

Law & Justice Center Exterior Upgrades

Lewis County

Project No. J2050

Project Manual – Bid Documents

March 2, 2021



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END OF SECTION

PART 1 GENERAL

2.01 SECTION INCLUDES

- A. Selective demolition of certain exterior building elements for repair and replacement purposes.
- B. Remove existing work as indicated and as required to accomplish new work.

2.02 FIELD CONDITIONS

- A. Condition Of Building Prior To Selective Demolition: Accept premises on as "as-is" condition. Owner assumes no responsibility for building condition now, at time of bidding nor thereafter. Damage or loss resulting from any cause to building, persons and/or property shall not relieve contractor from his obligation to complete all work under the Contract.
- B. Protection
 - 1. Before beginning selective demolition activities, erect barriers, fences, overhead protection, shoring, and the like, to protect personnel and construction.
 - 2. Keep free of damage those portions of existing building which are to remain. Contractor shall provide total protection for all existing portions of building against damage caused by construction means and any or all weather elements.
 - 3. Cooperate with Owner for maintaining their continuous operations in all remaining portions of the existing facility during the work of this Project.
 - 4. Remove temporary protection and cover when no longer needed.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

5.01 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Provide, erect, and maintain temporary barriers and security devices.
 - 3. Use physical barriers to prevent access to areas that could be hazardous to workers, occupants or the public.
 - 4. Conduct operations to minimize obstruction of entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
- B. Perform demolition in a manner that maximizes 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.
- C. Partial Removal of Concrete Pavement: Remove portion of existing concrete pavement along south building wall as indicated. Saw cut paving as necessary to provide clean, straight cut line.

5.02 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

B. Selective Building Demolition - General

1. Do all demolition, drilling and/or removal work, as applicable, required for the completion of new work shown on Drawings or specified. Refer to Drawings and details for specific items of construction to be removed and other demolition requirements for the new work.
2. Where demolition occurs next to existing work to remain, remove carefully only those items required for placing new work. Conduct demolition to minimize interference with adjacent structures to remain.
3. Remove all loose material caused by or remaining from demolition work. Cut openings and/or pockets neatly ready for installation of new work. Use carborundum saws or approved means or devices where cuts will remain exposed in the completed work.
4. Coordinate demolition work with work in other Sections.

5.03 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.

END OF SECTION

PART 1 - GENERAL

2.01 SECTION INCLUDES

- A. Concrete slab infills where a portion of existing exterior sidewalk slab adjacent to building wall is removed for new sheet metal flashing work at ground level.
- B. Joint devices associated with concrete work.
- C. Concrete curing and finishing.

2.02 RELATED REQUIREMENTS

- A. Section 02 41 19 - Selective Building Remodel Demolition.
- B. Section 07 62 00 - Sheet Metal Flashing & Trim.

2.03 REFERENCE STANDARDS

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).
- B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2010.
- C. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004 (Errata 2007).
- D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.
- E. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2008.
- F. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2012.
- G. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2010a.
- H. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2012.

2.04 SUBMITTALS

- A. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- B. Concrete Mix Data: Submit to Owner the following submittals in accordance with ACI-301:
 - 1. Admixture certification. Chloride ion content must be included.
 - 2. Concrete mix design. Submit a mix design for each strength and type of concrete. Clearly indicate where each mix design will be used.
 - 3. Materials and methods for curing.

2.05 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.

PART 2 - PRODUCTS

3.01 FORMWORK

- A. Formwork not required.

3.02 REINFORCEMENT

- A. Reinforcing Steel for Slab Infills: Furnish deformed bars conforming to ASTM Standard A615, Grade 60 (except #3 stirrups may be Grade 40). Bars shall be unpainted, uncoated, and free from rust, dirt and loose scale. Size No. 6 unless otherwise shown on Drawings.
- B. Reinforcement Accessories:
 - 1. Tie Wire: 16 gauge or heavier, double annealed wire.
 - 2. Mortar Blocks:
 - a. Furnish as required for use as spacers in placing reinforcement; shall be two (2) inches square (maximum).
 - b. Mortar blocks shall be constructed of mortar mixed with the same proportions of sand and cement used in concrete, and develop a minimum compressive strength of 4,000 psi at 28 days.
 - c. Mortar blocks shall have a tie wire embedded and the protruding ends to be tied to the reinforcing steel to hold the mortar blocks in place; mortar blocks with a grooved top may be used for supporting steel in slabs.

3.03 CONCRETE MATERIALS

- A. Portland Cement: Furnish conforming to ASTM C150, Type I or Type II. Use same brand of cement for all exposed work.
- B. Fine Aggregate: Except as otherwise specified, furnish sand conforming to ASTM C33 with deleterious substances not to exceed those in Table I less subnote "a" thereof.
- C. Coarse Aggregate
 - 1. Except as otherwise specified, furnish conforming to ASTM C33, maximum size 1/5 of narrowest dimension between forms of concrete member, 3/4 inch minimum clear spacing between reinforcing bars, with standard placing procedures in no case exceeding 1-1/2 inch size.
 - 2. If concrete pumping is employed, use 3/4 inch maximum size aggregate.
- D. Fly Ash: Upon approval of Structural Engineer, furnish conforming to ASTM C618, Class F, with loss on ignition (LOI) maximum one percent (1%).
- E. Water: Clean and not detrimental to concrete.

3.04 CHEMICAL ADMIXTURES

- A. General
 - 1. Obtain approval for calcium compound use in all concrete; use no calcium compound in reinforced concrete.
 - 2. All admixtures shall be compatible with one another.
- B. Air Entraining Agent: Furnish as manufactured by Dewey & Almy, Master Builders, Sika or Sonneborn, conforming to ASTM C260.
- C. Water-Reducing Admixture: Furnish meeting requirements of ASTM C494, Type A, containing no set-accelerating or set-retarding compounds, chlorides, fluorides or nitrates; The Euclid

Chemical Co. "Eucon WR-75", Master Builders "Pozzolith 200N" or Sika Chemical Co. "Plastocrete 160", or approved.

3.05 ACCESSORY MATERIALS

- A. Expansion/Isolation Joints
 - 1. Furnish resilient bituminous type, Sternson Ltd. "Flexcell", Grace Construction Products "Fiber", Homosote Co. "Homex 300", Old North Mfg. Co., Inc. "Gray-Flex", or approved, non-extruding type, of depth as required to bring top to within 1/4 inch of surface of slab.
 - 2. Furnish of 1/4 inch thickness for expansion/isolation joints located between walkway infills and adjacent building wall.

3.06 BONDING AND JOINTING PRODUCTS

- A. Bonding Agent: Furnish two (2) component, 100% solids, 100% reactive epoxy adhesive compound suitable for use on dry or damp surfaces; Larsen Products Corp. "Weld Crete" or The Euclid Chemical Co. "Euco Epoxy" #452MV or #620 or Sika Chemical Co. "Sikadur Hi-Mod", or approved.

3.07 CURING MATERIALS

- A. Curing Compound For Curing Exterior Slabs
 - 1. Compound shall be "Super Rez Seal" by The Euclid Chemical Co., "Vulkem 2101" by Mameco International, Inc., "Masterkure 30" by Master Builders, or "Sealtight CS-309" by W.R. Meadows.
 - 2. Manufacturer's certification required. (Sodium Silicate Compounds are prohibited.)

3.08 CONCRETE MIX DESIGN

- A. Mix Designs
 - 1. Proportioning of ingredients for each concrete mix shall be in accordance with ACI-301, Paragraph 4.2.3, Proportioning, using field test data where available and meeting requirements of Paragraph 4.2.3.1.
 - 2. If proper field test data is not available, establish mixture proportions based on trial mixtures prepared by an independent testing laboratory following procedures set forth in ACI 301, Paragraph 4.2.3.4.b, with required average compressive strength as set forth in Table 4.2.3.3.b for each specified concrete strength.
- B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.
- C. Normal Weight Concrete:
 - 1. Compressive Strength: 3,000 psi, unless otherwise noted in Structural Notes for each application/usage.
 - 2. Water/Cement Ratio: 0.45 unless otherwise indicated in Structural Notes.
 - 3. Air Entraining Agent & Water-Reducing Admixtures
 - a. Do not pre-mix air entraining agent with water-reducing admixtures; add separately from separate container.
 - b. All concrete shall contain the specified water-reducing admixture. Mix in conformance with ASTM C494 and in strict accordance with manufacturer's instructions.

- c. Add air entraining agent to all concrete for exposed exterior work including walks, slabs, and the like, to attain a 5% entrained air content; reduce water content but maintain cement quantity.
- 4. Slump In Inches
 - a. All concrete shall have a maximum slump of 4 inches (+/-1 inch).
 - b. Conform to ASTM C143 procedures for concrete to be vibrated.

3.09 MIXING

- A. General
 - 1. Concrete for minor work, when approved by the Architect, may be mixed at the site in a power mixer when the mixer has a capacity not less than one full sack batch.
 - 2. All other concrete shall be ready-mixed as specified below.
- B. Ready Mixed Concrete: Ready-mixed concrete shall be measured, batched, mixed and delivered to the project in accordance with ASTM C94. The ready-mixed concrete producer shall furnish legible duplicate delivery tickets for each batch of concrete delivered to the project.

PART 3 - EXECUTION

4.01 PREPARATION

- A. Surface Conditions: Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. Mixing And Placing
 - 1. Conform to the requirements of ACI 301, Chapters 7 and 8.
 - 2. Clean free of all foreign matter and ice, all mixing and transporting equipment, subgrade and forms to receive concrete.
 - 3. Clean reinforcement of deleterious coatings and ice.
- 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 with steel brush and applying bonding agent in accordance with manufacturer's instructions.

4.02 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.

4.03 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. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing

laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

- D. Finish slabs level and flat with outside edges flush with adjacent in-place slabs.

4.04 FINISHING FLAT WORK SURFACES

- A. Slab Finishes
 - 1. Unless otherwise shown, scheduled or specified hereinafter, use the following finishes, as applicable:
 - a. Furnish broomed trowel finish for new exterior slab infills.
 - 2. Before finishing work begins, place, strike off, consolidate and level concrete to condition ready for finishing.
- B. Broomed Trowel Finish: Provide a floated finish and provide one-pass steel troweling. After troweling, draw a broom across surface to a light transverse scored texture, as approved.
- C. Exterior Concrete Walk Control/Contraction Joint & Slab Edge Treatment
 - 1. Steel tool all new exterior control/contraction joints, all exposed perimeter slab edges, and edges of isolation/ expansion joints, prior to filling with sealant, to a smooth bullnose form, using an edger having a radius of 1/4 inch, as approved.

4.05 CURING AND PROTECTION

- A. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
 - 1. Normal concrete: Not less than 7 days.
- B. Curing Exterior Slabs: Spray slabs with liquid membrane-forming compound specified above for exterior slabs, applied at not less than the manufacturer's specified and recommended rate.

4.06 PROTECTION

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

PART 1 - GENERAL

2.01 SECTION INCLUDES

- A. Concealed preservative treated wood blocking under new sheet metal copings.

2.02 RELATED REQUIREMENTS

- A. Section 02 41 19 - Selective Building Remodel Demolition.
- B. Section 07 62 00 - Sheet Metal Flashing and Trim: New sheet metal copings.

2.03 REFERENCE STANDARDS

- A. AWWA U1 - Use Category System: User Specification for Treated Wood 2018.
- B. PS 20 - American Softwood Lumber Standard 2020.
- C. WCLIB (GR) - Standard Grading Rules for West Coast Lumber No. 17 2018.
- D. WWPA G-5 - Western Lumber Grading Rules 2017.

2.04 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 - PRODUCTS

3.01 ROUGH CARPENTRY MATERIALS

- A. Framing Lumber Grades
 - 1. Furnish the following lumber species and grades for the work specified below, of nominal sizes shown or specified:
 - a. Blocking, Backing, and Furring: Douglas Fir-Larch "No. 2" or Hem-fir "No. 1", S4S.
 - 2. Moisture treat all rough carpentry members as specified below.
- B. Nails, Screws & Bolts:
 - 1. Furnish carbon steel bolts, square head, Fed. Spec. FF-B-575C, Type I furnished with square nuts, unless noted otherwise on Structural Drawings.
 - 2. Furnish lag bolts Fed. Spec. FF-B-561C, Type I Grade A, gimlet point, square head, unless noted otherwise on Structural Drawings.
 - 3. Furnish nails, Fed. Spec. FF-N-105B(3), INT AMD 4, Type II, Style as specified and as approved, unless noted otherwise on Structural Drawings.
 - 4. Provide all necessary nails, spikes, screws and bolts with nuts and washers required for proper installation of rough carpentry and carpenter's steel items.
 - 5. Hot-dip galvanize hardware for exterior work or exposed to moisture. All fasteners in contact with preservative treated wood shall be hot-dipped galvanized or stainless steel.

3.02 FACTORY WOOD TREATMENT

- A. Treated Lumber: Comply with requirements of AWWA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

1. Preservative-Treated Wood: Provide lumber marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWWA standards.
- B. Preservative Treatment:
 1. Preservative Pressure Treatment of Lumber Above Grade: AWWA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
 - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
 - b. Treat all new sloped blocking set under new sheet metal copings.

PART 3 EXECUTION

5.01 PREPARATION

- A. Coordinate installation of rough carpentry members specified in other sections.
- B. Preparation For Pressure Preservative Treatment
 1. Fitting Prior to Treatment: Lumber shall be framed, bored, chamfered, and precut so size and length, where possible, before treatment.
 2. Incising Materials: All lumber and timber members specified herein to be treated shall be incised by a machine having power driven rolls designed to incise to a uniform depth and continuity of predetermined pattern. Timber or lumber less than 3 inches in the least dimension shall be incised on the wide faces only.
- C. Drying Of Treated Material: After treatment, dry lumber to a moisture content of 19% or less.

5.02 INSTALLATION – GENERAL

- A. Select material sizes to minimize waste.
- B. Discard units of material with defects which might impair the quality of the work and units which are too small to fabricate the work with minimum joints or the optimum joint arrangement.
- C. Set carpentry work accurately to required levels and lines, with members plumb and true and accurately cut and fitted.
- D. Securely attach carpentry work to substrates by anchoring and fastening as shown and as required by recognized standards. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required.
- E. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.

END OF SECTION

PART 1 GENERAL

2.01 SECTION INCLUDES

- A. Composite wall and soffit cladding of rigid insulation and reinforced finish coating (Class PB).
- B. Drainage and water-resistive barriers behind insulation board.

2.02 RELATED REQUIREMENTS

- A. Section 07 62 00 - Sheet Metal Flashing and Trim.
- B. Section 07 92 00 - Joint Sealants: Sealing joints between EIFS and adjacent construction and penetrations through EIFS.
- C. Section 09 29 00 - Gypsum Board: Replacement gypsum sheathing.

2.03 REFERENCE STANDARDS

- A. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus 2019.
- B. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation 2019.
- C. ASTM C1397 - Standard Practice for Application of Class PB Exterior Insulation and Finish Systems (EIFS) and EIFS with Drainage 2013 (Reapproved 2019).
- D. ASTM D968 - Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive 2017.
- E. ASTM D2247 - Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity 2015.
- F. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber 2016.
- G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2020.
- H. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference 2000 (Reapproved 2016).
- I. ASTM E2273 - Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies 2018.
- J. ASTM E2486/E2486M - Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS) 2013 (Reapproved 2018).
- K. ASTM G153 - Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials 2013.
- L. ASTM G155 - Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials 2013.
- M. ICC-ES AC219 - Acceptance Criteria for Exterior Insulation and Finish Systems 2009, with Editorial Revision (2014).
- N. ICC-ES AC235 - Acceptance Criteria for EIFS Clad Drainage Wall Assemblies 2009, with Editorial Revision (2012).
- O. NFPA 259 - Standard Test Method for Potential Heat of Building Materials 2018.
- P. NFPA 268 - Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source 2017.
- Q. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components 2019.

2.04 SUBMITTALS

- A. Product Data: Provide data on system materials, product characteristics, performance criteria, and system limitations.
- B. Manufacturer's Installation Instructions: Indicate preparation required, installation techniques, and jointing requirements.

2.05 QUALITY ASSURANCE

- A. Maintain copy of specified installation standard and manufacturer's installation instructions at project site during installation.
- B. EIFS Manufacturer Qualifications: Provide EIFS products other than insulation from the same manufacturer with qualifications as follows:
 - 1. Member in good standing of EIMA (EIFS Industry Members Association).
 - 2. Manufacturer of EIFS products for not less than 5 years.
- C. Insulation Manufacturer Qualifications: Approved by manufacturer of EIFS and approved and labeled under third party quality program as required by applicable building code.
- D. Installer Qualifications: Company specializing in the type of work specified and with at least three years of documented experience.

2.06 MOCK-UP

- A. Construct mock-up of typical EIFS application on specified substrate, size as indicated on drawings, and including flashings, joints, and edge conditions.
- B. Locate mock-up where directed.
- C. Mock-up may remain as part of the Work.

2.07 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to project site in manufacturer's original, unopened containers with labels intact. Inspect materials and notify manufacturer of any discrepancies.
- B. Storage: Store materials as directed by manufacturer's written instructions.
 - 1. Protect adhesives and finish materials from freezing, temperatures below 40 degrees F (4 degrees C) and temperatures in excess of 90 degrees F (32 degrees C).
 - 2. Protect insulation materials from exposure to sunlight.

2.08 FIELD CONDITIONS

- A. Do not prepare materials or apply EIFS under conditions other than those described in the manufacturer's written instructions.
- B. Do not prepare materials or apply EIFS during inclement weather unless areas of installation are protected. Protect installed EIFS areas from inclement weather until dry.
- C. Do not install coatings or sealants when ambient temperature is below 40 degrees F (5 degrees C).
- D. Do not leave installed insulation board exposed to sunlight for extended periods of time.

2.09 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

- B. Provide manufacturer's standard material warranty, covering a period of not less than 5 years.
- C. Provide separate warranty from installer covering labor for repairs or replacement for a period of not less than 5 years.

PART 2 PRODUCTS

4.01 MANUFACTURERS

- A. Basis of Design:
 - 1. Dryvit Systems, Inc; Dryvit Outsulation Plus MD EIFS, Class PB with Moisture Drainage: www.dryvit.com.
- B. Other Acceptable Exterior Insulation and Finish Systems Manufacturers:
 - 1. Sto Corp; StoTherm ci XPS: www.stocorp.com.

4.02 EXTERIOR INSULATION AND FINISH SYSTEM

- A. Exterior Insulation and Finish System: DRAINAGE type; reinforced finish coating on flat-backed insulation board adhesive-applied directly to water-resistive coating over substrate; provide a complete system that has been tested to show compliance with the following characteristics; include all components of specified system and substrate(s) in tested samples.
- B. Fire Characteristics:
 - 1. Flammability: Pass, when tested in accordance with NFPA 285.
 - 2. Ignitibility: No sustained flaming when tested in accordance with NFPA 268.
 - 3. Potential Heat of Foam Plastic Insulation Tested Independently of Assembly: No portion of the assembly having potential heat that exceeds that of the insulation sample tested for flammability (above), when tested in accordance with NFPA 259 with results expressed in Btu per square foot (mJ/sq m).
- C. Water Penetration Resistance: No water penetration beyond the plane of the base coat/insulation board interface after 15 minutes, when tested in accordance with ASTM E331 at 6.24 psf (299 Pa) differential pressure with tracer dye in the water spray; include in tested sample at least two vertical joints and one horizontal joint of same type to be used in construction; disassemble sample if necessary to determine extent of water penetration.
- D. Drainage Efficiency: Average minimum efficiency of 90 percent, when tested in accordance with ASTM E2273 for 75 minutes.
- E. Salt Spray Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating after 300 hours exposure in accordance with ASTM B117, using at least three samples matching intended assembly, at least 4 by 6 inches (100 by 150 mm) in size.
- F. Freeze-Thaw Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating when viewed under 5x magnification after 10 cycles, when tested in accordance with ICC-ES AC219 or ICC-ES AC235.
- G. Weathering Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating when viewed under 5x magnification after 2000 hours of accelerated weathering conducted in accordance with ASTM G153 Cycle 1 or ASTM G155 Cycles 1, 5, or 9.
- H. Water Degradation Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating after 14 days exposure, when tested in accordance with ASTM D2247.

- I. Mildew Resistance: No growth supported on finish coating during 28 day exposure period, when tested in accordance with ASTM D3273.
- J. Abrasion Resistance Of Finish: No cracking, checking or loss of film integrity when tested in accordance with ASTM D968 with 113.5 gallons (500 liters) of sand.
- K. Impact Resistance: Construct system to provide the following impact resistance without exposure of broken reinforcing mesh, when tested in accordance with ASTM E2486/E2486M:
 - 1. Standard: 25 to 49 in-lb (2.83 to 5.54 J), for areas not indicated as requiring higher impact resistance.
 - 2. Ultra-High: Over 150 in-lb (Over 17.1 J), for ground floor areas subject to potential abuse.

4.03 MATERIALS

- A. Finish Coating Top Coat: Water-based, air curing, acrylic or polymer-based finish with integral color and texture and formulated with hydrophobic (HDP) properties.
 - 1. Textures: Two texture applications matching existing building finishes.
- B. Base Coat: Fiber-reinforced, acrylic or polymer-based product compatible with insulation board and reinforcing mesh, Class PB.
- C. Reinforcing Mesh: Balanced, open weave glass fiber fabric, treated for compatibility and improved bond with coating, weight, strength, and number of layers as required to meet required system impact rating and as otherwise specified herein.
- D. Extruded Polystyrene (XPS) Board Insulation: Complies with ASTM C578, with natural skin surfaces.
 - 1. Board Size: 48 by 96 inch (1220 by 2440 mm).
 - 2. Board Size Tolerance: 1/16 inch (1.5 mm) from square and dimension.
 - 3. Board Thicknesses: As indicated on drawings.
 - 4. Dimensional Stability: 2 percent, maximum.
 - 5. Board Edges: Square.
 - 6. Type and Thermal Resistance, R-value (RSI-value): Type X, 5.0 (0.88) per 1 inch (25.4 mm) thickness at 75 degrees F (24 degrees C) mean temperature.
 - 7. Type and Compressive Resistance: Type X, 15 psi (104 kPa), minimum.
 - 8. Type and Board Density: Type X, 1.30 pcf (21 kg/cu m), minimum.
 - 9. Type and Water Absorption: Type X, 0.3 percent by volume, maximum, by total immersion.
 - 10. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/450, when tested in accordance with ASTM E84.
- E. Water-Resistive Barrier Coating: Fluid-applied air and water barrier membrane; applied to sheathing; furnished or approved by EIFS manufacturer.
- F. Flashing Tape: Self-adhering rubberized asphalt tape with polyethylene backing or other material and surface conditioner furnished or approved by EIFS manufacturer.

4.04 ACCESSORY MATERIALS

- A. Insulation Adhesive: Type required by EIFS manufacturer for project substrate.
- B. Metal Flashings: As specified in Section 07 62 00.
- C. Trim: EIFS manufacturer's standard PVC or galvanized steel trim accessories, as required for a complete project and including starter track and drainage accessories.
- D. Sealant Materials: Compatible with EIFS materials and as recommended by EIFS manufacturer.

PART 3 EXECUTION

6.01 EXAMINATION

- A. Verify that substrate is sound and free of oil, dirt, other surface contaminants, efflorescence, loose materials, or protrusions that could interfere with EIFS installation and is of a type and construction that is acceptable to EIFS manufacturer. Do not begin work until substrate and adjacent materials are complete and thoroughly dry.
- B. Verify that substrate surface is flat, with no deviation greater than 1/4 in (6 mm) when tested with a 10 ft (3 m) straightedge.

6.02 INSTALLATION – GENERAL

- A. Install in accordance with EIFS manufacturer's instructions and ASTM C1397.
 - 1. Where different requirements appear in either document, comply with the most stringent.
 - 2. Neither of these documents supercedes provisions of Contract Documents that defines contractual relationships between parties or scope of this work.

6.03 INSTALLATION - WATER-RESISTIVE BARRIER

- A. Apply barrier coating as recommended by coating manufacturer; prime substrate as required before application.
- B. Seal substrate transitions and intersections with other materials to form continuous water-resistive barrier on exterior of sheathing, using method recommended by manufacturer.
- C. At door and window rough openings and other wall penetrations, seal water-resistive barrier and flexible flashings to rough opening before installation of metal flashings, sills, or frames, using method recommended by manufacturer.
- D. At moving expansion joints, apply flexible flashing or flashing tape across and recessed into joint with U-loop forming continuous barrier but allowing movement.
- E. Lap flexible flashing or flashing tape at least 4 inches (100 mm) on each side of joint or transition.
- F. Install drainage layer or spacers after flashing tape has been completed.

6.04 INSTALLATION – INSULATION

- A. Install in accordance with manufacturer's instructions.
- B. Prior to installation of boards, install starter track and other trim level and plumb and securely fastened. Install only in full lengths, to minimize moisture intrusion; cut horizontal trim tight to vertical trim.
- C. Install back wrap reinforcing mesh at all openings and terminations that are not to be protected with trim.
- D. On wall surfaces, install boards horizontally.
- E. Place boards in a method to maximize tight joints. Stagger vertical joints and interlock at corners. Butt edges and ends tight to adjacent board and to protrusions. Achieve a continuous flush insulation surface, with no gaps in excess of 1/16 inch (1.6 mm).
- F. Fill gaps greater than 1/16 inch (1.6 mm) with strips or shims cut from the same insulation material.
- G. Rasp irregularities off surface of installed insulation board.

- H. Adhesive Attachment: Use method required by manufacturer to achieve drainage efficiency specified; do not close up drainage channels when placing insulation board.

6.05 INSTALLATION - CLASS PB FINISH

- A. Base Coat: Apply in thickness as necessary to fully embed reinforcing mesh, wrinkle free, including back-wrap at terminations of EIFS. Install reinforcing fabric as recommended by EIFS manufacturer.
 - 1. Lap reinforcing mesh edges and ends a minimum of 2-1/2 inches (64 mm).
 - 2. Allow base coat to dry a minimum of 24 hours before next coating application.
- B. Install expansion joints at floor lines as recommended by EIFS manufacturer.
- C. Apply finish coat after base coat has dried not less than 24 hours, embed finish aggregate, and finish to a uniform texture and color.
- D. Finish Coat Thickness: 1/16 inch (1.5 mm).
- E. Seal control and expansion joints within the field of exterior finish and insulation system, using procedures recommended by sealant and finish system manufacturers.

6.06 CLEANING

- A. Clean EIFS surfaces and work areas of foreign materials resulting from EIFS operations.

6.07 PROTECTION

- A. Protect completed work from damage and soiling by subsequent work.

END OF SECTION

PART 1 GENERAL

2.01 SECTION INCLUDES

- A. In general, provide patch and repair of existing membrane roofing where new roof flashing is to be installed over existing flashing at parapet locations. Provide reinforced fabric set in liquid-applied flashing at areas noted (seismic gaps). This portion of roofing work shall be performed by roofing contractor certified by existing roofing assembly manufacturer so as to maintain existing roofing warranty issued for said roofing assembly.

2.02 RELATED REQUIREMENTS

- A. Section 02 41 19 – Selective Building Remodel Demolition.
- B. Section 07 62 00 - Sheet Metal Flashing and Trim.

2.03 SUBMITTALS

- A. Product Data: Provide data indicating membrane materials, flashing materials and surfacing matching existing membrane product.

2.04 QUALITY ASSURANCE

- A. Perform work in accordance with NRCA Roofing and Waterproofing Manual.
- B. Installer Qualifications
 - 1. All work pertaining to the installation of the roofing system and associated flashings shall only be completed by applicator personnel trained and authorized by roofing manufacturer in those procedures.

2.05 JOB CONDITIONS

- A. Weather Conditions
 - 1. Work shall not proceed under conditions of inclement weather such as precipitation or high winds, or when such conditions appear imminent.
 - 2. Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturers' recommendations and warranty requirements.

PART 2 PRODUCTS

4.01 MANUFACTURERS

- A. PVC Membrane Material and Associated Materials: Furnish Duro-Last products including PVC membrane roofing and Liquid-Applied Flashing products, of White color to match existing roofing.

4.02 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

- A. Provide to match the existing roofing materials and assembly to the greatest extent possible and to provide a watertight seal at parapets. The existing roofing membrane is a PVC Dura-last product. New roofing membrane shall match the existing membrane.
- B. Liquid-Applied Flashing System: Furnish and install the following Liquid-Applied Flashing system where noted on drawings. Install per manufacturers recommendations.
 - 1. Duro-Last Liquid-Applied Flashing Fleece
 - 2. Duro-Last Liquid-Applied Flashing Field Resin
 - 3. Duro-Last Liquid-Applied Flashing Detailer
 - 4. Duro-Last Liquid-Applied Flashing Catalyst
- C. Flexible Flashing Material: Same material as membrane.
- D. Membrane Adhesive: Furnish manufacturer's recommended contact adhesive for bonding roof membrane and flashing sheets to the applicable substrates.
- E. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.
- F. Sealants: As recommended by membrane manufacturer.

PART 3 EXECUTION

6.01 INSTALLATION – GENERAL

- A. Perform work in accordance with NRCA Roofing and Waterproofing Manual and manufacturer's instructions.
- B. Clean existing roofing membrane surface to receive new roofing, ready to receive hot-air welding of new membrane or if necessary, adhesive application of new membrane.
- C. Do not apply roofing membrane during unsuitable weather.
- D. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.
- E. Extend new roofing out over existing roofing minimum 12 inches, unless otherwise directed by roofing manufacturer.

6.02 MEMBRANE APPLICATION

- A. General
 - 1. Have a copy of the manufacturer's latest printed specifications at the jobsite for reference.
 - 2. All membrane surfaces to be welded shall be clean and dry; solvent and heat welding shall be according to manufacturer's recommendations.
 - 3. Seams shall be checked by roofing subcontractor for watertight integrity and sealed the same day.
- B. Hot-Air Welding Of Lap Areas
 - 1. Hand Welding: Hand welded seams shall be completed in three stages. Hot-air welding equipment shall be allowed to warm up for at least one minute prior to welding.
 - a. The seam shall be tack-welded every 3 feet to hold the membrane in place.
 - b. The back edge of the seam shall be welded with a narrow but continuous weld to prevent loss of hot air during the final welding.
 - c. The nozzle shall be inserted into the seam at a 45 degree angle. Once the proper welding temperature has been reached and the membrane begins to 'flow', the hand roller is positioned perpendicular to the nozzle and pressed lightly. For straight

seams, the 1-1/2 inch wide nozzle shall be used. For corners and compound connections, the 3/4 inch wide nozzle shall be used.

2. Quality Control of Welded Seams: As specified below.

6.03 LIQUID-APPLIED FLASHING SYSTEM APPLICATION

A. General

1. Do not begin work with Duro-Last Liquid-Applied Flashing (DL-LAF) products until preliminary work has been completed or until unsatisfactory conditions have been corrected. Substrates must be clean, dry and free of any foreign objects prior to application of DL-LAF products.
2. Protect any surfaces that should not receive DL-LAF products.
3. Do not apply DL-LAF products whenever weather conditions are unfavorable or inclement. These conditions could be, but are not limited to, rain, snow, high winds or temperatures listed on individual Product Data Sheets.
4. Refer to individual Product Data Sheets for safety, storage and handling, and physical properties.

6.04 FIELD QUALITY CONTROL

A. Quality Control Of Welded Seams

1. All completed welded seams shall be checked after cooling for continuity using a rounded screwdriver or other suitable blunt object by the roofing contractor.
2. Visible evidence that welding is proceeding acceptably is smoke during the welding operation, shiny membrane surfaces, and an uninterrupted flow of black material from the edge of completed joints.

END OF SECTION

PART 1 GENERAL

2.01 SECTION INCLUDES

- A. Fabricated sheet metal items, including drip flashings and counterflashings.
- B. Sealants for joints within sheet metal fabrications.

2.02 RELATED REQUIREMENTS

- A. Section 02 41 19 - Selective Building Remodel Demolition.
- B. Section 06 1000 - Rough Carpentry.
- C. Section 07 24 00 - Exterior Insulation and Finish Systems.
- D. Section 07 92 00 - Joint Sealants: Sealing non-lap joints between sheet metal fabrications and adjacent construction.

2.03 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.
- B. SMACNA (ASMM) - Architectural Sheet Metal Manual, 2003.

2.04 SUBMITTALS

- A. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.
- B. Submit verification color samples of pre-finished metal for color approval.

2.05 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements, hereinafter in this Section called "Standard Manual", together with standard details, and standard details except as otherwise indicated.

2.06 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

2.07 JOB CONDITIONS

- A. Coordination: Coordinate metal flashing and trim work with interfacing of the installation of roofing and other adjoining substrate work for proper sequencing of each installation. Ensure best possible weather resistance and durability of the work and protection of materials and finishes.
- B. Electrolytic Protection: Wherever metals of different galvanic range are to be in contacts provide industry-approved separation by bituminous paint coats, bitumen saturated felts, or tinning, as applicable and approved.

2.08 WARRANTY

- A. Warranty
 - 1. Furnish prepainted sheet metal manufacturer's standard duly executed 20-year minimum warranty covering color fade, chalk, and film integrity of factory painted sheet metal finish.
 - 2. Warranty all roof flashings and sheet metal assemblies specified herein watertight and weather-tight for five (5) years from date of substantial completion.

PART 2 PRODUCTS

4.01 SHEET MATERIALS

- A. Prepainted Flashing Sheets: Furnish zinc-aluminum coated sheet steel complying with ASTM A792, Grade 40, AZ50 'Zincalume' or "Galvalume" coated; primed on both sides and finished one side with 70% 'Kynar 500' baked-on coating, or approved, 1 mil thickness; 24 gauge thickness unless otherwise noted or specified. Allow for up to two colors to be selected by Architect for various items as determined by Architect during shop drawing review; colors as selected from colors equal to AEP Span 'Cool' DuraTech 5000 Premium Fluoropolymer (PVDF) Coating, or approved.

4.02 ACCESSORIES

- A. Solder: Furnish conforming to Fed. Spec. QQ-S-571D, Type AC, Composition Sn50 unless otherwise specified.
- B. Soldering Flux: Furnish conforming to Fed. Spec. O-F-506C Type AC or of type recommended by the industry for type of metal being soldered.
- C. Fasteners: Stainless steel, same material and finish as flashing metal, with soft neoprene washers.
- D. Self-Adhered Flexible Flashing (SAF)
 - 1. Material and Manufacture: Furnish of one of the following in standard roll width:
 - a. Malarkey #401 "Arctic Seal".
 - b. Elk Corporation "Film Finish".
 - c. GAF "StormGuard HT".
 - d. Grace Construction Products "Ice & Water Shield".
 - e. CertainTeed Corp. "WinterGuard HT".
 - 2. Primer: Furnish as recommended by membrane waterproofing manufacturer for application of membrane over wood and metal substrates.
- E. Fastening & Miscellaneous Materials
 - 1. Metal, - General: For steel work, furnish of SAE 1010 analysis, except furnish SAE 1018 or 1020 where case hardened materials are required zinc-coat steel fastenings in accordance with ASTM A153 Class D.
 - 2. Screws and Washers:
 - a. Unless otherwise noted or shown, furnish of slotted panhead thread forming ASA Type A, of material specified hereinabove, as applicable; use screws for exposed applications.
 - b. Where thread-cutting screws are required, use ASA Type B, of material specified hereinabove, as applicable.

- c. For exterior exposed screws, use dished type plain periphery washers of same material as specified hereinabove, as applicable, plus approved neoprene washer under each metal washer.
 - d. Lengths and gauges as required and approved for secure and permanent fastening.
- 3. Bolts, Nuts and Washers:
 - a. Except as otherwise noted or shown, furnish standard hexagon head or square head bolts, of sizes shown and required for secure and permanent fastening of the work, of material specified hereinabove, as applicable, complete with flat washers and nuts of same material.
 - b. On exterior exposed work, include dished type plain periphery metal washers, of same material as bolt, plus approved neoprene washer under each metal washer.
- 4. Nails: Furnish large headed annularly grooved nails of materials specified hereinabove, as applicable; use nails generally only for concealed application. Where absolutely necessary to expose nail heads, provide approved neoprene washer under head.
- 5. Cleats: Same metal and one gauge heavier than sheet being anchored, continuous, punched for anchors spaced 12 inches o.c.
- 6. Sealant: For all sealant applications associated with sheet metal flashings specified herein furnish as specified in Section 07 92 00.
- 7. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size and gauge required for performance.

4.03 FABRICATION – GENERAL

- A. Metal Fabrications - General
 - 1. General:
 - a. Comply with details shown, and with applicable requirements of the SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Comply also with material manufacturer instructions and recommendations.
 - b. Shop-fabricate work to greatest extent possible. Neatly form all work to size, shape and dimensions shown or required to fit substrates; make all angles and lines in true alignment. Verify all dimensions at the building.
 - c. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work.
 - d. Unless otherwise specified, fabricate items in 10 feet maximum sheet lengths, as approved, and hold number of joints to a minimum. Shop form, lap, rivet and solder corners and angles into one piece 18 to 24 inches each way from corner or angle.
 - e. After soldering, remove all flux or acid with neutralizing chemical, wash surface with water and then let dry, ready for shop painting and installation.
 - f. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels as indicated, with exposed edges folded back to form 1/2 hems; hem all drip legs of copings and flashings at 45 degrees.
 - 2. Seams: Form material with standing seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
 - 3. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with industry standards.

4. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.
- B. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- C. Form pieces in longest possible lengths.
- D. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip. Hem exposed edges on underside 1/2 inch (13 mm); miter and seam corners.
- E. Fabricate corners from one piece with minimum 18 inch (450 mm) long legs; seam for rigidity, seal with sealant.
- F. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.

4.04 FABRICATED SHEET METAL ITEMS

- A. Replacement Wall Cap Flashings (Copings)
 1. Furnish cap flashings of 24 gauge prepainted zincalume or galvalume sheet steel as specified above, color as selected.
 2. Construct of sizes and configurations shown for various parapet wall conditions. Conform to general design data and instructions shown, as applicable, in the Standard Manual pages 3.2 - 3.19, as applicable for the various conditions, with standing seam joints conforming to Table 3-1, pages 3.4 and 3.5, Joint J8.
 3. Form vertical legs with 45 degree hemmed drip at bottom edge.
 4. Use continuous cleat at each down leg, secured over flexible flashing.
- B. Miscellaneous Drip Flashings: Furnish 24 gauge prepainted galvanized steel sheet metal "J", "L", and "Z" flashings of the various sizes and shapes shown at the various EIFS joint and penetration conditions at windows, doors, soffits, and the like, all as indicated on Drawings. Form drip flashings with 45 degree hemmed drip at bottom edge where indicated.
- C. Miscellaneous Prepainted Flashings
 1. Furnish all other miscellaneous flashings shown on the drawings but not specifically specified above, constructed of 24 gauge prepainted zincalume or galvalume sheet steel sheet metal, of configurations and sizes as shown.
 2. Fabricate miscellaneous formed flashing units with formed joint covers of same material as flashings, for installation behind main members where possible. Fabricate mitered, riveted and soldered corner units.

PART 3 EXECUTION

6.01 EXAMINATION

6.02

- A. Verify roofing termination and base flashings are in place, sealed, and secure.

6.03 PREPARATION

- A. General: Examine all surfaces to be covered with sheet metal; report any improper or defective previous work and do not proceed with work under this Section until previous defective work is corrected.
- B. Sheet Membrane Waterproofing Installation
 1. Install continuous sheets of self-adhered waterproofing membrane over all substrate surfaces to be covered by new wall cap flashings (copings). Apply over properly primed

surfaces as recommended by waterproofing membrane manufacturer. Coordinate installations with new cap flashings.

2. End laps between strips shall be lapped 2 inches minimum.
3. Install wrinkle free.

6.04 INSTALLATION

A. Sheet Metal Workmanship

1. Except as otherwise shown or specified, comply with the recommendations and instructions of the manufacturer of the sheet metal being installed, and with SMACNA "Architectural Sheet Metal Manual".
2. Fabricate and install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves and avoidable tool marks, considering the temper and reflectivity of the metal. Provide uniform, neat seams with minimum exposure of solder, welds and sealant. Except as otherwise shown, fold back the sheet metal to form a hem on the concealed side of exposed edges.
3. Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners and expansion provisions wherever possible in exposed work, and locate so as to minimize the possibility of leakage. Cover and seal work as required for a watertight installation.
4. Provide cleat-type anchorages for metal flashing and trim wherever practical, arranged to relieve stresses from building movement and thermal expansion. Erect all work straight, sharp, plumb and level in true plane free of bulges and waves.
5. Install work with laps, joints and seams which will be permanently watertight and weatherproof; make all lap joints with opening away from prevailing winds; laps 3 inches minimum. Install sealant as shown as work proceeds.

B. Replacement Parapet Wall Cap Flashings (Copings)

1. Install continuous along walls as shown, of the various configurations indicated for the various wall conditions, installed over new self-adhered flexible flashing membrane, with joints conforming to Standard Manual and Details as referenced above. Install complete with mitered and welded corner sections and custom formed wall terminations.
2. Securely anchor to adjacent construction as shown using concealed cleats at outside down leg and screws with metal washers and neoprene gaskets at inside leg, unless otherwise specifically indicated. Set cleats in continuous bead of sealant.
3. Apply cleats over flexible flashing membrane. At exterior side, trim back flexible flashing membrane in alignment with bend in cleat and apply a continuous bead of sealant along bottom of cleat, concealing trimmed edge of roofing membrane and providing an air and water-tight seal between cleat and building wall finished surface.

C. Formed Drip & Counter Flashings

1. Install all flashings as shown, of the various sizes and configurations indicated for the various control joint, soffit, window, and door conditions. Securely anchor to adjacent construction using concealed fasteners.
2. Apply sealant to all sheet metal lap joints and at joints between formed flashings and adjacent construction, to provide a watertight seal. Set all sill flashings in continuous beads of sealant, located as shown on respective details. All edges of sill flashings, where abutting finished surfaces at jambs, shall be sealed continuous along edge joint.

- D. Install all other miscellaneous flashings shown on the Drawings, securely anchored to adjacent construction.

END OF SECTION

PART 1 GENERAL

2.01 SECTION INCLUDES

- A. Nonsag gunnable joint sealants.
- B. Self-leveling pourable joint sealants.
- C. Joint backings and accessories.

2.02 RELATED REQUIREMENTS

- A. Section 07 24 00 - Exterior Insulation and Finish Systems.
- B. Section 07 62 00 - Sheet Metal Flashing & Trim.
- C. Section 07 95 13 - Expansion Joint Cover Assemblies: Sealants forming part of seismic joint cover assemblies.

2.03 REFERENCE STANDARDS

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer 2015.
- B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.
- C. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016.
- D. ASTM C1311 - Standard Specification for Solvent Release Sealants 2014.

2.04 SUBMITTALS

- A. 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, VOC content, hardness, cure time, and color availability.
 - 2. List 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.
 - 5. Substrates for which use of primer is required.
 - 6. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
- B. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

2.05 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain joint sealant materials from a single manufacturer for each different product required.
- B. Maintain one copy of each referenced document covering installation requirements on site.
- C. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years experience.
- D. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.

2.06 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.
- B. Weather & Temperature Conditions: Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.
 - 1. Do no exterior priming or sealant work when raining or snowing or when moisture therefrom or dew is present on surfaces.
 - 2. Install sealants only when ambient temperatures are within the limits of 40 to 100 degrees.
- C. Environmental Conditions: Do not install solvent based or other high odor sealants in enclosed building spaces or near air intake grills at occupied buildings.

PART 2 PRODUCTS

4.01 MANUFACTURERS

- A. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
 - 1. Master Builders Solutions by BASF: www.master-builders-solutions.basf.us/en-us.
 - 2. Pecora Corporation: www.pecora.com.
 - 3. Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com.
- B. Preformed Compressible Foam Sealers:
 - 1. EMSEAL Joint Systems, Ltd: www.emseal.com.
 - 2. Sandell Manufacturing Company, Inc: www.sandellmfg.com.
 - 3. Dayton Superior Corporation: www.daytonsuperior.com.
 - 4. Tremco Global Sealants: www.tremcosealants.com.

4.02 JOINT SEALANT APPLICATIONS

- A. Scope:
 - 1. Exterior Joints: 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. Joints between door, window, and other frames and adjacent construction.
 - c. Joints between different exposed materials.
 - d. Other joints indicated below.

4.03 NONSAG JOINT SEALANTS

- A. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
 - 1. Movement Capability: Plus and minus 50 percent, minimum.
 - 2. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
 - 3. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
 - 4. Color: Match adjacent finished surfaces as directed by Architect.
 - 5. Cure Type: Single- or multi-component, neutral curing.
 - 6. Service Temperature Range: Meet or exceed Minus 20 to 180 degrees F (Minus 29 to 82 degrees C).

7. Manufacturers:
 - a. Pecora Corporation; Pecora 890 NST (Non-Staining Technology): www.pecora.com.
 - b. Tremco Commercial Sealants & Waterproofing; Spectrem 4-TS: www.tremcosealants.com.
- B. Non-Curing Butyl Sealant: Solvent-based, single component, non-sag, non-skinning, non-hardening, non-bleeding; non-vapor-permeable; intended for fully concealed applications.
 1. Manufacturers:
 - a. Pecora Corporation; Pecora BA-98 Non-Skinning Butyl Sealant: www.pecora.com.

4.04 SELF-LEVELING SEALANTS

- A. Self-Leveling Polyurethane Sealant for Horizontal Expansion Joints: ASTM C920, Grade P, Uses T, M and O; multi-component; explicitly approved by manufacturer for horizontal expansion joints.
 1. Movement Capability: Plus and minus 25 percent, minimum.
 2. Hardness Range: 30 to 35, Shore A, when tested in accordance with ASTM C661.
 3. Color: To be selected by Architect from manufacturer's standard range.
 4. Manufacturers:
 - a. Pecora Corporation; DynaTrol II-SG (Slope Grade): www.pecora.com.
 - b. Tremco Commercial Sealants & Waterproofing; THC-901: www.tremcosealants.com.

4.05 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. Primers: Type recommended by sealant manufacturer to suit application to EIFS substrates; non-staining.

PART 3 EXECUTION

6.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.

6.02 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.

6.03 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. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
 - 1. Width/depth ratio of 2:1.
 - 2. Neck dimension no greater than 1/3 of the joint width.
 - 3. Surface bond area on each side not less than 75 percent of joint width.
- 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. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Expansion joint cover assemblies for wall surfaces.

1.02 RELATED REQUIREMENTS

- A. Section 04 20 01 - Masonry Veneer: Placement of joint cover assembly frames in masonry.
- B. Section 07 62 00 - Sheet Metal Flashing and Trim: Roof expansion and control joint covers.
- C. Section 07 71 00 - Roof Specialties: Roof seismic joint covers.

1.03 REFERENCE STANDARDS

- A. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes 2014.
- B. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric) 2013.
- C. ASTM B308/B308M - Standard Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles 2020.
- D. UL (DIR) - Online Certifications Directory Current Edition.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide joint assembly profiles, profile dimensions, anchorage devices and available colors and finish.
- C. Manufacturer's Installation Instructions: Indicate rough-in sizes and required tolerances for item placement.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Seismic Joint Cover Assemblies, Basis of Design:
 - 1. Inpro; 611-A07-150: www.inprocorp.com/#sle.
 - 2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 EXPANSION JOINT COVER ASSEMBLY APPLICATIONS

- A. Exterior Wall Joints Subject to Seismic Movement:
 - 1. Acceptable Manufacturers:
 - a. Inpro; 611-A07-150 www.inprocorp.com/#sle.
 - b. BASF Watson Bowman Acme Corporation; www.wbacorp.com/#sle.
 - c. EMSEAL Joint Systems, Ltd; www.emseal.com/#sle.
 - d. Construction Specialties, Inc; www.c-sgroup.com/#sle.

2.03 EXPANSION JOINT COVER ASSEMBLIES

- A. Expansion Joint Cover Assemblies - General: Factory-fabricated and assembled; designed to completely fill joint openings, sealed to prevent passage of air, dust, water, smoke; suitable for traffic expected.
 - 1. Joint Dimensions and Configurations: Match existing.
 - 2. Joint Cover Sizes: Selected to suit joint width and configuration, based on manufacturer's published recommendations and limitations.
 - 3. Lengths: Provide covers in full lengths required; avoid splicing wherever possible.
 - 4. Anchors, Fasteners, and Fittings: Provided by cover manufacturer.

2.04 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper; or ASTM B308/B308M, 6061 alloy, T6 temper.
 - 1. Exposed Finish Outdoors: Natural anodized.
- B. Anchors and Fasteners: As recommended by cover manufacturer.
- C. Backing Paint for Aluminum Components in Contact with Cementitious Materials: Asphaltic type.

2.05 PART 3 EXECUTION

2.06 EXAMINATION

- A. Verify that joint preparation and dimensions are acceptable and in accordance with manufacturer's requirements.

2.07 INSTALLATION

- A. Install components and accessories in accordance with manufacturer's instructions.
- B. Align work plumb and level, flush with adjacent surfaces.
- C. Rigidly anchor to substrate to prevent misalignment.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDE

- A. Gypsum sheathing for replacing outer layer of existing 2-layer gypsum sheathing application occurs where new EIFS finish is to be applied.

1.02 RELATED REQUIREMENTS

- A. Section 02 41 19 - Selective Building Remodel Demolition.
- B. Section 07 24 00 - Exterior Insulation and Finish Systems.

1.03 REFERENCE STANDARDS

- A. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board 2020.
- B. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness 2018.
- C. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs 2018.
- D. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing 2017.
- E. ASTM C1280 - Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing 2018.
- F. GA-216 - Application and Finishing of Gypsum Panel Products 2016.

1.04 SUBMITTALS

- A. Product Data: Provide data on gypsum sheathing.

PART 2 PRODUCTS

2.01 BOARD MATERIALS

- A. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
 - 1. Application: Exterior sheathing, unless otherwise indicated.
 - 2. Glass Mat Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C1177/C1177M.
 - 3. Core Type: Type X.
 - 4. Type X Thickness: 5/8 inch (16 mm).
 - 5. Edges: Square.
 - 6. Glass Mat Faced Products:
 - a. CertainTeed Corporation; GlasRoc Type X Exterior Sheathing: www.certainteed.com.
 - b. Georgia-Pacific Gypsum; DensGlass Fireguard Sheathing: www.gpgypsum.com.
 - c. USG Corporation; USG Securock Brand Ultralight Glass-Mat Sheathing Firecode X: www.usg.com.

2.02 GYPSUM WALLBOARD ACCESSORIES

- A. Water-Resistive Barrier: As specified in Section 07 24 00.
- B. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches (0.84 mm) in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.
- C. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch (0.84 to 2.84 mm) in Thickness: ASTM C954; steel drill screws, corrosion-resistant.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.02 BOARD INSTALLATION

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.
 - 1. Place second layer perpendicular to framing or furring members. Offset joints of second layer from joints of first layer.
 - 2. Seal joints, cut edges, and holes with water-resistant sealant.

3.03 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet (3 mm in 3 m) in any direction.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. General Description Of Work: In general, work includes surface preparation, priming and finish painting of new Exterior Insulation and Finish System (EIFS) surfaces as well as existing EIFS surfaces as noted on drawings. Work also includes surface preparation, priming and finish painting of certain existing cement board fascia surfaces at existing adjacent building. Work at existing adjacent building fascia's is not shown on drawings and will be directed by architect in field. Area of work equals approximately 3,000 square feet of surface area to be prepared, primed and finished.

1.02 RELATED WORK IN OTHER SECTIONS

- A. Section 02 41 19 - Selective Building Remodel Demolition.
- B. Section 07 24 00 - Exterior Insulation and Finish System.

1.03 QUALITY CONTROL

- A. Single Source Responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.

1.04 SUBMITTALS

- A. Samples
 - 1. Before commencing work, prepare samples for each applicable color and substrate; samples shall be applied over EIFS sample. Size for all samples shall be not less than 12" x 12".
 - 2. Furnish additional required samples until colors, finishes, textures are reviewed and accepted by the Architect via submittal process.
 - 3. Mark on each sample paint manufacturer and coating series, together with color code formula.
 - 4. Allow ample time for approval of colors; work shall not proceed until colors are approved.
 - 5. Retain approved samples for reference.
- B. Materials Lists
 - 1. Submit, separately for each facility, complete and detailed list of materials proposed for use on the work; no exceptions.
 - 2. Include manufacturers' names and color code numbers.
 - 3. Obtain Owner's approval of materials before ordering.
- C. Product Data
 - 1. Submit manufacturer's published literature for specified products and accessories as applicable, including manufacturer's specifications, physical characteristics and performance data, plus material safety data sheets (MSDS) for all products where applicable.
 - 2. Submit as a supplement, manufacturer's instructions and directions for application if not included in manufacturer's published literature.

1.05 PRODUCT DELIVERY, STORAGE & HANDLING

- A. Delivery & Storage Of Material
 - 1. Coordinate material delivery and storage at jobsite with Owner prior to procurement.
 - 2. Store per manufacturer's recommendations and as required by governing Codes and Ordinances.
 - 3. Take all necessary precautionary measure to prevent fire hazards and spontaneous combustion; place cotton waste, cloths, and other hazardous materials in containers, and daily remove from site.

1.06 JOB CONDITIONS

- A. Condition Of Surfaces
 - 1. Put surfaces in proper condition for application of finishes. Complete all major cleaning of existing surfaces prior to application of paint coatings.
 - 2. Do no outside work during damp or freezing weather, or until surfaces have thoroughly dried from the effects of such weather.
 - 3. See that proper temperatures are maintained for inside work.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. **Concrete and stucco substrate primer:** Acrylic-based, tinted, high-pH compatible primer/sealer: 80805 StoPrime Hot, as manufactured by Sto Corp.; or similar.
- B. Performance and Physical Properties: Meet or exceed the following values for material cured at 73 degrees F (23 degrees C) and 50 percent relative humidity (unless otherwise specified).
 - 1. Application: Spray, roller, or brush.
 - 2. Working time: 10-20 minutes, depending on ambient conditions.
 - 3. Adhesion to concrete: 680 psi (4.69 MPa), ASTM D 4541
 - 4. Flame Spread Index: 0, ASTM E 84,
 - 5. Smoke Developed: 10, ASTM E 84
 - 6. Water vapor transmission: 30 perms (1720 ng/Pa.s.sq.m.), tested at 3 dry mils applied in one coat, ASTM E 96, wet cup method.
 - 7. VOC: < 100 g/L, EPA 24, complies with SCAQMD Rule 1113
- C. **Finish Coating:** Single component acrylic-based coating, containing acrylic polymer, and colored pigments: 80212 StoColor Lastic, as manufactured by Sto Corp.; or similar.
- D. Performance and Physical Properties: Meet or exceed the following values for material cured at 73 degrees F (23 degrees C) and 50 percent relative humidity (unless otherwise specified).
 - 1. Application: Spray, roller, or brush.
 - 2. Working Time: 10-30 minutes.
 - 3. Crack Bridging: Pass, no cracking at -15 degrees F (-26 degrees C), ASTM C 1305
 - 4. Flexibility Mandrel Bend: No cracking at 70 degrees F (21 degrees C) and -14 degrees F (-26 degrees C), ASTM D 522.
 - 5. Moisture Resistance: No deleterious effects such as loss of adhesion, discoloration, blistering, cracking, flaking, ASTM D 2247, 14 day exposure.
 - 6. Adhesion to Concrete: 345 psi (2.38 MPa), ASTM D 4541
 - 7. Water Vapor Permeability: 32 perms (1850 ng/Pa.s.sq.m.) tested at 9 dry mils, applied in one coat, and 21 perms (1210 ng/Pa.s.sq.m.) tested at 14 dry mils, applied in two coats, ASTM E 96, wet cup method.

8. Mold Resistance: No Mold Growth at 90 days, ASTM D 3273
 9. Wind-driven rain resistance: PASS ASTM D 6904
 10. VOC: <50 g/L, EPA 24, complies with SCAQMD Rule 1113
 11. Tensile Strength, 290 psi (2.00 MPa) at break, ASTM D412
 12. Elongation at Break: 450%, ASTM D 412
 13. Carbon Dioxide Diffusion Resistance Coefficient: approximately 496,000 EN 1062
 14. Carbon Dioxide Diffusion Resistance: Approximately 144 m, EN 1062
- E. Colors & Finishes
1. Prior to beginning work, the Architect will furnish sample color chips for surfaces to be painted, as selected from full line of color chips furnished by paint manufacturer.
 2. Match the colors of the chips and submit samples, as specified herein, before proceeding with the work. Final acceptance of colors will be from samples applied on the job.
 3. Colors: Allow for (3) three colors to be selected by Architect.
 - a. PT-1: As selected by Architect.
 - b. PT-2: As selected by Architect.
 - c. PT-3: As selected by Architect.

PART 3 - EXECUTION

3.01 PREPARATION OF SURFACES

- A. Surface Preparation
1. All surfaces must be clean, dry, sound, and free of frost and contamination such as mildew, dirt, grease, oils, salts, efflorescence and any other contamination that may affect adhesion.
 2. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas and landscaping from contact due to mixing, handling, and installation of materials.
- B. Mixing
1. Mix products in accordance with published literature for the product. Mix for approximately 3 minutes using a slow-speed drill and paddle to a uniform consistency. Avoid entrapping air in the liquid during mixing.
- C. Application
1. Apply primer to prepared substrate in accordance with written instructions presented on the Sto Product Bulletin for the primer product being used.
 2. Apply two coats, 12-14 wet mils, per coat to primed surface. Allow first coat to dry completely before applying second coat. Final thickness shall be minimum 8.4 dry mils, per coat.
- D. Additional Surface Preparation Requirements For Existing Surfaces Scheduled Or Required To Be Cleaned &/Or Re-Finished
1. General:
 - a. Coordinate repair work for the various existing finish wall and ceiling surfaces specified herein with work for same specified under other Sections.
 - b. On existing finished surfaces to be re-painted or re-finished, remove all loose, blistered, scaled, or crazed finish to bare base material surface.
 - c. Wash with a non-sudzing biodegradable detergent or approved cleaning solution as required to remove any accumulated film of wax, oil, grease, smoke or other foreign matter which would impair bond of, or bleed through new finishes; after washing, rinse with clean water and let thoroughly dry.
- E. Materials Preparation

1. Mix and prepare painting materials in accordance with manufacturer's directions. Do not mix together paints of different manufacturers.
2. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.
3. Stir materials before application to produce a mixture of uniform density, and stir as required during the application of the materials. Do not stir surface film into the material. Remove the film and, if necessary, strain the material before using.

3.02 APPLICATION OF PAINT & FINISH

- A. Workmanship, General
 1. Highest quality consistent with trade practice, performed by skilled mechanics.
 2. Apply paint and finish materials by method at painter's option to achieve the best results for matching existing adjacent surfaces; spread material evenly, without runs or sags.
 3. Apply additional coats when undercoats or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance.
 4. Cut sharp lines against other materials not to be refinished. Tape adjacent window frames, light fixtures, door hardware, handrails, railings, etc., to prevent paint from said surfaces. Provide cover over window glass as necessary to protect from overspray.
 5. Allow ample time between coats for thorough drying not less than manufacturer's recommended minimum time.
 6. Paint surfaces behind movable equipment the same as similar exposed surfaces.
- B. Finish Film Thickness: Apply primer, intermediate, and finish coats to not less than wet and dry film thicknesses and spreading rates as recommended by product manufacturer for each of the various types of specified materials, unless otherwise specified herein.
- C. Cleaning
 1. As the work proceeds, and on its completion, promptly remove all spilled, splashed or splattered paint. Remove in such a manner as not to damage surfaces. Thoroughly clean paint and splatters from glass, mirrors, and other such surfaces. Take care not to scratch surfaces.
 2. During progress of work, keep premises free from any unnecessary accumulation of tools, equipment, surplus materials, and debris resulting from the work of this Section. At work's conclusion, leave premises neat and clean.
- D. Protection
 1. Protect surrounding areas and surfaces to preclude damage during work of this Section.
 2. Make good any damage caused by failure to provide suitable protection, but not any damage caused by other trades.

END OF SECTION