 - Enclosures for Electrical Equipment, on-Environmental Considerations; Current Edition, Including All Revisions.

H. U 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.

I. U 508A - Industrial Control Panels; Current Edition, Including All Revisions.

. U 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.

1.04 ADMINISTRATI E REQUIREMENTS

A. Coordination:
   1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by FPA 70.
   2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   3. Coordinate minimum si□es of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to FPA 70.
   4. Coordinate minimum si□es of pull boxes with the actual installed arrangement of connected conduits, calculated according to FPA 70.
   5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
   6. Coordinate the work with other trades to preserve insulation integrity.
   7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
   8. otify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

PART 2 PRODUCTS

2.01 BOXES

A. General Requirements:

1. Do not use boxes and associated accessories for applications other than as permitted by FPA 70 and product listing.
2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
3. Provide products listed, classified, and labeled as suitable for the purpose intended.
4. Where box si□e is not indicated, si□e to comply with FPA 70 but not less than applicable minimum si□e requirements specified.
5. Provide grounding terminals within boxes where equipment grounding conductors terminate.

B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as unction and Pull Boxes:
1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
2. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
3. Use suitable masonry type boxes where flush-mounted in masonry walls.
4. Use raised covers suitable for the type of wall construction and device configuration where required.
5. Use shallow boxes where required by the type of wall construction.
6. Do not use "through-wall" boxes designed for access from both sides of wall.
7. Sheet-Steel Boxes: Comply with EMA OS 1, and list and label as complying with U 514A.
8. Cast Metal Boxes: Comply with EMA FB 1, and list and label as complying with U 514A; furnish with threaded hubs.
9. Boxes for Supporting uminaires and Ceiling Fans: isted as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
10. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.
11. Wall Plates: Comply with Section 26 2726.

C. Cabinets and Enclosures, Including unction and Pull Boxes arger Than 100 cubic inches:
1. Comply with EMA 250, and list and label as complying with U 50 and U 50E, or U 508A.
2. EMA 250 Environment Type, Unless Otherwise Indicated:
3. unction and Pull Boxes arger Than 100 cubic inches:
   a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify that field measurements are as indicated.

B. erify that mounting surfaces are ready to receive boxes.

C. erify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer s instructions.

B. Install boxes in accordance with ECA 1 (general workmanship) and, where applicable, ECA 130, including mounting heights specified in those standards where mounting heights are not indicated.

C. Arrange equipment to provide minimum clearances in accordance with manufacturer s instructions and FPA 70.

D. Box Supports:
1. Secure and support boxes in accordance with FPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.

2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with FPA 70. Do not provide support from piping, ductwork, or other systems.

E. Install boxes plumb and level.

F. Flush-Mounted Boxes:
1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch or does not project beyond finished surface.
2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch at the edge of the box.

G. Install boxes as required to preserve insulation integrity.

H. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.

I. Close unused box openings.

. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.

. Provide grounding and bonding in accordance with Section 26 0526.

3.03 CLEANING

A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

3.04 PROTECTION

A. Immediately after installation, protect boxes from entry of moisture and foreign material until ready for installation of conductors.

END OF SECTION

SECTION 26 2 26
WIRING DE ICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall switches.

B. Receptacles.

C. Wall plates.

1.02 RELATED REQUIREMENTS

A. Section 26 0533.16 - Boxes for Electrical Systems.

B. Section 26 0533.16 - Boxes for Electrical Systems.

1.03 ADMINISTRATI E REQUIREMENTS

A. Coordination:

1. Coordinate the placement of outlet boxes with millwork, furniture, equipment, etc. installed under other sections or by others.
2. Coordinate wiring device ratings and configurations with the electrical requirements of actual equipment to be installed.
3. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
4. otify Architect of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer s catalog information showing dimensions, colors, and configurations.

1.0 QUALITY ASSURANCE

A. Comply with requirements of FPA 70.

B. Manufacturer ualifications: Company speciali□ing in manufacturing the products specified in this section with minimum three years documented experience.

C. Products: isted, classified, and labeled as suitable for the purpose intended.

1.06 DELI ERY STORAGE AND PROTECTION

A. Store in a clean, dry space in original manufacturer s packaging until ready for installation.

PART 2 PRODUCTS

2.01 WIRING DE ICE APPLICATIONS

A. Provide wiring devices suitable for intended use and with ratings adequate for load served.

B. For single receptacles installed on an individual branch circuit, provide receptacle with ampere rating not less than that of the branch circuit.

C. Provide weather resistant GFCI receptacles with specified weatherproof covers for receptacles installed outdoors or in damp or wet locations.

D. Provide GFCI protection for receptacles installed within 6 feet of sinks.

2.02 WIRING DE ICE FINISHES

A. Provide wiring device finishes as described below unless otherwise indicated.

B. Wiring Devices, Unless Otherwise Indicated: MATCH E ISTI G withMATCH E ISTI G nylon wall plate.

2.03 WALL SWITCHES

A. Wall Switches - General Requirements: AC only, quiet operating, general-use snap switches with silver alloy contacts, complying with EMA WD 1 and EMA WD 6, and listed as complying with U 20and where applicable FS W-S-896; types as indicated on the drawings.
   1. Wiring Provisions: Terminal screws for side wiring and screw actuated binding clamp for back wiring with separate ground terminal screw.

2.04 RECEPTACLES

A. Receptacles - General Requirements: Self-grounding, complying with EMA WD 1 and EMA WD 6, and listed as complying with U 498and where applicable FS W-C-596; types as indicated on the drawings.
   1. Wiring Provisions: Terminal screws for side wiring or screw actuated binding clamp for back wiring with separate ground terminal screw.
   2. EMA configurations specified are according to EMA WD 6.

B. GFCI Receptacles:
   1. GFCI Receptacles - General Requirements: Self-testing, with feed-through protection and light to indicate ground fault tripped condition and loss of protection; listed as complying with U 943, class A.

2.0 WALL PLATES

A. Wall Plates: Comply with U 514D.
   1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
   2. Si□e: Standard; .
   3. Screws: Metal with slotted heads finished to match wall plate finish.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify that field measurements are as indicated.

B. erify that outlet boxes are installed in proper locations and at proper mounting heights and are properly si□ed to accommodate devices and conductors in accordance with FPA 70.

C. erify that wall openings are neatly cut and will be completely covered by wall plates.

D. erify that final surface finishes are complete, including painting.

E. erify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

F. erify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

A. Perform work in accordance with ECA 1 (general workmanship) and, where applicable, ECA 130, including mounting heights specified in those standards unless otherwise indicated.

B. Coordinate locations of outlet boxes provided under Section 26 0533.16 as required for installation of wiring devices provided under this section.

C. Install wiring devices in accordance with manufacturer s instructions.

D. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 .

E. Where required, connect wiring devices using pigtails not less than 6 inches long. Do not connect more than one conductor to wiring device terminals.

F. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.

G. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.

H. Install wiring devices plumb and level with mounting yoke held rigidly in place.

I. Install wall switches with OFF position down.

. Install vertically mounted receptacles with grounding pole on top and hori□ontally mounted receptacles with grounding pole on left.

. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly si□ed rough openings. Do not use oversi□ed wall plates in lieu of meeting this requirement.

. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - uality Requirements, for additional requirements.

B. Perform field inspection, testing, and adjusting in accordance with Section 01 4000.

C. Inspect each wiring device for damage and defects.

D. Operate each wall switch, wall dimmer, and fan speed controller with circuit energi□ed to verify proper operation.

E. Test each receptacle to verify operation and proper polarity.

F. Test each GFCI receptacle for proper tripping operation according to manufacturer s instructions.

G. Correct wiring deficiencies and replace damaged or defective wiring devices.

3.0 AD USTING

A. Adjust devices and wall plates to be flush and level.

3.06 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

END OF SECTION

SECTION 26 100
INTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior luminaires.

B. Emergency lighting units.

C. Exit signs.

1.02 RELATED REQUIREMENTS

A. Section 26 0529 - Hangers and Supports for Electrical Systems.

B. Section 26 0533.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. ECA/IES A 500 - Standard for Installing Indoor Commercial ighting Systems; 2006.

B. ECA/IES A 502 - Standard for Installing Industrial ighting Systems; 2006.

C. FPA 70 - ational Electrical Code; Most Recent Edition Adopted by Authority Having urisdiction, Including All Applicable Amendments and Supplements.

D. FPA 101 - ife Safety Code; 2015.

E. U 924 - Emergency ighting and Power Equipment; Current Edition, Including All Revisions.

F. U 1598 - uminaires; Current Edition, Including All Revisions.

1.04 ADMINISTRATI E REQUIREMENTS

A. Coordination:

1. Coordinate the installation of luminaires with mounting surfaces installed under other sections or by others. Coordinate the work with placement of supports, anchors, etc. required for mounting. Coordinate compatibility of luminaires and associated trims with mounting surfaces at installed locations.
2. Coordinate the placement of luminaires with structural members, ductwork, piping, equipment, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
3. Coordinate the placement of exit signs with furniture, equipment, signage or other potential obstructions to visibility installed under other sections or by others.
4. otify Architect of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.0 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings:

1. Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.

1.06 DELI ERY STORAGE AND PROTECTION

A. Receive, handle, and store products according to ECA/IES A 500 (commercial lighting), ECA/IES A 502 (industrial lighting), and manufacturer s written instructions.

B. eep products in original manufacturer s packaging and protect from damage until ready for installation.

1.0 FIELD CONDITIONS

A. Maintain field conditions within manufacturer s required service conditions during and after installation.

1.0 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Provide five year manufacturer warranty for ED luminaires, including drivers.

C. Provide five year pro-rata warranty for batteries for emergency lighting units.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

A. Furnish products as indicated in luminaire schedule included on the drawings.

2.02 LUMINAIRES

A. Provide products that comply with requirements of FPA 70.

B. Provide products that are listed and labeled as complying with U 1598, where applicable.

C. Provide products listed, classified, and labeled as suitable for the purpose intended.

D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energi□e and protect the lamp and distribute the light.

E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.

F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

2.03 EMERGENCY LIGHTING UNITS

A. Description: Emergency lighting units complying with FPA 101 and all applicable state and local codes, and listed and labeled as complying with U 924.

B. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.

C. Battery:
   1. Si□e battery to supply all connected lamps, including emergency remote heads where indicated.

D. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.

E. Provide low-voltage disconnect to prevent battery damage from deep discharge.

2.04 FIXTURE TYPES

2.0 EXIT SIGNS

A. Description: Exit signs and similar signs for special purpose applications such as area of refuge/rescue assistance.

B. Description: Exit signs complying with FPA 101 and applicable state and local codes, and listed and labeled as complying with U 924.
   1. umber of Faces: Single- or double-face as indicated or as required for installed location.
   2. Directional Arrows: As indicated or as required for installed location.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify that field measurements are as indicated.

B. erify that outlet boxes are installed in proper locations and at proper mounting heights and are properly si□ed to accommodate conductors in accordance with FPA 70.

C. erify that suitable support frames are installed where required.

D. erify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.

E. erify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 26 0533.16 as required for installation of luminaires provided under this section.

B. Install products in accordance with manufacturer s instructions.

C. Install luminaires securely, in a neat and workmanlike manner, as specified in ECA 500 (commercial lighting) and ECA 502 (industrial lighting).

D. Provide required support and attachment in accordance with Section 26 0529.

E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.

F. Install accessories furnished with each luminaire.

G. Bond products and metal accessories to branch circuit equipment grounding conductor.

H. Emergency ighting Units:

I. Exit Signs:

. Install lamps in each luminaire.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - uality Requirements, for additional requirements.

B. Inspect each product for damage and defects.

C. Operate each luminaire after installation and connection to verify proper operation.

D. Test self-powered exit signs, emergency lighting units, and fluorescent emergency power supply units to verify proper operation upon loss of normal power supply.

E. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Architect.

3.0 AD USTING

A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Architect. Secure locking fittings in place.

B. Aim and position adjustable emergency lighting unit lamps to achieve optimum illumination of egress path as required or as directed by Architect or authority having jurisdiction.

C. Exit Signs with Field-Selectable Directional Arrows: Set as indicated or as required to properly designate egress path as directed by Architect or authority having jurisdiction.

3.06 CLEANING

A. Clean surfaces according to ECA 500 (commercial lighting), ECA 502 (industrial lighting), and manufacturer s instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.0 CLOSEOUT ACTI ITIES

A. Demonstration: Demonstrate proper operation of luminaires to Architect, and correct deficiencies or make adjustments as directed.

3.0 PROTECTION

A. Protect installed luminaires from subsequent construction operations.

END OF SECTION

SECTION 31 2200
GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of topsoil.

B. Rough grading the site for site structures.

C. Finish grading for planting.

1.02 RELATED REQUIREMENTS

A. Section 31 2316 - Excavation.

B. Section 31 2323 - Fill: Filling and compaction.

C. Section 32 9219 - Seeding: Finish ground cover.

PART 2 PRODUCTS

2.01 MATERIALS

A. Topsoil: Topsoil excavated on-site.
   1. Graded.
   2. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.

B. Other Fill Materials: See Section 31 2323.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify that survey bench mark and intended elevations for the Work are as indicated.

B. erify the absence of standing or ponding water.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. ocate, identify, and protect from damage above- and below-grade utilities to remain.

D. Provide temporary means and methods to remove all standing or ponding water from areas prior to grading.

E. Protect site features to remain, including but not limited to existing structures, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.

F. Protect trees to remain by providing substantial fencing around entire tree at the outer tips of its branches; no grading is to be performed inside this line.

G. Protect lawns to remain as a portion of final landscaping.

3.03 ROUGH GRADING

A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.

B. Do not remove topsoil when wet.

C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.

D. Do not remove wet subsoil , unless it is subsequently processed to obtain optimum moisture content.

E. When excavating through roots, perform work by hand and cut roots with sharp axe.

F. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

G. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack surface water control.

3.04 SOIL REMO AL AND STOC PILING

A. Stockpile topsoil to be re-used on site; remove remainder from site.

B. Stockpile subsoil to be re-used on site; remove remainder from site.

C. Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet; protect from erosion.

3.0 FINISH GRADING

A. Before Finish Grading:
   1. erify building and trench backfilling have been inspected.
   2. erify subgrade has been contoured and compacted.

B. Remove debris, roots, branches, stones, in excess of 1/2 inch in si□e. Remove soil contaminated with petroleum products.

C. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.

D. Place topsoil in areas where seeding are indicated.

E. Place topsoil where required to level finish grade.

F. Place topsoil to the following compacted thicknesses:
   1. Areas to be Seeded with Grass: 6 inches.
   2. Shrub Beds: 18 inches.

G. Place topsoil during dry weather.

H. Remove roots, weeds, rocks, and foreign material while spreading.

I. ear plants spread topsoil manually to prevent damage.

. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

. ightly compact placed topsoil.

. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.

3.06 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) from required elevation.

B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch).

C. Top Surface of Subgrade: Plus or minus 1/10 foot from required elevation.

D. Top Surface of Finish Grade: Plus or minus 1/2 inch.

3.0 REPAIR AND RESTORATION

A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

B. Other Existing egetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and si□e.

3.0 FIELD QUALITY CONTROL

A. See Section 31 2323 for compaction density testing.

3.0 CLEANING

A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water.

B. eave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 31 2316
EXCA ATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Excavating for paving and site structures.

B. Trenching for utilities outside the building to utility main connections.

PART 3 EXECUTION

2.01 EXAMINATION

A. erify that survey bench mark and intended elevations for the work are as indicated.

2.02 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. ocate, identify, and protect utilities that remain and protect from damage.

C. Grade top perimeter of excavation to prevent surface water from draining into excavation. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by Architect.

2.03 EXCA ATING

A. Excavate to accommodate new structures and construction operations.

B. otify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

C. Do not interfere with 45 degree bearing splay of foundations.

D. Provide temporary means and methods, as required, to remove all water from excavations until directed by Architect. Remove and replace soils deemed suitable by classification and which are excessively moist due to lack of dewatering or surface water control.

2.04 FILLING AND BAC FILLING

A. Do not fill or backfill until all debris, water, unsatisfactory soil materials, obstructions, and deleterious materials have been removed from excavation.

2.0 FIELD QUALITY CONTROL

A. See Section 01 4000 - uality Requirements, for general requirements for field inspection and testing.

B. Provide for visual inspection of load-bearing excavated surfaces by Architect before placement of foundations.

2.06 CLEANING

A. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 2200.

B. Remove excavated material that is unsuitable for re-use from site.

C. Remove excess excavated material from site.

2.0 PROTECTION

A. Divert surface flow from rains or water discharges from the excavation.

B. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.

C. Protect open excavations from rainfall, runoff, free□ing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition.

D. Protect bottom of excavations and soil adjacent to and beneath foundation from free□ing.

E. eep excavations free of standing water and completely free of water during concrete placement.

END OF SECTION

SECTION 31 2323
FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Filling, backfilling, and compacting for paving and site structures.

B. Backfilling and compacting for utilities outside the building to utility main connections.

1.02 RELATED REQUIREMENTS

A. Section 31 2200 - Grading: Site grading.

1.03 REFERENCE STANDARDS

A. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2011.

1.04 DELI ERY STORAGE AND HANDLING

A. When necessary, store materials on site in advance of need.

B. When fill materials need to be stored on site, locate stockpiles where indicated.
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. General Fill: Subsoil excavated on-site.
   1. Graded.
   2. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
   3. Complying with ASTM D2487 Group Symbol C .

B. Granular Fill - Fill Type 53 s: Coarse aggregate, conforming to State of Indiana Highway Department standard. (I DOT)

2.02 SOURCE QUALITY CONTROL

A. See Section 01 45 00 - uality Requirements, for general requirements for testing and analysis of soil material.

B. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

B. erify areas to be filled are not compromised with surface or ground water.

3.02 PREPARATION

A. Scarify and proof roll subgrade surface to a depth of 6 inches to identify soft spots.

B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

A. Fill to contours and elevations indicated using unfro□en materials.

B. Employ a placement method that does not disturb or damage other work.

C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, fro□en or spongy subgrade surfaces.

D. Maintain optimum moisture content of fill materials to attain required compaction density.

E. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

F. Correct areas that are over-excavated.
   1. Other areas: Use general fill, flush to required elevation, compacted to minimum 97 percent of maximum dry density.

G. Compaction Density Unless Otherwise Specified or Indicated:
   1. Under paving and similar construction: 97 percent of maximum dry density.

H. Reshape and re-compact fills subjected to vehicular traffic.

I. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.04 FILL AT SPECIFIC LOCATIONS

A. Use general fill unless otherwise specified or indicated.

B. At Stamped Pavement:
   1. Use Granular Fill.
   2. Fill up to subgrade elevation.
   3. Compact each lift to 90 percent of maximum dry density.
   4. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.

C. At awn Areas:
   1. Use general fill.
   2. Fill up to 6 inches below finish grade elevations.
   3. Fill up to subgrade elevations.
   4. Compact to 95 percent of maximum dry density.
   5. See Section 31 2200 for topsoil placement.

3.0 TOLERANCES

A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.

3.06 CLEANING

A. See Section 01 7419 - Construction Waste Management and Disposal, for additional requirements.

B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

C. eave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 32 1313
CONCRETE PA ING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete pads, and integral curbs and ramp.

1.02 RELATED REQUIREMENTS

A. Section 03 1000 - Concrete Forming and Accessories.

B. Section 03 3000 - Cast-in-Place Concrete.

C. Section 03 3533 - Stamped Concrete Finishing: Additional requirements for patterned surfaces.

D. Section 31 2200 - Grading: Preparation of site for paving and base and preparation of subsoil at pavement perimeter for planting.

E. Section 31 2323 - Fill: Compacted subbase for paving.

1.03 REFERENCE STANDARDS

A. ACI 211.1 - Standard Practice for Selecting Proportions for ormal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

B. ACI 301 - Specifications for Structural Concrete; 2010 (Errata 2012).

C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000.

D. ACI 305R - Hot Weather Concreting; 2010.

E. ACI 306R - Cold Weather Concreting; 2010.

F. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement; 2015.

G. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2015.

H. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2013.

I. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2015a.

. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2015.

. ASTM C150/C150M - Standard Specification for Portland Cement; 2015.

. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the olumetric Method; 2014.

M. ASTM C685/C685M - Standard Specification for Concrete Made by olumetric Batching and Continuous Mixing; 2014.

. ASTM D1751 - Standard Specification for Preformed Expansion oint Filler for Concrete Paving and Structural Construction (onextruding and Resilient Bituminous Types); 2004 (Reapproved 2013).

O. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled P C Expansion oint Fillers for Concrete Paving and Structural Construction; 2004a (Reapproved 2013).

PART 2 PRODUCTS

2.01 FORM MATERIALS

A. Form Materials: As specified in Section 03 1000, comply with ACI 301.

B. oint Filler: Preformed; non-extruding bituminous type (ASTM D1751) or sponge rubber or cork (ASTM D1752).
   1. Thickness: 1/2 inch.

2.02 REINFORCEMENT

A. Steel Welded Wire Reinforcement: Plain type, ASTM A1064/A1064M; in flat sheets; unfinished.

B. Dowels: ASTM A615/A615M, Grade 40 - 40,000 psi yield strength; deformed billet steel bars; unfinished finish.

2.03 CONCRETE MATERIALS

A. Obtain cementitious materials from same source throughout.

B. Concrete Materials: As specified in Section 03 3000.

2.04 CONCRETE MIX DESIGN

A. Proportioning ormal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Concrete Properties:
1. Compressive strength, when tested in accordance with ASTM C39/C39M at 28 days; 4000 psi.
2. Water-Cement Ratio: Maximum percent by weight.
3. Total Air Content: 4 percent, determined in accordance with ASTM C173/C173M.
4. Maximum Slump: 4 inches.
5. Maximum Aggregate Si□e: 3/4 inch.

2.0 MIXING

A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685/C685M. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.

B. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

A. erify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. erify gradients and elevations of base are correct.

3.02 SUBBASE

A. See Section 32 1123 for construction of base course for work of this Section.

3.03 PREPARATION

A. Moisten base to minimi□e absorption of water from fresh concrete.

B. otify Architect minimum 24 hours prior to commencement of concreting operations.

3.04 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.0 REINFORCEMENT

A. Place reinforcement at midheight of slabs-on-grade.

B. Interrupt reinforcement at contraction joints.

C. Place dowels to achieve pavement and curb alignment as detailed.

3.06 COLD AND HOT WEATHER CONCRETING

A. Follow recommendations of ACI 305R when concreting during hot weather.

3.0 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Do not place concrete when base surface is wet.

C. Ensure reinforcement, inserts, embedded parts, formed joints and are not disturbed during concrete placement.

D. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

3.0 OINTS

A. Align curb, gutter, and sidewalk joints.

B. Place 3/8 inch wide expansion joints at 20 foot intervals and to separate paving from vertical surfaces and other components and in pattern indicated.
   1. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.
   2. Secure to resist movement by wet concrete.

C. Provide scored joints.
   1. At 5 feet intervals.
   2. Between sidewalks and curbs.
   3. Between curbs and pavement.

D. Saw cut contraction joints 3/16 inch wide at an optimum time after finishing. Cut 1/3 into depth of slab.

3.0 FINISHING

A. Area Paving: ight broom, texture perpendicular to pavement direction.

B. Curbs and Gutters: ight broom, texture parallel to pavement direction.

C. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer s instructions.

3.10 OINT SEALING

A. See Section 07 9200 for joint sealer requirements.

3.11 TOLERANCES

A. Maximum ariation of Surface Flatness: 1/4 inch in 10 ft.

B. Maximum ariation From True Position: 1/4 inch.

3.12 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 45 00 uality Control.
   1. Provide free access to concrete operations at project site and cooperate with appointed firm.

B. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.13 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Do not permit pedestrian traffic over pavement until 75 percent design strength of concrete has been achieved.

END OF SECTION

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SECTION 32 3300
SITE FURNISHINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Benches

B. Picnic Tables

C. Handicap Accessible Grill

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: In concrete mount grills.

1.03 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer s specifications and descriptive literature, installation instructions, and maintenance information.

C. Samples: Submit two sets of manufacturer s available colors for metal furnishings.

1.0 QUALITY ASSURANCE

A. Manufacturer ualifications: Company speciali□ing in manufacturing products specified in this section, with at least five years of documented experience.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 METAL FURNISHINGS

A. Picnic Table:
   1. Manufacturer: Belson Outdoors; www.belson.com; (800) 323-5664
      a. Product: Classic Style Square Recycled Plastic Picnic Table with Steel Frame
      b. Materials: 96 post-consumer recycled materials planks reinforced with 1/4" 1" steel strips
      c. Model: 358-CDR48
      d. Dimensions: 74-9/16" Square 29-15/16" H (4-Seat)
      e. Recycled Plastic Color: Cedar
      f. Frame Color: White
      g. Mount: Freestanding
      h. uantity: 2
   2. Substitutions: See Section 016000 - Product Requirements.

2.03 WOOD BENCHES

A. Materials:
   1. Exterior Wood: Redwood (o Finish)

B. Benches: Solid wood supports and seat section without back.
   1. Shape: Rectangle.
   2. ength: 72 inches.
   3. Height: 16 inches.
   4. Width: 19.5 inches.
   5. Mounting: Surface. Plate with non-corrosive anchors
   6. uantity: 3

7. ocation: ocations indicated on drawings.

C. Manufacturer and Product:
1. Manufacturer: andscape Forms Inc: www.landscapeforms.com/ sle.
a. Addresss: 7800 E. Michigan Ave,; alama□oo Michigan 49048
b. Phone: (800) 430-6209
c. Email: specify landscapeforms.com
2. Product:
a. Palisade Bench
3. Substitutions: See Section 01 6000 - Product Requirements.

2.04 GRILL

A. Handicap Accessible Grill
1. Grill Area: 300 square inch
2. Pedestal O.D.: 2-3/8"
3. Frame Finish: Painted black with galvani□ed pedestal
4. Utility Shelf: es
5. Mounting Option: In concrete mount
6. uantity: Refer to drawings
7. Manufacturer: ay Park Recreation
a. Address:1301 Pine Street, anesville, IA 50647
b. Phone: 866-407-5971
8. Product:
a. Model: SB16ADA

PART 3 EXECUTION

3.01 EXAMINATION

A. erify proper installation of mounting surfaces, preinstalled anchor bolts, and other mounting devices; and ready to receive site furnishing items.

B. Do not begin installation until unacceptable conditions are corrected.

3.02 INSTALLATION

A. Install site furnishings in accordance with approved shop drawings, and manufacturer s installation instructions.

B. Procedure for surface mounting bench:
1. Set bench in place and mark hole locations.
2. Drill holes according to anchor manufacturer s recommendations.
3. Set bench in position and install anchors.

C. Provide level mounting surfaces for site furnishing items.

END OF SECTION

SECTION 32 21 SEEDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preparation of subsoil.

B. Placing topsoil.

C. Seeding, mulching and fertili□er.

D. Maintenance.

1.02 RELATED REQUIREMENTS

A. Section 31 2200 - Grading: Topsoil material.

B. Section 31 2200 - Grading: Preparation of subsoil and placement of topsoil in preparation for the work of this section.

1.03 DEFINITIONS

A. Weeds: Include Dandelion, imsonweed, uackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, ambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, utgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, ohnson Grass, Poison Ivy, ut Sedge, imble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Certificate: Certify seed mixture approval by authority having jurisdiction.

1.0 DELI ERY STORAGE AND HANDLING

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

B. Deliver fertili□er in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertili□er and herbicide composition.

B. Provide certificate of compliance from authority having jurisdiction indicating approval of seed mixture.

2.02 SEED MIXTURE

A. Seed Mixture: Seed at 150 lbs/ac
   1. entucky Blue Grass: 90 lbs/ac
   2. Perennial Rye: 60 lbs/ac

2.03 SOIL MATERIALS

A. Topsoil: Excavated from site and free of weeds.

2.04 ACCESSORIES

A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

B. Water: Clean, fresh and free of substances or matter that could inhibit vigorous growth of grass.

C. Stakes: Softwood lumber, chisel pointed.

D. String: Inorganic fiber.

PART 3 EXECUTION

3.01 PREPARATION

A. Prepare subgrade in accordance with Section 31 2200.

B. Place topsoil in accordance with Section 31 2200.

3.02 FERTILI□ING

A. Apply fertili□er in accordance with manufacturer s instructions.

B. Apply after smooth raking of topsoil and prior to roller compaction.

C. Do not apply fertili□er at same time or with same machine as will be used to apply seed.

D. Mix thoroughly into upper 2 inches of topsoil.

E. ightly water to aid the dissipation of fertili□er.

3.03 SEEDING

A. Apply seed at a rate of 6 lbs per 1000 sq ft evenly in two intersecting directions. Rake in lightly.

B. Do not seed areas in excess of that which can be mulched on same day.

C. Do not sow immediately following rain, when ground is too dry, or during windy periods.

D. Immediately following seeding and compacting, apply mulch to a thickness of 1/8 inches. Maintain clear of shrubs and trees.

E. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

F. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches.

3.04 PROTECTION

A. Identify seeded areas with stakes and string around area periphery. Set string height to 12 inches. Space stakes at 36 inches.

B. Cover seeded slopes where grade is 4 inches per foot or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.

C. ay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Provide 12 inch overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.

D. Secure outside edges and overlaps at 36 inch intervals with stakes.

3.0 MAINTENANCE

A. Provide maintenance at no extra cost to Owner; Owner will pay for water.

B. See Section 01 7000 - Execution Requirements, for additional requirements relating to maintenance service.

C. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition.

D. Furnish maintenance of seeded areas for three months from Date of Substantial Completion or one growing season if substantial completion occurs lather than 3 months prior to first frost (mid-October).

E. Mow grass at regular intervals to maintain at a maximum height of 2-1/2 inches. Do not cut more than 1/3 of grass blade at any one mowing.

F. eatly trim edges and hand clip where necessary.

G. Immediately remove clippings after mowing and trimming.

H. Water to prevent grass and soil from drying out.

I. Roll surface to remove minor depressions or irregularities.

. Control growth of weeds. Apply herbicides in accordance with manufacturer s instructions. Remedy damage resulting from improper use of herbicides.

. Immediately reseed areas that show bare spots.

. Protect seeded areas with warning signs during maintenance period.

END OF SECTION

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SECTION 33 1416
SITE WATER UTILITY DISTRIBUTION PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water pipe for site conveyance lines.

1.02 RELATED REQUIREMENTS

A. Section 31 2316.13 - Trenching: Excavating, bedding, and backfilling.

1.03 REFERENCE STANDARDS

A. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter; 2015.

B. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm), for Water Service; 2008.

PART 2 PRODUCTS

2.01 WATER PIPE

A. Polyethylene Pipe: ASTM D3035, for 45 psig pressure rating:

B. Polyethylene Pipe: AWWA C901:

C. Trace Wire: Magnetic detectable conductor, clear plastic covering, imprinted with "Water Service" in large letters.

PART 3 EXECUTION

3.01 PREPARATION

A. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, remove burrs.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare pipe connections to equipment with flanges or unions.

3.02 TRENCHING

A. See the sections on excavation and fill for additional requirements.

B. Backfill around sides and to top of pipe with cover fill, tamp in place and compact, then complete backfilling.

3.03 INSTALLATION - PIPE

A. Maintain separation of water main from sewer piping in accordance with Indiana code.

B. Route pipe in straight line.

C. Install pipe to allow for expansion and contraction without stressing pipe or joints.

D. Slope water pipe and position drains at low points.

E. Install trace wire 6 inches above top of pipe; coordinate with Section 31 2316.13.

END OF SECTION

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Fort Wayne Housing Authority

Tall Oaks and Whispering Oaks Community Garden

ADDENDUM 2 - October 15, 2024

ADDENDUM 1 - October 7, 2024

7300 Decatur Road
Fort Wayne, IN 46816

FORT WAYNE housing authority

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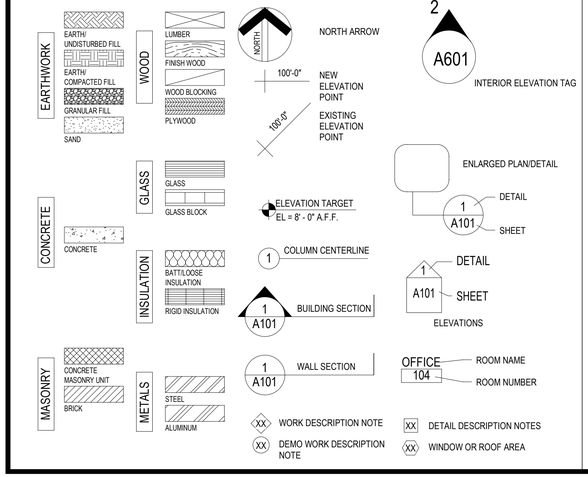
SYMBOLS KEY



AREA MAP

INDEX OF DRAWINGS

ARCHITECT

JACK E. DANIEL REGISTERED No. AR010026 STATE OF INDIANA ARCHITECT

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ENGINEER

[NAME]

ENGINEER

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221 West Baker Street
Fort Wayne, Indiana 46802

pho 260.422.7994
fax 260.426.2067

DATE: 2024-10-01

SET NUMBER:

Tall Oaks and Whispering Oaks Community Garden

COMMISSION NO. F24074

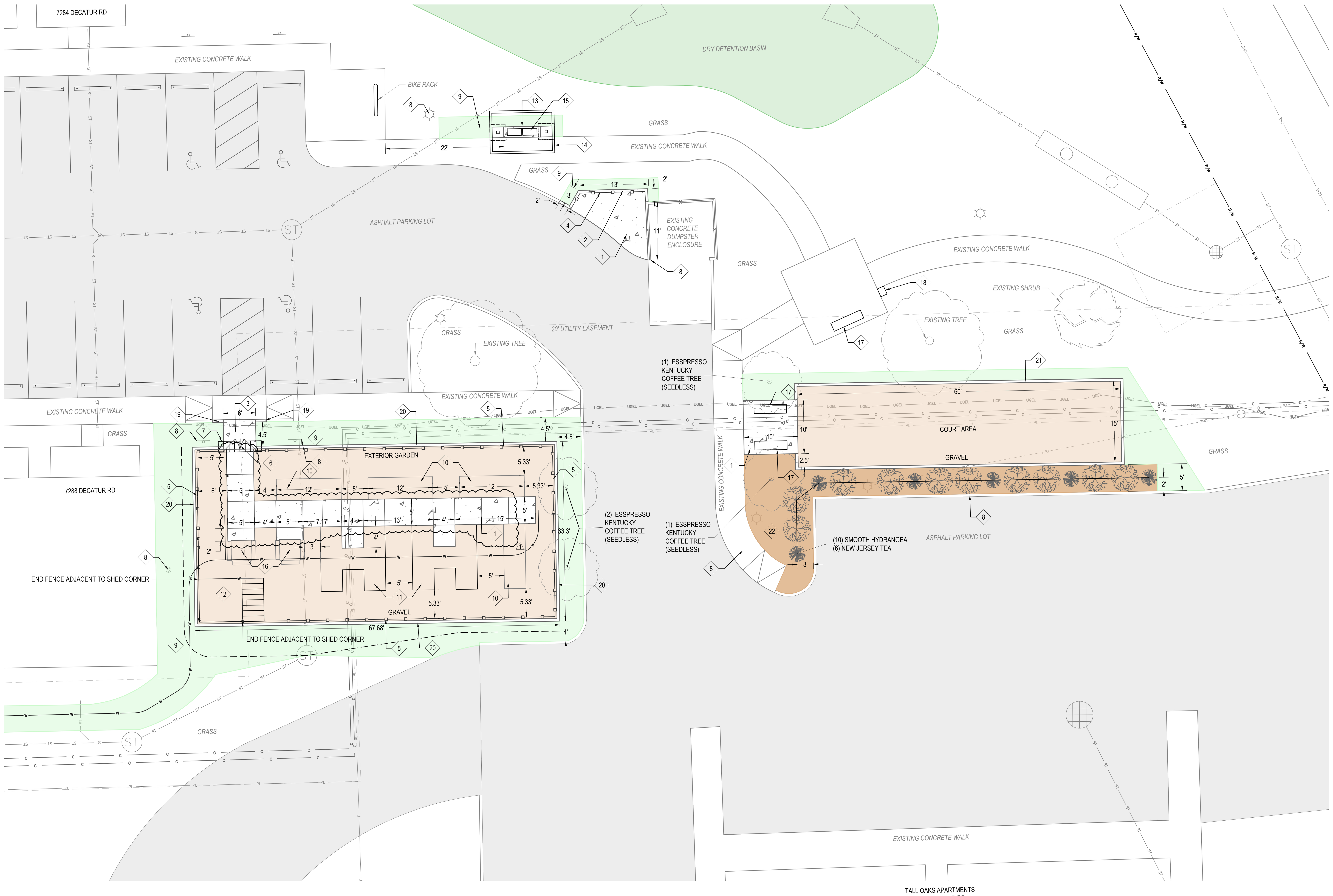
PLANT LIST

TREES

	BASE BID QTY.	REQUIRED QTY.	LOCATION	COMMON NAME	SCIENTIFIC NAME	NATIVE/ ADAPTED	SOIL PREFERENCE	INSTALATION SIZE	ROOT
	4	4	WEST PARKING LOT & BUILDING PERIMETER	ESPRESSO KENTUCKY COFFEE	GYMNOCLADUS DIOICUS 'ESPRESSO-JFS'	Y	ALKALINE - MOIST, WELL-DRAINED	11' TALL MIN.	#10 CONTAINER

SHRUBS

	BASE BID QTY.	REQUIRED QTY.	LOCATION	COMMON NAME	SCIENTIFIC NAME	NATIVE/ ADAPTED	SOIL MOISTURE	INSTALATION SIZE	ROOT
	10	10	NORTH EAST PARKING LOT - NORTH AND WEST	SMOOTH HYDRANGEA	HYDRANGEA ARBORESCENS	Y	MOIST TO DRY, WELL-DRAINED	12" TALL MIN.	#1 CONTAINER
	6	6	NORTH EAST PARKING LOT - NORTH AND WEST	NEW JERSEY TEA	CEANOTHUS AMERICANUS	Y	MOIST, WELL-DRAINED	6" TALL MIN.	#2 CONTAINER
	16	16	TOTAL						



1 Site Layout Plan

1" = 10'

General Construction Notes

1. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH STATE, COUNTY AND LOCAL CODES INCLUDING ALL AMENDMENTS.
2. ALL PERMITTING FEES SHALL BE PAID FOR BY THE CONTRACTOR.
3. CONTRACTOR SHALL PROTECT ALL ADJACENT IMPROVEMENTS, BUILDINGS, INFRASTRUCTURE, PAVEMENTS, PAVEMENT MARKINGS, WALKS, GRASS, ETC DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES SHALL BE REPAIRED/ REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST.
4. PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL PLACE APPROPRIATE EROSION CONTROL MEASURES TO ENSURE NO SEDIMENT LEAVES THE SITE OR ENTERS ON-SITE OR PUBLIC STORM SYSTEMS (SEE C900).
5. CONTRACTOR TO MATCH CONSTRUCTION LIMITS TO EXISTING GRADES AND PROVIDE POSITIVE DRAINAGE TO EXISTING DRAINAGE PATHS/ SYSTEMS.
6. CONTRACTOR SHALL ADJUST ALL CASTINGS TO GRADE WITHIN OR ADJACENT TO THE WORK.
7. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS BY PLACING TOPSOIL, IF REQUIRED, GRADING TO ESTABLISH POSITIVE DRAINAGE, SEEDING AND MULCH.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL TRADES, LOCAL /COUNTY JURISDICTIONS AND UTILITIES.

- GRASS SEED/ SOD
- EX. CONCRETE PAVEMENT SECTION
- CONCRETE PAVEMENT SECTION
- GRAVEL PAVEMENT / LANDSCAPE STONE
- EX. ASPHALT PAVEMENT SECTION
- EX. DETENTION BASIN
- MULCH / LANDSCAPE BED

- ST — EXISTING STORMSEWER MANHOLE

- XXX — EXISTING MAJOR CONTOUR
- XXX — EXISTING MINOR CONTOUR
- XXX — PROPOSED MAJOR CONTOUR
- XXX — PROPOSED MINOR CONTOUR

- SS — EXISTING SANITARY SEWER
- ST — EXISTING STORM SEWER
- ST — PROPOSED STORM SEWER
- W — EXISTING WATER LINE
- W — PROPOSED WATER LINE
- G — EXISTING GAS LINE
- C — EXISTING IU COMM LINES
- OHE — EXISTING OVERHEAD LINES
- UGEL — EXISTING UG ELEC LINE
- R/W — RIGHT OF WAY
- PL — PROPERTY LINES

Typical Site Work Description Notes

1. CONCRETE PAVEMENT - STANDARD DUTY - SEE DETAIL 1/C800.
2. CONCRETE CURB- STRAIGHT - SEE DETAIL 2/C800.
3. STAMPED CONCRETE - SEE DETAIL 4/C800.
   - C-14" FRENCH GRAY COLOR, GRAY RELEASE, W/ FRACTURED SLATE-EMBOSSING SKIN.
   - "C-3150" BARK COLOR, GRAY RELEASE, WEATHERED WOOD-INTERLOCKING PLANK SKIN.
   - COLORS AND CONCRETE STAMP SKINS BY SCOFIELD SYSTEMS OR APPROVED EQUAL.
4. WOODEN SLAT FENCE - SEE SHEET A503.
5. 170 LT OF ALUMINUM FENCE - SEE SHEET A503.
6. GARDEN GATE - SEE SHEET A502.
7. GATE ENTRY PERGOLA - SEE SHEET A502.
8. PROTECT EXISTING ADJACENT IMPROVEMENTS AND INFRASTRUCTURE TO REMAIN.
9. RESTORATION OF DISTURBED AREAS AND GRASS SEEDING.
   SEED MIXTURE - SEED AT 150 LB/AC
   KENTUCKY BLUEGRASS 90 LBS/AC
   PERENNIAL RYEGRASS 60 LBS
10. RAISED PLANTER - STRAIGHT - SEE SHEET A502.
11. RAISED PLANTER - H - SEE SHEET A502.
12. GARDEN SHED W/ PERGOLA - SEE SHEET A501.
13. CLUSTER MAILBOX CONCRETE PAD - SEE DETAIL 5/C800.
14. MAILBOX ROOF STRUCTURE - SEE SHEET A503.
15. RELOCATED EXISTING CLUSTER MAILBOXES.
16. ADA ACCESSIBLE OUTDOOR TABLE - SEE SPEC SECTION 32-3300.
17. OUTDOOR BENCH - SEE SPEC SECTION 32 3300.
18. POST MOUNTED CHARCOAL GRILL - SEE SPEC SECTION 32-3300.
19. SAWCUT END TAPER- 2' UNLESS NOTED OTHERWISE - SEE DETAIL 3/C800.
20. EXTERIOR GARDEN STRAIGHT CONCRETE CURB - SEE DETAIL 6/C800.
21. COURT AREA STRAIGHT CONCRETE CURB - SEE DETAIL 7/C800 .
22. LANDSCAPE BED, WOOD FIBER MULCH - SEE SPEC SECTION 32-9219.

A New Construction Project For :

Tall Oaks Community Garden

7300 Decatur road
Fort Wayne, IN 46816

MARTINRILEY
architects-engineers
221 West Baker Street
Fort Wayne, Indiana 46802
TEL. 260.422.7994
FAX. 260.426.2067

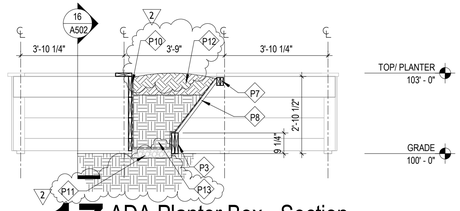
TORREY D. EHRMAN REGISTERED No. 12000461 STATE OF INDIANA PROFESSIONAL ENGINEER 10-1-24

REVISION:		DATE:
1	Addendum 2	2024-10-15

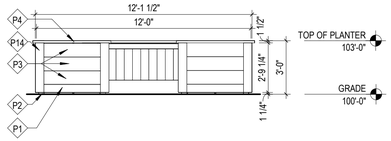
DRAWN BY: CAS / FGR
REVIEWED BY: TDE
COMMISSION NUMBER: F24074
DATE: 2024-10-01

C200

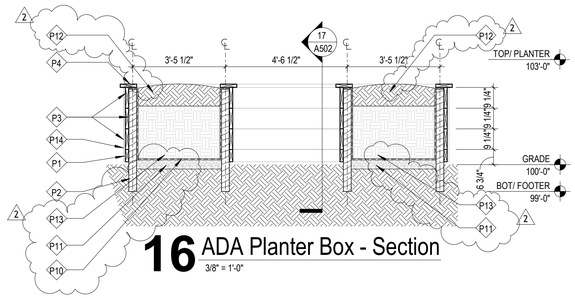
SITE LAYOUT PLAN



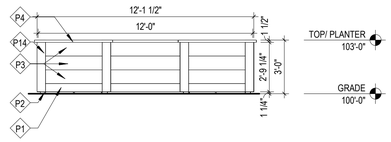
17 ADA Planter Box - Section
3/8" = 1'-0"



13 ADA Planter Box - South Elevation
1/4" = 1'-0"



16 ADA Planter Box - Section
3/8" = 1'-0"



12 ADA Planter Box - North Elevation
1/4" = 1'-0"

Work Description Notes

P1 2x8 LUMBER, CUT TO FIT. STAIN AND SEAL.

P2 4x4 WOOD POST DRIVEN 1'-0" INTO GROUND

P3 2X10 LUMBER. STAIN AND SEAL.

P4 2X6 LUMBER CAP. STAIN AND SEAL.

P5 2X WOOD STIFFENERS, 48" C/C, TYP.

P6 2X LUMBER FACADE. SEE ELEVATIONS FOR ARRANGEMENT.

P7 2x4 LUMBER. STAIN AND SEAL.

P8 2x6 LUMBER, NOTCHED AT BOTH ENDS TO FIT. STAIN AND SEAL.

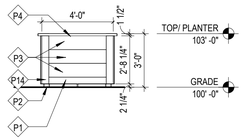
P10 LANDSCAPE FABRIC LAPPED OVER TOP OF WOOD POST AND STIFFENERS

P11 4" GRANULAR BACKFILL DRAINAGE COURSE

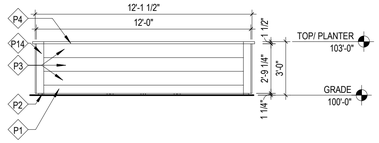
P12 8" GARDEN SOIL

P13 ON-SITE SOIL

P14 1x TRIM, STAIN AND SEAL

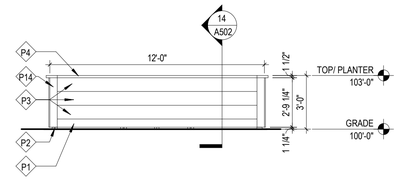


15 Planter Box - East Elevation
1/4" = 1'-0"

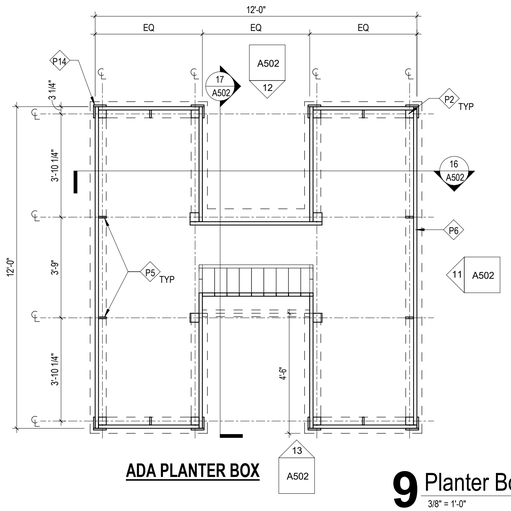


11 ADA Planter Box - East Elevation
1/4" = 1'-0"

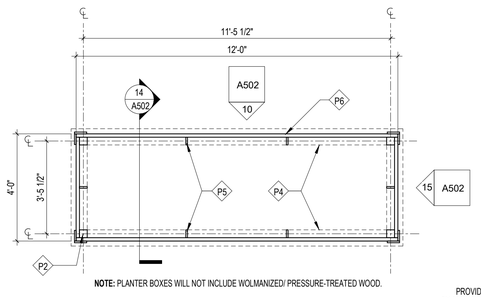
14 Planter Box - Section
3/8" = 1'-0"



10 Planter Box - North Elevation
1/4" = 1'-0"



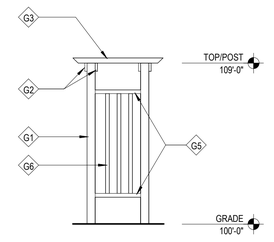
ADA PLANTER BOX



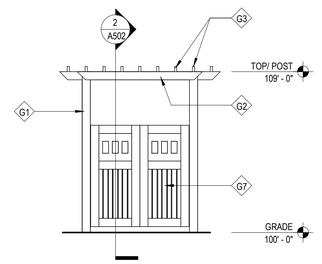
NOTE: PLANTER BOXES WILL NOT INCLUDE WOLMANIZED/ PRESSURE-TREATED WOOD.

STANDARD PLANTER BOX

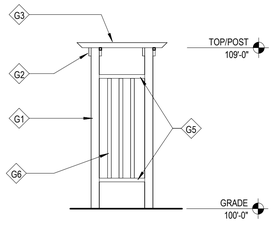
9 Planter Box - Plans
3/8" = 1'-0"



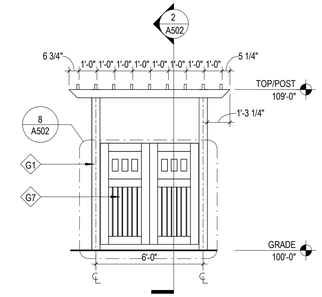
7 Gate - West Elevation
1/4" = 1'-0"



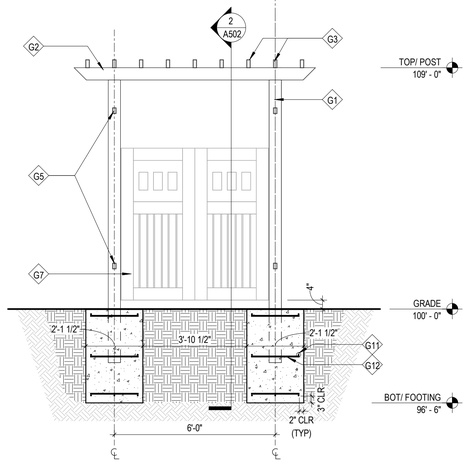
4 Gate - South Elevation
1/4" = 1'-0"



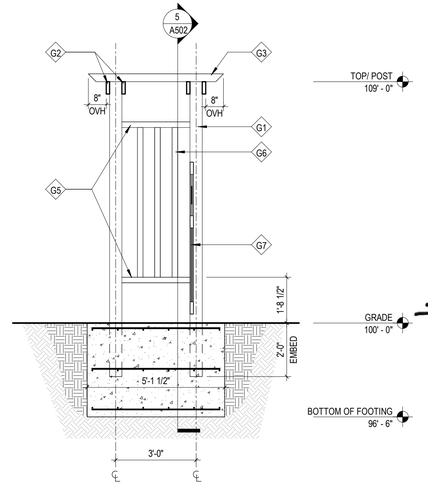
6 Gate - East Elevation
1/4" = 1'-0"



3 Gate - North Elevation
1/4" = 1'-0"



5 Gate - Section
3/8" = 1'-0"



2 Gate - Section
3/8" = 1'-0"

GATE LATCH / HARDWARE

PROVIDE (1) *OVAL CONTEMPORARY LEVER GATE LATCH* BY 360YARDWARE, OR EQUAL. DOUBLE GATE INSTALLATION WITH R.H. OPERATION; GATE THICKNESS 1.5". INCLUDE (2) STOPS, (2) HOLDS, PADLOCK EYES, AND 4"x4-1/2" 316 MARINE GRADE STAINLESS STEEL BUTT HINGES (6). ALL BLACK FINISH.

8 Gate - Detail
1/2" = 1'-0"

Work Description Notes

G1 6x6 PRESSURE-TREATED WOOD POST, STAINED AND SEALED

G2 2x6 PRESSURE-TREATED WOOD LEDGER, STAINED AND SEALED

G3 2x4 PRESSURE-TREATED WOOD PURLIN, STAINED AND SEALED

G4 STAMPED CONCRETE PATHWAY

G5 3X3 PRESSURE-TREATED WOOD TOP AND BOTTOM RAIL, STAINED AND SEALED

G6 2X2 PRESSURE-TREATED WOOD BANNISTER, STAINED AND SEALED

G7 WOODEN DOUBLE IN-SWING GATE

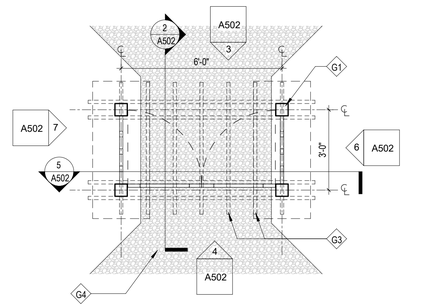
G8 1/2" DIAMETER WOODEN RODS, DOWELED 1" INTO STYLES. STAIN AND SEAL.

G9 2X6 PRESSURE-TREATED WOOD, STAINED AND SEALED

G10 3/8" PLYWOOD WITH ROUTED OPENINGS, STAINED AND SEALED

G11 9- #4 REBAR

G12 3- #5 REBAR @12"



1 Gate Entry - Plan
3/8" = 1'-0"

Related Work for :

Fort Wayne Housing Authority

Tall Oaks and Whispering Oaks Community Garden

7300 Decatur Road
Fort Wayne, IN 46816

FORT WAYNE housing authority

MARTIN RILEY
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JACK E. DANIEL REGISTERED No. AR910026 STATE OF INDIANA

REVISION:		DATE:
1	Addendum 1	07 OCT 2024
2	Addendum 2	15 OCT 2024

DRAWN BY:	Author	REVIEWED BY:	Checker
COMMISSION NUMBER:	F24074	DATE:	2024-10-01

A502

SITE DETAILS

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Community Garden
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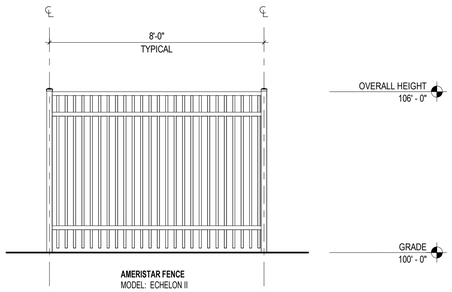
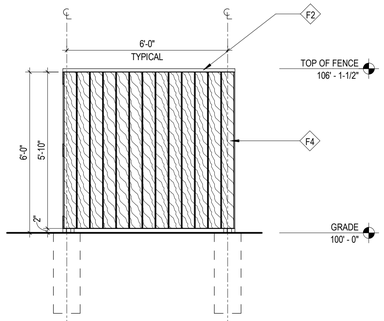
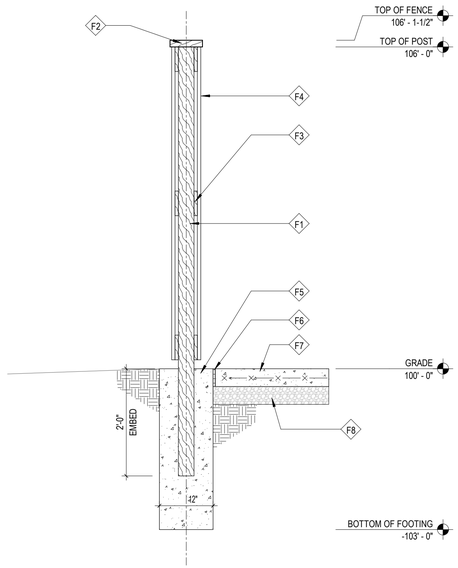
SD/DD/CD



9 Aluminum Fence Elevation
3/8" = 1'-0"



8 Wood Slat Fence Elevation
3/8" = 1'-0"



7 Wood Slat Fence Section
3/4" = 1'-0"

Work Description Notes

F1 4x4 CEDAR POST

F2 2X8 CEDAR CAP

F3 1X6 CEDAR HORIZONTAL RUNNERS

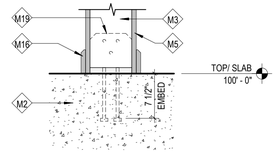
F4 1X6 CEDAR VERTICAL PLANKS

F5 12"X36" CONCRETE FOOTING SET AT EACH POST

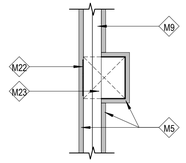
F6 1/2" ISOLATION JOINT

F7 CONCRETE SLAB. SEE CIVIL DRAWINGS.

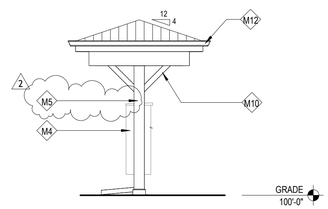
F8 6" COMPACTED GRANULAR FILL



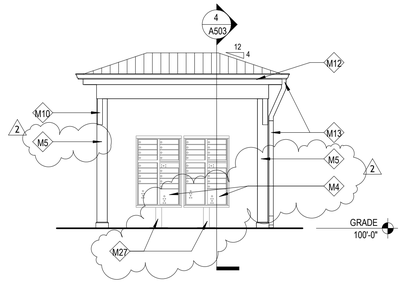
11 Post Base Detail
1" = 1'-0"



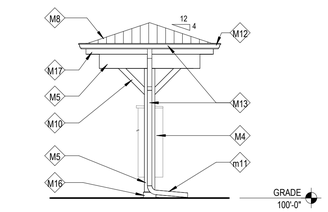
10 Beam Partial Plan
1" = 1'-0"



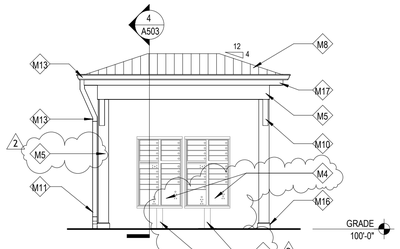
6 Mailbox Structure - West Elevation
1/4" = 1'-0"



3 Mailbox Structure - South Elevation
1/4" = 1'-0"



5 Mailbox Structure - East Elevation
1/4" = 1'-0"



2 Mailbox Structure - North Elevation
1/4" = 1'-0"

Work Description Notes

M1 ROOF OUTLINE

M2 MAILBOX CONCRETE FOUNDATION

M3 6x6 PRESSURE-TREATED WOOD POST

M4 EXISTING CLUSTER MAILBOXES, RELOCATED

M5 1x EXTERIOR TRIM BOARDS AT COLUMNS AND BEAMS

M6 5/8" OSB DECK OVER WOOD TRUSSES AT 2'-0" C/C

M7 PROVIDE NEW MANUFACTURER'S 24 GA PREFINISHED GI VENTED RIDGE AND VENTED HIP COVER

M8 PROVIDE NEW HIGH-TEMP SELF ADHEREING UNDERLAYMENT WITH NEW ARCHITECTURAL STANDING SEAM METAL ROOF PANELS (BASIS OF DESIGN: DIMENSIONAL METALS INTERLOCKING PANEL I.L20, COLOR: TO BE SELECTED BY ARCHTIECT) OVER 5/8" PLYWOOD SHEATHING

M9 BEAM, (2) 2x10'S

M10 4x4 WOOD BRACES. PRIME AND (2) COATS FINISH PAINT. (2)

M11 ELBOW DOWNSPUT TO CONCRETE SPLASHBLOCK

M12 PREFINISHED ALUMINUM GUTTER

M13 PITCH GUTTER TO PREFINISHED ALUMINUM DOWNSPOUT

M14 ALUMINUM SOFFIT PANELS, SOLID

M15 NEW SIMPSON H3 HURRICANE TIE, GALVANIZED OR EQUAL, FASTEN BETWEEN TRUSS AND BEAM, WITH FASTENERS RECOMMENDED BY MANUFACTURER, TYP.

M16 4" BASE W/ CHAMFERED PVC COVER AROUND

M17 ALUMINUM COVER 1X8 FASCIA BOARD

M18 PROVIDE NEW 24 GA CONTINUOUS PREFINISHED GI GUTTER (BASIS OF DESIGN: DMI CONTINUOUS GUTTER), SIZE 4". SLOPE GUTTERS 1/16" / 12" TO DOWNSPOUT. PROVIDE NEW 24 GA PREFINISHED GI DOWNSPOUTS (DS) WHERE INDICATED WITH DOWNSPOUT STRAPS AT TOP, MIDDLE AND BOTTOM OF WALL.

M19 NEW SIMPSON CPT66Z POST BASE (Z-MAX GALVANIZED) OR EQUAL, WITH FASTENERS RECOMMENDED BY MANUFACTURER

M20 COMPACTED BACKFILL

M21 UNDISTURBED SOIL

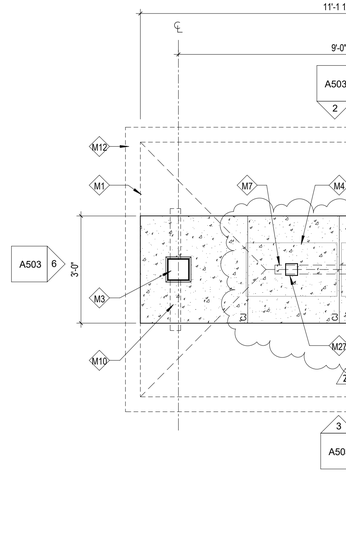
M22 NEW SIMPSON TP49 TIE PLATE (Z-MAX GALVANIZED) OR EQUAL, CENTER BETWEEN BEAM AND POST, WITH FASTENERS RECOMMENDED BY MANUFACTURER

M23 NOTCH 6X6 PRESSURE TREATED WOOD POST FOR BEAMS TO FIT

M24 9- #5 REBAR

M25 3- #5 REBAR @12"

M27 PAINT EXISTING/RELOCATED MAILBOX POSTS. (2)



4 Mailbox Structure - Section
1/2" = 1'-0"

1 Mailbox Canopy - Plan
1/2" = 1'-0"

Related Work for :

Fort Wayne Housing Authority

Tall Oaks and Whispering Oaks Community Garden

7300 Decatur Road
Fort Wayne, IN 46816

FORT WAYNE housing authority

MARTINRILEY
architects•engineers
221 West Baker Street
Fort Wayne, Indiana 46802
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JACK E. DANIEL REGISTERED No. AR910026 STATE OF INDIANA

REVISION:		DATE:
1	Addendum 1	07 OCT 2024
2	Addendum 2	15 OCT 2024

DRAWN BY: Author
REVIEWED BY: Checker
COMMISSION NUMBER: F24074
DATE: 2024-10-01

A503

SITE DETAILS

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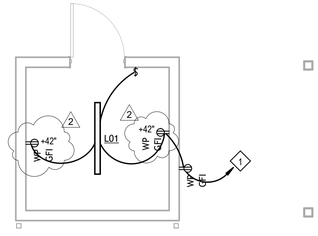
SD/DD/CD

LIGHTING FIXTURE SCHEDULE

TAG	MFG	MODEL	DESCRIPTION	MAX WATTS	MOUNTED	NOTES	ACCEPTABLE MFG/MODEL	ACCEPTABLE MFG/MODEL
L01	LITHONIA LIGHTING	CSS L48 4000LM MVOLT 40K 80CRI	4FT LED STRIP FIXTURE	35	SUSPENDED	+9FT AFF.	HUBBELL	COOPER



NORTH

1 Shed and Pergola

1/4" = 1'-0"

General Electrical Notes

1. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH STATE AND LOCAL CODES & AMENDMENTS.
2. SEE SPECIFICATION BOOK FOR ADDITIONAL REQUIREMENTS.
3. PROVIDE EVERYTHING NECESSARY TO MAKE REQUIRED SYSTEMS AND FEATURES COMPLETE AND FUNCTIONAL; INCLUDING BUT NOT LIMITED TO: FITTINGS, ADAPTERS, WIRE, BOXES, RACEWAY, HARDWARE, TEMPORARY CONNECTIONS AND SUPPORTS.
4. DRAWING ORGANIZATION IS NOT TRADE SPECIFIC AND IS NOT INTENDED FOR DIVISION OF WORK AMONG SUBCONTRACTORS. THE GENERAL CONTRACTOR IS RESPONSIBLE TO PROPERLY DISSEMINATE WORK ON ALL SHEETS AND COORDINATE WITH EVERY SUBCONTRACTOR IN ORDER TO PROVIDE A COMPLETE PROJECT.
5. ELECTRICAL DRAWINGS ARE SCHEMATIC IN NATURE. ALL DEVICES AND EQUIPMENT ARE SHOWN IN APPROXIMATE LOCATIONS. CONTRACTORS TO COORDINATE THEIR WORK WITH ALL OTHER TRADES ON SITE. EXTRAS WILL NOT BE GIVEN FOR FORESEEABLE WORK COORDINATION.
6. PROTECT ALL EQUIPMENT AND FINISHES, NEW AND EXISTING, FROM DUST DEBRIS AND DAMAGE. FINAL CLEAN-UP SHALL BE PERFORMED TO PROVIDE A CLEAN, DUST FREE ENVIRONMENT TO THE OWNER.
7. EXCEPT WHERE NOTED OTHERWISE, SIZE BRANCH CIRCUIT CONDUCTORS WITHIN THE FOLLOWING MAXIMUM LENGTH LIMITS: (MEASURE TO THE CENTER OF THE LOAD FOR LIGHTING AND MOST REMOTE OUTLET FOR RECEPTACLE CIRCUITS). MINIMUM CONDUCTOR SIZE FOR 120V 20A CIRCUIT: 65 FEET - #12, 110 FEET - #10, 165 FEET - #8, 270 FEET - #6
8. PROVIDE ADDITIONAL DERATING PER NEC SECTION 310 FOR ALL HOME RUNS WITH MORE THAN THREE CURRENT CARRYING CONDUCTORS IN A SINGLE RACEWAY.
9. SHARING OF NEUTRALS SHALL NOT BE PERMITTED.
10. PROVIDE BACKBOX AND 3/4" CONDUIT TO ATTIC WITH PULL WIRE FOR ALL TELEPHONE/DATA/AUDIO OUTLETS.

Electrical Legend

SEE TITLE SHEET FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS.
SYMBOLS IN THIS LIST ARE NOT DRAWN TO SCALE
SYMBOLS IN THIS LIST, MAY NOT APPLY TO THIS PROJECT
HEIGHTS LISTED HERE APPLY UNLESS NOTED OTHERWISE
HEIGHTS ARE TO THE BOTTOM OF THE DEVICE

COMPONENTS SHOWN IN GRAY ARE EXISTING OR SPECIFIED IN OTHER VIEWS.

- HOME RUN TO PANEL & CIRCUIT NO.
- XX MARK FOR SCHEDULED ITEM
- LIGHT FIXTURE; CEILING MOUNTED
- $ SINGLE POLE SWITCH; +44" AFF
- GFI GFCI RECEPTACLE
- WP WEATHER-PROOF GFCI RECEPTACLE; +16"

Work Description Notes

1 WIRE TO NEAREST HOUSE PANEL WITH AVAILABLE 1P/20A CIRCUIT BREAKER. SIZE WIRE PER NEC VOLTAGE DROP GUIDELINES

Related Work for :

Owner

Tall Oaks and Whispering Oaks Community Garden

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Fort Wayne, IN 46816

FORT WAYNE housing authority

MARTINRILEY
architects•engineers

221 West Baker Street
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REVISION:		DATE:
2	Addendum 2	15 OCT 2024

DRAWN BY: VRK
REVIEWED BY: VRK
COMMISSION NUMBER: F24074
DATE: 2024-10-01

E101

ELECTRICAL PLAN

F24074 - Tall Oaks and Whispering Oaks Community Garden
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Project Status