

**FOREST SERVICE SUPPLEMENTAL SPECIFICATIONS
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USDA FOREST SERVICE, R-4
ESCALANTE LOWER BUNKHOUSE SIDING RENOVATION

SECTION 011250 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Measurement and payment for contract work will be made by lump sum only for and under those pay items included in the Schedule of Items. All other work, labor, materials, equipment, and incidentals necessary to successfully complete the project will be considered as included in the payment for items shown. This section defines the method of measurements and basis of payment for work items listed in the Schedule of Items.

1.2 METHOD OF MEASUREMENT

1. ACTUAL QUANTITIES (AQ) – These quantities are determined from actual measurements of completed work.
2. CONTRACT QUANTITIES (CQ) – These quantities denote the final number of units to be paid for under the terms of the contract. They are based upon the original design data available prior to advertising the project. Original design data include the preliminary survey information, design assumptions, calculations, drawings, and the presentation in the contract.
3. LUMP SUM QUANTITIES (LSQ) - These quantities denote one complete unit of work as required by or described in the contract, including necessary materials, equipment, and labor to complete the job. They shall not be measured.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 011250
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SECTION 011900 - MOBILIZATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This item is intended to compensate the Contractor for operations including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for payment of premiums for bonds and insurance for the project; and for any other work and operations which must be performed or costs that must be incurred incident to the initiation of meaningful work at the site and for which payment is not otherwise provided for under the contract.
- B. The measurement shall be lump sum for mobilization.
- C. Payment:
 - 1. Bond premiums will be reimbursed after receipt of the evidence of payment.
 - 2. 50% of the lump sum, not to exceed 5% of the original contract amount, will be paid following completion of 5% of the original contract amount not including mobilization and bond premiums.
 - 3. Payment of the remaining portion of the lump sum, up to 10% of the original contract amount, will be paid following completion of 10% of the original contract amount not including mobilization and bond premiums.
 - 4. Any portion of the lump sum in excess of 10% of the original contract amount will be paid after final acceptance.
 - 5. Progress payments for mobilization and preparatory work shall be subject to retainage.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 011900
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SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes requirements for submitting Drawings, Product Data, Samples, and other miscellaneous submittals. All material submittals shall be included in the initial proposal.

1.2 SUBMITTAL PROCEDURES

- A. Identification: Place a permanent label or title block on each submittal for identification.
 - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 - 2. Provide a space on label or beside title block to record Contractor's review and approval markings and action taken by CO.
 - 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Contractor.
 - d. Name of manufacturer.
 - e. Unique identifier, including revision number.

1.3 MEASUREMENT AND PAYMENT

- A. No separate measurement and/or payment will be made for this section. Payment shall be included with work shown in the schedule of items.

PART 2 - PRODUCTS

2.1 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Submittals for all material used in the contract.
 - 1. Number of Copies: Submit one copy of each submittal, unless otherwise indicated. CO will not return copies.
- B. Material Reports: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

PART 3 - EXECUTION

3.1 GENERAL

- A. CO will not review submittals that do not bear Contractor's approval stamp and will return them without action.

- 3.2 SUBMITTAL SCHEDULE – Submittals shall be made as part of initial proposal for the project. The following table is a summary of the required submittals for the project - the table is to assist the Contractor and may not be all inclusive – additional submittals may be included:

Spec. Section	Section Title	Sub-Section	Required Submittal
014100	Quality Control	1.3A	Materials & Supplies
014100	Quality Control	1.3B	Permits
024134	Lead Waste Practices and Disposal	1.5A	Certification
024134	Lead Waste Practices and Disposal	1.5B	Location of Disposal
024134	Lead Waste Practices and Disposal	1.5C	Health & Safety Plan
033010	Cast-In-Place Concrete	1.2A	ACI 301
033010	Cast-In-Place Concrete	1.2B	Product Data
033010	Cast-In-Place Concrete	1.2C	Design Mixtures
062000	Finish Carpentry	1.3A	Product Data
062000	Finish Carpentry	1.3B	Samples
062000	Finish Carpentry	1.3C	Samples
074600	Siding	1.2A	Product Data
074600	Siding	1.2B	Samples
074600	Siding	1.2C	Samples
079200	Joint Sealants	1.3A	Product Data
081110	Standard Steel Doors and Frames	1.4A	Product Data
099111	Exterior Painting	1.2A	Product Data
099111	Exterior Painting	1.2B	Samples

END OF SECTION 013300

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SECTION 014100 – QUALITY CONTROL

PART 1 - GENERAL

1.1 This work shall consist of providing quality control in conformance with the inspection and product certification requirements of this contract to ensure compliance with the approved proposal. The Contractor shall provide all personnel, equipment, tests, and reports necessary to meet the requirements of the contract.

1.2 QUALITY CONTROL

- A. The Contractor shall provide and maintain a quality control system that will ensure all services, supplies, and construction work required under this contract conforms to the contract requirements. The Contractor shall perform, or cause to be performed, the sampling, inspection, and testing required to substantiate that all services, supplies, and construction conform to the contract requirements.
- B. Retesting/Reinspecting: Contractor shall provide quality-control services for retesting and reinspection for replaced construction work or for work that failed to comply with the requirements under the contract.

1.3 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for the work included under this section; rather payment shall be considered to be included in the items of work listed in the Schedule of Items.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 QUALITY CONTROL SYSTEM

- A. General: Perform required testing, inspections, sampling, and similar services to ensure work is in accordance with manufacturer's recommendations. .

3.2 CONTRACTOR QUALITY CONTROL PLAN

- A. At the time of the preconstruction conference, the Contractor shall submit for approval a written Contractor Quality Control Plan.
 - 1. The Government reserves the right to require changes in the plan during the contract period as necessary.

2. No change in the approved plan may be made without written concurrence by the Contracting Officer.
3. At a minimum, the plan shall include the following:
 - a. A list of personnel responsible for quality control and assigned duties. Include each person's qualifications.
 - b. Methods of performing, documenting, and enforcing quality control of all work.
 - c. Methods of monitoring and controlling environmental pollution and contamination as required by all applicable regulations and laws.

END OF SECTION 014100
December 2012

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SECTION 024100 - WASTE MATERIAL DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the loading, handling, hauling, and disposal of construction debris.

1.2 MEASUREMENT AND PAYMENT

- A. There will be no separate measurement or payment for work in this Section. Waste material disposal is considered incidental to other items of work shown in the Schedule of Items.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.1 Waste material to be removed:

- A. All demolition materials, garbage, and other refuse generated shall be hauled to a disposal area.

3.2 Disposal Site:

- A. All waste material shall be removed from the project site and legally disposed off of Government property in an approved landfill.
 - 1. The contractor is responsible for all costs and permits associated with landfill disposal.
 - 2. The Government is not responsible for waste material upon its departure from the project site.

END OF SECTION 024100
December 2012

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SECTION 024119 – SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawing general provisions of the Subcontract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This sections includes the following:
 - 1. Proper removal and disposal of all existing wood trim and siding.
 - 2. Removal of front and rear entrance doors.
 - 3. Removal of back entry concrete step and existing sidewalk.
 - 4.
- B. Related Sections included the following:
 - 1. Division 2 Section “Waste Material Removal”

1.3 DEFINITIONS

- A. Remove: The term “remove” shall mean to detach or separate an item, component or assembly from its installed location, and dispose of same. Removal shall be without damage to adjacent material, components or systems that are to remain. Damage that must be incurred during removal shall be repaired as cutting and patching.

1.4 QUALITY ASSURANCE

- A. Verify that utility supply lines have been shut off before removal.
- B. Comply with applicable safety codes for removal work.

1.5 PROJECT CONDITIONS

- A. Refer to drawings for the extent of removal work.
- B. Carefully inspect the construction work area and the items designated to be removed or preserved.

1.6 MEASUREMENT AND PAYMENT

- A. There will be no separate measurement and payment for work included under this section. Payment will be included in the items listed on the Schedule of Items.

END OF SECTION 024119

July 2013

USDA FOREST SERVICE, R-4
ESCALANTE LOWER BUNKHOUSE SIDING RENOVATION
SECTION 024134 - LEAD WASTE PRACTICES AND DISPOSAL

PART 1 - GENERAL

1.1 SCOPE:

- A. This is a notification that the work under this contract will bring the Contractor into contact with lead-based paint covered materials that will require worker protection.
- B. The project is subject to EPA's Renovation, Repair and Painting Rule (40 CFR 745), specific sections of the Rule shall be followed.
 - 1. Contractor shall comply with the Work Practice Standards requirements (Section 745.85).
 - 2. Contractor shall comply with the Certified Renovator and on-the-job worker training requirements detailed in section 745.90. The training records for on-the-job training of uncertified works (Section 745.86(7)) are not required.
- C. Work under this section includes:
 - 1. Engineering controls which are necessary for surface preparation as part of resurfacing materials coated with lead-based paint and demolition/removal of materials coated with lead-based paint; and
 - 2. Disposal of hazardous and nonhazardous waste generated during the removal of lead-based paint coated materials.
- D. The Contractor shall provide provisions for a changing area for workers. There will be no use of the building other than necessary to achieve contracted work.
- E. The Contractor shall not place paint debris on unprotected ground and paint debris shall be shielded adequately to prevent dispersion by wind or rainwater.
- F. The Contractor shall remove and dispose of in a legal manner all hazardous and nonhazardous waste generated. Waste (both hazardous and nonhazardous) shall be properly labeled, stored and secured while on site. Waste shall be removed from the project site for proper disposal within one week of project completion. At no time will waste be allowed to accumulate on-site for a period of more than 30 days.
- G. The Contractor shall contact the regional EPA, State, and local authorities to determine current lead-based paint debris disposal requirements. The requirements of the Resource Conservation and Recovery Act (RCRA) shall be complied with as well as applicable State and local solid waste regulations. During the work, the Contractor shall not leave debris in the yard or nearby property, incinerate debris, dump waste by a road or in an unauthorized dumpster, or introduce lead-contaminated water into storm drains or sanitary sewers.

1.2 TESTING

- A. Testing on lead-based paint coated waste materials by use of the Toxicity Characteristic Leaching Procedure (TCLP) will be completed by the Contractor and results supplied to the U.S. Forest Service.

1.3 MATERIALS

- A. The following materials will be tested to determine whether or not they are hazardous.
 1. Paint chips.
 2. Waste water.
 3. Dust from HEPA filters and from damp sweeping.
 4. Plastic sheets, duct tape, or tape used to cover floors and other services during work with lead-based paint covered components.
 5. Solvents and caustics.
 6. Liquid waste, such as wash water used to decontaminate wood after solvents have been used, and liquid waste from exterior water blasting.
 7. Rags, sponges, mops, HEPA filters, respirator cartridges, scrapers, and other materials used for testing and cleanup.
 8. Disposable work clothes and respirator filters.
 9. Any other items contaminated with lead-based paint.
 10. Dirt collected from around the site.

1.4 WORKER PROTECTION

OSHA requirements for worker protection shall be followed in accordance with 29 CFR 1926.62, Lead Exposure in Construction.

1.5 SUBMITTALS

- A. A copy of the Contractor or Sub-Contractor's documentation for the project's Certified Renovator, as defined by EPA's Renovation, Repair and Painting Rule, shall be submitted to the U.S. Forest Service.
- B. The Contractor shall inform the U.S. Forest Service of the location of the approved waste disposal site and provide a certification after disposal.
- C. Health and Safety Plan
 1. The Contractor shall provide a Health and Safety Plan for review and acceptance by the Contracting Officer. No work will commence until acceptance of the plan by the Contracting Officer.
 2. The Health and Safety Plan will address, but not be limited to, the health-related standards and protective measures proposed to be utilized by the Contractor during work involving exposure to airborne lead contaminants.
 3. The Health and Safety Plan will also identify the engineering and work practice controls proposed to be implemented by the Contractor. Such controls will be identified to assure the Government that there will be no release to the environment of lead contamination for which liability may be imposed on the Government.

1.6 CONTRACTOR'S SUBMITAL RESPONSIBILITIES

- A. Review product data and samples prior to submission to the COR.
- B. Submitted material must bear a statement of Contractor's review.

Example: This submission has been reviewed and submitted in accordance with the General Conditions.

Signed _____ Date _____
(Contractor's name, address, etc.)

- C. Coordinate each submittal with requirements of work and of Contract Documents.
- D. Contractor's responsibility for errors and omissions in submittals is not relieved by the U.S. Forest Service review of submittals.
- E. Contractor's responsibility for deviations in submittals from requirements of contract documents is not relieved by the U.S. Forest Service review of submittals, unless the U.S. Forest Service gives written acceptance of specific deviations.
- F. Notify the U.S. Forest Service in writing at the time of submission of deviations in submittals from requirements of the contract documents.
- G. Begin no work which requires submittal for approval until the U.S. Forest Service has "approved" or "approved as noted" the submittal.

1.7 MEASUREMENT AND PAYMENT

- A. Payment will be by contract quantity of square foot material as specified in the schedule of items.

PART 2 - PRODUCTS – SEE PART 3.

PART 3 - EXECUTION

3.1 SITE PREPARATION

- A. The Contractor shall prepare the site in accordance with the Health and Safety Plan accepted by the Contracting Officer.
- B. The Contractor is responsible for establishing and maintaining control measures sufficient to preclude any adverse effects to workers, Forest Service personnel and dependents, the public, and the environment.

3.2 DAILY CLEANUP

- A. Daily cleanup shall be in accordance with the Health and Safety Plan accepted by the Contracting Officer. Any environmental cleanup caused by Contractor's failure to comply with the provisions of law, of this contract, or the accepted Health and Safety Plan shall be at Contractor's sole expense.
- B. Do not allow any paint debris to enter industrial waste, storm drain or sanitary sewer lines.

3.3 HANDLING AND DISPOSAL OF NON-HAZARDOUS WASTE (as determined by testing)

- A. The Contractor shall comply with all Federal, State and local regulations concerning proper disposal of non-hazardous, solid waste.
- B. The Contractor shall place lead-based paint chips, debris, and lead dust in double (4-mil) or single (6-mil) polyethylene bags that are air-tight and puncture-resistant. Pieces of wood or other types of substrates that do not fit into plastic bags will be wrapped and labeled "DANGER, LEAD DUST".
- C. The Contractor will place all disposable cleaning materials, such as sponges, mop heads, filters, disposable clothing, and brooms in double (4-mil) or single (6-mil) plastic bags and seal.
- D. The Contractor shall clean surfaces and equipment and bag large debris. The Contractor shall then remove plastic sheeting and tape from covered surfaces. Prior to removing the plastic sheeting, the Contractor shall lightly mist the sheeting in order to keep dust down and fold inward to form tight small bundles to bag for disposal. The Contractor shall place all plastic sheeting in double (4-mil) or single (6-mil) thick plastic bags and seal.
- E. The contractor shall bag and seal vacuum bags and filters in double (4-mil) or single (6-mil) thick plastic bags.
- F. The Contractor shall place all contaminated clothing or clothing covers used during lead-based paint disturbing activities and during cleanup operations in plastic bags for disposal prior to leaving equipment room.
- G. The Contractor shall place solvent residues and residues from strippers in drums made out of materials that cannot be dissolved or corroded by chemicals. Solvents will be tested by the contractor to determine if they are hazardous.
- H. Solvents, caustic and acid wastes must be segregated and not stored in the same containers.
- I. The Contractor shall contain and properly dispose of all liquid waste, including lead-dust contaminated wash water.
- J. The Contractor shall HEPA vacuum the exterior of all liquid waste containers prior to removing the waste containers from the work area and shall wet wipe the containers to ensure that there is no residual contamination. Containers should then be moved out of the work area into the designated storage area.
- K. The Contractor shall carefully place the containers into the truck or dumpster used for disposal.
- L. The Contractor shall ensure that all waste is transported in covered vehicles to an appropriately permitted landfill which accepts waste containing lead.

- M. If the Contractor subcontracts the removing of the lead-based paint waste, he shall insure that the company removing the waste material adequately covers all loads so as to assure that no dust or debris is released.

3.4 HANDLING AND DISPOSAL OF HAZARDOUS WASTE (as determined by testing)

- A. The Contractor will be required to comply with the hazardous waste disposal regulations of RCRA Subtitle C, Managing Hazardous Waste.
- B. If more than 220 pounds of hazardous waste will be generated from project activities during any calendar month, the Contractor shall apply for an EPA identification number from the appropriate Regional EPA office. If an EPA identification number application is required, it will be submitted on behalf of the US Forest Service; the US Forest Service will be listed as the generator and the generator's address will be the project site address. The U.S. Forest Service will assist the Contractor in contacting the appropriate EPA office to secure the identification.
- C. Waste Containers: The Contractor will comply with EPA and DOT regulations for containers. The Contractor shall contact the state and local authorities to determine their criteria for containers. The more stringent regulation shall apply.
- D. Waste Transportation: If the Contractor is not a certified hazardous waste transporter, a contract shall be entered into with a certified transporter to move the waste. The Contractor shall require the certified hazardous waste transport to follow RCRA regulation.

3.5 FINAL SITE CLEANUP

- A. Clean all surfaces in the project area until no visible paint dust, debris, residue or chips remains.
- B. Remove all dust and debris without dispersal and seal in heavy plastic bags.
- C. Remove protective plastic sheeting and mist before folding it dirty side inward.

3.6 INSPECTION

- A. Contractor shall notify Contracting Officer of readiness for final inspection.
- B. Contractor's Certified Renovator, accompanied by the Contracting officer, shall perform a visual inspection of the entire project area to determine if any visible dust and debris are present in or beyond the boundaries of the project area.
- C. Any visible debris will result in the Contractor recleaning the area at no additional cost to the Government.

END OF SECTION 024134
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ESCALANTE LOWER BUNKHOUSE SIDING RENOVATION

SECTION 033010 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies cast-in-place concrete, including reinforcement, concrete materials, mixture design, placement procedures, and finishes, for noncritical applications of concrete and for projects using small quantities of concrete.

1.2 SUBMITTALS

- A. General: In addition to the following, comply with submittal requirements in ACI 301.
- B. Product Data: For each type of product indicated.
- C. Design Mixtures: For each concrete mixture.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
- B. Source Limitations: Obtain each type of cement of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
- C. Comply with ACI 301, "Specification for Structural Concrete," including the following sections, unless modified by requirements in the Contract Documents:
 - 1. "General Requirements."
 - 2. "Formwork and Formwork Accessories."
 - 3. "Reinforcement and Reinforcement Supports."
 - 4. "Concrete Mixtures."
 - 5. "Handling, Placing, and Constructing."
- D. Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

1.4 MEASUREMENT AND PAYMENT

- A. Measurement shall be the number of square feet of reinforced concrete measured in place for the sidewalk placed.

PART 2 - PRODUCTS

2.1 FORMWORK

- A. Furnish formwork and formwork accessories according to ACI 301.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Plain-Steel Wire: ASTM A 82, as drawn.
- C. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.
- D. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout Project:
 - 1. Portland Cement: ASTM C 150, Type II.
- B. Lightweight Aggregate: ASTM C 330, 1-inch (25-mm) nominal maximum aggregate size.
- C. Water: ASTM C 94/C 94M; potable.
- D. Synthetic Fiber: Monofilament or fibrillated polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches (13 to 38 mm) long.

2.4 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

2.5 RELATED MATERIALS

- A. Vapor Retarder: Multi-ply reinforced polyethylene sheet, ASTM E 1745, Class C, or polyethylene sheet, ASTM D 4397, not less than 10 mils (0.25 mm) thick.
- B. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

2.6 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.

2.7 CONCRETE MIXTURES

- A. Comply with ACI 301 requirements for concrete mixtures.
- B. Normal-Weight Concrete: Prepare design mixes, proportioned according to ACI 301, as follows:
 1. Minimum Compressive Strength: 3500 psi (24.1 MPa) at 28 days.
 2. Maximum Water-Cementitious Materials Ratio: 0.45.
 3. Slump Limit: 5 inches (125 mm), plus or minus 1 inch (25 mm).
 4. Air Content: Maintain within range permitted by ACI 301. Do not allow air content of floor slabs to receive troweled finishes to exceed 3 percent. Minimum air content 1%.

2.8 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116, and furnish batch ticket information.
 1. When air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.
 1. For mixer capacity of 1 cu. yd. (0.76 cu. m) or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
 2. For mixer capacity larger than 1 cu. yd. (0.76 cu. m), increase mixing time by 15 seconds for each additional 1 cu. yd. (0.76 cu. m).
 3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, construct, erect, brace, and maintain formwork according to ACI 301.
- B. Use recessed form ties.

3.2 VAPOR RETARDERS

- A. Install, protect, and repair vapor retarders according to ASTM E 1643; place sheets in position with longest dimension parallel with direction of pour.
 - 1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended adhesive or joint tape.

3.3 STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.4 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Locate and install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness, as follows:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with groover tool to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks. **NO SAWED JOINTS ARE ALLOWED IN EXTERIOR SLABS SUBJECT TO FREEZING.**
- D. Isolation Joints: Install joint-filler strips at junctions with slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint fillers full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.

3.5 CONCRETE PLACEMENT

- A. Comply with ACI 301 for measuring, batching, mixing, transporting, and placing concrete.
- B. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
- C. Consolidate concrete with mechanical vibrating equipment.

3.6 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding 1/2 inch (13 mm).
- B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.7 FINISHING UNFORMED SURFACES

- A. General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on surface.
 1. Do not further disturb surfaces before starting finishing operations.
- A. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, sidewalks, and ramps, and elsewhere as indicated.
 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Contracting Officer before application.

3.8 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written

instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

- C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure formed and unformed concrete for at least seven days by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.9 REPAIRS

- A. Remove and replace concrete that does not comply with requirements in this Section.

END OF SECTION 033010

December 2012

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ESCALANTE LOWER BUNKHOUSE SIDING RENOVATION

SECTION 033540 - CONCRETE SIDEWALK

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. This work shall consist of constructing concrete a sidewalk in accordance with the requirements of this specification and to the lines and dimensions as shown on the drawings and as staked in the field.
- B. Related Sections include the following:
 - 1. Section 033010 "Cast-In-Place Concrete" for concrete and reinforcing.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for the work included under this section; rather payment shall be considered to be included in the items of work listed in the Schedule of Items.

PART 2 - PRODUCT

2.1 CONCRETE

- A. Placement, Finishing, Curing, and Protection shall be in accordance with Section 033010 "Cast-in-Place Concrete."

2.2 JOINTS

- A. The sidewalk shall be divided into sections by control joints formed by a jointing tool. The control joints shall extend into the concrete at least 1/4 of the slab thickness. Joints shall match as nearly as possible adjacent joints in curb or pavements, be equally spaced, and not be spaced more than 10 feet. Spacing of expansion joints with 1/2 inch thick premolded joint filler extending the full depth of the sidewalk shall not exceed 50 feet unless otherwise shown on the drawings.
- B. Construction joints shall be formed around all appurtenances, such as manholes, utility poles, etc., which extend into and through the sidewalks. Premolded expansion joint filler 1/2 inch thick shall be installed in these joints. Expansion joint filler shall be installed between concrete sidewalks and any fixed structure such as a building or bridge. This expansion joint material shall extend to the full depth of the walk.

PART 3 - EXECUTION

3.1 GENERAL

- A. The area for construction of the sidewalk shall be cleared and grubbed in accordance with the drawings.
- B. The subgrade for the sidewalk shall be graded and shaped to required elevations for construction of the base course and concrete sidewalk.
- C. The aggregate base course shall be constructed and compacted to the thickness shown on the drawings. Minimum thickness shall be 4 inches compacted depth unless noted otherwise.
- D. Concrete shall be placed to the dimensions shown on the drawings and in accordance with specification section 033010 "Cast In Place Concrete."

3.2 FINISH GRADING AND CLEANUP

- A. Backfill and finish grade around sidewalk. Finish grading shall be native soil material placed next to sidewalk from top of sidewalk and graded away for a minimum of 2 feet at a 2 to 5 percent slope. Blend into adjacent area beyond 2 feet.
- B. When the installation has been completed, all debris and material not utilized shall be removed.

3.3 FINISH OF SURFACES

- A. Placement, Finishing, Curing, and Protection shall be in accordance with Section 033000 "Cast In Place Concrete."

END OF SECTION 033540
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SECTION 062000 - FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Exterior standing and running trim.

1.2 DEFINITIONS

- A. Inspection agencies, and the abbreviations used to reference them, include the following:
 - 1. NELMA - Northeastern Lumber Manufacturers Association.
 - 2. NHLA - National Hardwood Lumber Association.
 - 3. NLGA - National Lumber Grades Authority.
 - 4. RIS - Redwood Inspection Service.
 - 5. SCMA - Southern Cypress Manufacturers Association.
 - 6. SPIB - Southern Pine Inspection Bureau.
 - 7. WCLIB - West Coast Lumber Inspection Bureau.
 - 8. WWPA - Western Wood Products Association.

1.3 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Include construction details, material descriptions, dimensions of individual components and profiles, textures, and colors.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
 - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
 - 3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
- B. Samples for Initial Selection: Color charts consisting of actual materials in small sections for paneling and siding for each type of material indicated.
- C. Samples for Verification:

1. For each species and cut of lumber and panel products with nonfactory-applied finish, with 1/2 of exposed surface finished, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (203 by 250 mm) for panels.
2. For each finish system and color of lumber and panel products with factory-applied finish, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (203 by 250 mm) for panels.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect materials against weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.
- B. Deliver interior finish carpentry only when environmental conditions meet requirements specified for installation areas. If finish carpentry must be stored in other than installation areas, store only where environmental conditions meet requirements specified for installation areas.

1.6 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit work to be performed according to manufacturer's written instructions and warranty requirements and at least one coat of specified finish to be applied without exposure to rain, snow, or dampness.

1.7 MEASUREMENT AND PAYMENT

- A. Payment will be included at the contract unit prices for items listed on the Schedule of Items.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by the American Lumber Standards' Committee Board of Review.
 1. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.
 2. For exposed lumber, mark grade stamp on end or back of each piece[, or omit grade stamp and provide certificates of grade compliance issued by inspection agency].
- B. Hardwood Plywood: HPVA HP-1.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Water-Repellent Preservative Treatment by Nonpressure Process: AWPA N1.
 - 1. Preservative Chemicals: 3-iodo-2-propynyl butyl carbamate (IPBC) combined with an insecticide containing chlorpyrifos.
 - 2. Use chemical formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.

- B. Preservative Treatment by Pressure Process: AWPA C2 (lumber) and AWPA C9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and one of the following:
 - a. Chromated copper arsenate (CCA).
 - b. Ammoniacal copper quat (ACQ).
 - c. Copper bis (dimethyldithiocarbamate) (CDDC).
 - d. Ammoniacal copper citrate (CC).
 - e. Copper azole, Type A (CBA-A).
 - f. Oxine copper (copper-8-quinolinolate) in a light petroleum solvent.
 - 2. Do not use chemical formulations that require incising.
 - 3. For exposed items indicated to receive transparent finish, do not use chemical formulations that contain colorants or that bleed through or otherwise adversely affect finishes.
 - 4. Kiln-dry material after treatment to levels required for untreated material. Do not use material that is warped or does not comply with requirements for untreated material.
 - 5. Mark each treated item with the Quality Mark Requirements of an inspection agency approved by the American Lumber Standards' Committee Board of Review.

2.3 EXTERIOR STANDING AND RUNNING TRIM

- A. Lumber Trim for Semitransparent-Stained Applications: Kiln dried lumber with surfaced (smooth) face
- B. Lumber Trim for Painted Applications: Kiln-dried, finger-jointed or solid lumber with surfaced (smooth) face.
- C. Moldings: Made to patterns included in WMMPA WM 7. Wood moldings made from kiln-dried stock and graded under WMMPA WM 4.

1. Moldings for Semitransparent Finish (Stained Finish): N-grade white, Idaho white, lodgepole, ponderosa, or sugar pine.
 2. Moldings for Opaque Finish (Painted): P-grade eastern white, Idaho white, lodgepole, ponderosa, or sugar pine.
 3. Screen-Bead Pattern: WM 144, 1/4 by 3/4 inch (6 by 19 mm).
- D. MDO Trim: Exterior Grade B-B, MDO plywood.
- E. Primed Hardboard Trim: High-temperature-cured, high-resin, wood-fiber composite; factory primed on faces and edges. Recommended by manufacturer for exterior use.

2.4 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: Provide nails or screws of the following materials, in sufficient length to penetrate minimum of 1-1/2 inches (38 mm) into substrate, unless otherwise recommended by manufacturer:
1. Stainless steel.
 2. Hot-dip galvanized steel.
 3. Aluminum.
 4. Prefinished aluminum in color to match stain, where face fastening of material to receive stain is unavoidable.
- B. Fasteners for Interior Finish Carpentry: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.
1. Where finish carpentry materials are exposed in areas of high humidity, provide fasteners and anchorages with hot-dip galvanized coating complying with ASTM A 153/A 153M.
- C. Paneling Adhesives: Comply with paneling manufacturer's written recommendations for adhesives.
1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- D. Glue: Aliphatic- or phenolic-resin wood glue recommended by manufacturer for general carpentry use.
1. Use wood glues that have a VOC content of 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- E. Flashing: Comply with requirements in Division 7 Section "Sheet Metal Flashing and Trim" for flashing materials installed in finish carpentry.
1. Horizontal Joint Flashing for Siding: Preformed stainless-steel Z-shaped flashing.
- F. Sealants: Comply with requirements in Division 7 Section "Joint Sealants" for materials required for sealing siding work.

2.5 FABRICATION

- A. Wood Moisture Content: Comply with requirements of specified inspection agencies and with manufacturer's written recommendations for moisture content of finish carpentry at relative humidity conditions existing during time of fabrication and in installation areas.
- B. Back out or kerf backs of the following members, except members with ends exposed in finished work:
 - 1. Exterior standing and running trim wider than 5 inches (125 mm).
 - 2. Interior standing and running trim, except shoe and crown molds.
 - 3. Wood board paneling.
- C. Ease edges of lumber less than 1 inch (25 mm) in nominal thickness to 1/16-inch (1.5-mm) radius and edges of lumber 1 inch (25 mm) or more in nominal thickness to 1/8-inch (3-mm) radius.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Before installing finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours.
- C. Prime lumber for exterior applications to be painted, including both faces and edges. Cut to required lengths and prime ends. Comply with requirements in Division 9 Section "Painting."

3.3 INSTALLATION, GENERAL

- A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
 - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
 - 1. Scribe and cut finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
 - 2. Countersink fasteners, fill surface flush, and sand where face fastening is unavoidable.

3. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining finish carpentry with 1/32-inch (0.8-mm) maximum offset for flush installation and 1/16-inch (1.5-mm) maximum offset for reveal installation.
4. Coordinate finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate finish carpentry.

3.4 STANDING AND RUNNING TRIM INSTALLATION

- A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches (610 mm) long, except where necessary. Stagger joints in adjacent and related standing and running trim. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment.
 1. Match color and grain pattern across joints.
 2. Fit exterior joints to exclude water. Apply flat grain lumber with bark side exposed to weather.

3.5 ADJUSTING

- A. Replace finish carpentry that is damaged or does not comply with requirements. Finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.6 CLEANING

- A. Clean finish carpentry on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

END OF SECTION 062000

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ESCALANTE LOWER BUNKHOUSE SIDING RENOVATION

SECTION 074600 - SIDING

PART 1 GENERAL

1.1 SECTION INCLUDES: Fiber cement siding panels.

1.2 SUBMITTALS

- A. 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.
- B. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- C. Verification Samples: For each finish product specified, two samples, minimum size 4 by 6 inches (100 by 150 mm), representing actual product, color, and patterns.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum of 2 years experience with installation of similar products.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store siding on edge or lay flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.5 PROJECT CONDITIONS: Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.6 MEASUREMENT AND PAYMENT:

- A. Payment will be included at the contract unit prices for items listed on the Schedule of Items.

1.7 WARRANTY

- A. Special Warranty for Siding: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace siding that fails in materials or workmanship within specified warranty period. Failures

include, but are not limited to, deformation or deterioration beyond normal weathering. Workmanship Warranty: Application limited warranty for 2 years.

1. Warranty Period for Factory-Applied Finish: Five years from date of Substantial Completion.
2. Warranty Period for Siding (Excluding Finish): 25 years from date of Substantial Completion.

B. Workmanship Warranty: Application limited warranty for 2 years.

PART 2 PRODUCTS

2.1 SIDING

A. Code Compliance Requirement for Materials:

1. National Evaluation Report No. NER 405 (BOCA, ICBO, SBCCI)
2. City of Los Angeles, Research Report No. 24862
3. Metro Dade County, Florida Acceptance No. 07-0148, 04
4. US Department of Housing and Urban Development Materials Release 1263d
5. California DSA PA-019.
6. City of New York M EA 223-93-M.
7. Non-asbestos fiber-cement siding where required to be non-combustible shall be tested in accordance with ASTM E136.

2.2 FASTENERS: As recommended by manufacturer for attaching fiber cement siding to forms with embedded furring strips.

2.3 FINISHES

A. Intergral Factory Finish: Refer to the manufacturer's Exterior Finish Schedule.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

3.2 INSTALLATION - SIDING

- A. Install materials in strict accordance with manufacturer's installation instructions.
- B. Starting: Install a minimum 1/4 inch (6 mm) thick lath starter strip at the bottom course of the wall. Apply planks horizontally with minimum 1-1/4 inches (32 mm) wide laps at the top. The bottom edge of the first plank overlaps the starter strip.
- C. Allow minimum vertical clearance between the edge of siding and any other material in strict accordance with the manufacturer's installation instructions.
- D. Maintain clearance between siding and adjacent finished grade.

- E. Use off-stud metal joiner in strict accordance with manufacturer's installation instructions.
- F. Locate splices at least 12 inches (305 mm) away from window and door openings.

3.3 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 074600

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SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes joint sealants for the following applications, including those specified by reference to this Section:
 - 1. Exterior joints in the following vertical surfaces and horizontal non-traffic surfaces:
 - a. Perimeter joints between materials listed above and frames of doors, windows, and exterior trim.

1.2 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.3 SUBMITTALS

- A. Product Data: For each joint-sealant product.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

1.5 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
 - 2. When joint substrates are wet.
 - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - 4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.6 MEASUREMENT AND PAYMENT

- A. There will be no separate measurement or payment for work in this section. Payment will be included at the contract unit price as shown on the Schedule of Items for the building.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Provide interior sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Sealants: 250 g/L.
 - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 - 3. Sealant Primers for Porous Substrates: 775 g/L.
- C. Colors of Exposed Joint Sealants: As indicated by manufacturer's designations.

2.3 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

2.4 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

- C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
- B. Joint Priming: Prime joint substrates based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.

3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
 2. Completely fill recesses in each joint configuration.
 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
 4. Provide flush joint configuration where indicated per Figure 5B in ASTM C 1193.
 5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 5C in ASTM C 1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07920

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ESCALANTE LOWER BUNKHOUSE SIDING RENOVATION

SECTION 081110 - STANDARD STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Standard hollow-metal steel doors.
 - 2. Standard hollow-metal steel frames.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings.

1.4 SUBMITTALS

- A. Product Data: Include construction details, sizes, material descriptions, core descriptions, label compliance, fire-resistance rating, and finishes for each type of steel door and frame specified.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An installer of high quality and experience in this area of expertise.
- B. Source Limitations: Obtain standard steel doors and frames through one source from a single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store doors and frames under cover at Project site. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch- (102-mm-) high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber.

1. If wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air circulation.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify openings by field measurements before fabrication.

1.8 MEASUREMENT AND PAYMENT

- A. Payment will be by contract quantity of doors designated in the plans as specified in the schedule of items.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Amweld Building Products, LLC.
 2. Benchmark Doors; a division of General Products Co., Inc.
 3. Ceco Door Products; an ASSA ABLOY Group Company.
 4. CURRIES Company; an ASSA ABLOY Group Company.
 5. Deansteel Manufacturing, Inc.
 6. Fleming Door Products Ltd.; an ASSA ABLOY Group Company.
 7. Kewanee Corporation (The).
 8. Mesker Door Inc.
 9. Pioneer Industries, Inc.
 10. Republic Builders Products Company.
 11. Steelcraft; an Ingersoll-Rand Company.

2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum A40 (ZF120) zinc-iron-alloy (galvannealed) coating designation.
- D. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, Commercial Steel (CS), Class B coating; mill phosphatized.
- E. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A 153/A 153M, Class B.

- F. Inserts, Bolts, and Fasteners: Provide items to be built into exterior walls, hot-dip galvanized according to ASTM A 153/A 153M.
- G. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching standard steel door frames of type indicated.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. (96- to 192-kg/cu. m) density; with maximum flame-spread and smoke-developed indexes of 25 and 50 respectively; passing ASTM E 136 for combustion characteristics.
- I. Glazing: Comply with requirements in Division 8 Section "Glazing."
- J. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.3 STOPS AND MOLDINGS

- A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, fabricated from same material as door face sheet in which they are installed.
- B. Fixed Frame Moldings: Formed integral with standard steel frames, minimum 5/8 inch (16 mm) high, unless otherwise indicated.
- C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch (0.8 mm) thick, fabricated from same material as frames in which they are installed.

2.4 FABRICATION

- A. General: Fabricate standard steel doors and frames to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Standard Steel Doors:
 - 1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
 - 2. Glazed Lites: Factory cut openings in doors.
- C. Standard Steel Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners, unless otherwise indicated.
 3. Plaster Guards: Weld guards to frame at back of hardware mortises in frames installed in concrete or masonry.
 4. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
 5. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:
 - 1) Three anchors per jamb up to 60 inches (1524 mm) in height.
 - 2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) in height.
 - 3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) in height.
 - 4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof more than 96 inches (2438 mm) in height.
 - 5) Two anchors per head for frames more than 42 inches (1066 mm) wide and mounted in metal-stud partitions.
 - b. Compression Type: Not less than two anchors in each jamb.
 6. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Provide plastic plugs to keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- D. Hardware Preparation: Factory prepare standard steel doors and frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping, according to the Door Hardware Schedule and templates furnished as specified in Division 8 Section "Door Hardware."
1. Reinforce doors and frames to receive nontemplated mortised and surface-mounted door hardware.
 2. Comply with applicable requirements in ANSI A250.6 and ANSI/DHI A115 Series specifications for door and frame preparation for hardware. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.
- E. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of door or frame.

2. Multiple Glazed Lites: Provide fixed and removable stops and moldings such that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of doors and frames.
5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.5 STEEL FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 1. Finish standard steel door and frames after assembly.
- B. Metallic-Coated Steel Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.
 1. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
- C. Steel Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning"; remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel; comply with SSPC-SP 3, "Power Tool Cleaning," or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- D. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils (0.018 mm).
 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied finish paint system indicated; and providing a sound foundation for field-applied topcoats despite prolonged exposure.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of standard steel doors and frames.

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory.
- B. Prior to installation and with installation spreaders in place, adjust and securely brace standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - 1. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - 2. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
 - 3. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - 4. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap doors and frames to receive nontemplated mortised and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Provide doors and frames of sizes, thicknesses, and designs indicated. Install standard steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Standard Steel Frames: Install standard steel frames for doors and other openings, of size and profile indicated. Comply with SDI 105.
 - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-protection-rated openings, install frames according to NFPA 80.
 - b. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - c. Install frames with removable glazing stops located on secure side of opening.
 - d. Install door silencers in frames before grouting.
 - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - f. Check plumb, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - g. Apply bituminous coating to backs of frames that are filled with mortar, grout, and plaster containing antifreezing agents.
 - 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with postinstalled expansion anchors.

- a. Floor anchors may be set with powder-actuated fasteners instead of post installed expansion anchors if so indicated and approved on Shop Drawings.
 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
 4. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 5. Installation Tolerances: Adjust standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.
- C. Standard Steel Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Standard Steel Doors:
 - a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
 - b. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
 - c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
 - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).

3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including standard steel doors or frames that are warped, bowed, or otherwise unacceptable.
- B. Clean grout and other bonding material off standard steel doors and frames immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.

END OF SECTION 081110
July 2013

USDA FOREST SERVICE, R-4

EDITED PAINT SPEC FOR HARDPLANK, PREVIOUSLY PAINTED

SECTION 099111 – EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Siding and trim.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of topcoat product indicated.

1.3 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
 - 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.5 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.6 MEASUREMENT AND PAYMENT

- A. Payment will be by lump sum as specified in the schedule of items.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or a Government approved equal:
 - 1. Benjamin Moore & Co.
 - 2. Coronado Paint.
 - 3. ICI Paints.
 - 4. Kelly-Moore Paints.
 - 5. Sherwin-Williams Company.

2.2 PAINT, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- B. Colors: As selected by the Contracting Officer's Representative from manufacturer's full range.

2.3 LATEX PAINTS:

- A. Exterior Latex (Satin): MPI #15 (Gloss Level 3-4). Basis of Design Product Sherwin Williams DuraCraft, 100% Acrylic Latex Satin Paint or approved equal.
 - 1. VOC Content: E Range of E2-E-3.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for conditions affecting performance of work.
- B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- C. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
- D. Wood Substrates:
 - 1. Scrape and clean siding surfaces.
 - 2. Sand surfaces that will be exposed to view, and dust off.
 - 3. Prime edges, ends, faces, undersides, and backsides of siding.
 - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
- B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

- A. Siding Substrates: Including siding, architectural work.
 - 1. Acrylic Latex System:
 - a. 2 Coats: 100% Acrylic Latex Paint.

END OF SECTION 099111
December 2012