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SECTION 02 41 00
SELECTIVE DEMOLITION**PART 1 GENERAL****1.1 DESCRIPTION**

- A. Work included:
1. Complete demolition of portions of existing building(s) indicated or as required in preparation for alterations and installation of new roofing system.
 2. Take all necessary precautions to insure against damage to existing work to remain in place, to be reused, or to remain the property of the Owner, and any damage to such work shall be repaired or replaced as approved at no additional cost to the Owner.
 3. Contractor shall test for the presence of asbestos containing materials (ACM) in the original built-up roofing system and flashings scheduled to be removed in their entirety. See General Notes on Sheet A-101, Roof Plan and Details.
 - a. Related Requirements: Upon receiving results from the ACM Testing, if applicable, the following specification section applies.
 - 1) Section 02 82 00 - Asbestos Removal and Disposal.

1.2 SUBMITTALS

- A. Obtain, pay for, and submit all permits required for execution of demolition work including the following:
1. Permits and notices authorizing building demolition.
 2. Permit for transport and disposal of debris.
 3. Demolition procedures and operation sequence.
- B. Submit demolition procedures and operation sequence.
- C. Permits for Disposal of Debris:
1. Arrange for legal disposal of debris and obtain written agreements with the owners of the property where the debris shall be deposited.
 2. Provide a certification of disposal (use form attached at the end of this section) that an agreement releasing the Owner from all responsibility in connection with the disposal of the debris was executed.

1.3 COORDINATION

- A. Utility Removal: Arrange with utility companies for changes in their equipment, and capping of pipes and wiring as required.
- B. Schedule disruption of utilities or facilities with the Owner a minimum of 48 hours in advance of shut-down.
- C. Maintaining Traffic:
1. Do not close or obstruct public streets, sidewalks, alleys or passageways without permission from authorities having jurisdiction.
 2. If required by authorities, provide alternate routes around closed or obstructed traffic ways.

1.4 JOB CONDITIONS

- A. Existing Conditions: Survey existing work and examine the Contract Documents to determine extent of demolition work.
- B. Protection:
 - 1. Includes but not limited to erecting barriers, dust partitions, fences, guard rails, enclosures, chutes and shoring as required to protect structures and utilities remaining intact.
 - 2. Protect any trees, plants, grass and other landscaping designated to remain from damage. Replace any trees, plants or other landscaping materials designated to remain that are damaged during the work under this Contract.
 - 3. Protect the interior of the building and all materials and equipment from the weather at all times. Replace materials and equipment damaged by weather at no additional cost to the Owner.
 - 4. Take necessary precautions to insure against damage to existing materials or equipment to remain in place, to be reused, or to remain the property of the Owner. Repair or replace damaged materials and equipment at no additional cost to the Owner.

PART 2 PRODUCTS (NOT USED)**PART 3 EXECUTION****4.1 PREPARATION**

- A. Preparation:
 - 1. Verify the extent of demolition work to be performed with the Professional.
 - 2. Arrange for and verify termination of utility services, including removing meters and capping lines.
 - 3. Remove items scheduled to be salvaged for Owner and place in designated storage area.

4.2 DEMOLITION

- A. Demolition:
 - 1. Demolish structures in accordance with demolition procedures submitted.
 - 2. Maintain area outside in as clean condition as possible during progress of demolition work.
 - 3. Limit dust to lowest practicable level.
 - 4. Do not use water to extent of causing flooding, contaminated runoff or icing.
 - 5. Repair damage to adjacent construction or structures.
 - 6. Remove all clamps, brackets, supports, hangers, conduits, controls, wire, etc. associated with equipment/pipe indicated to be removed and patch all areas to match adjacent areas.
- B. Owner has the right to salvage any materials or equipment including but not limited to subsection 3.4.

4.3 DISPOSAL

- A. Disposal:
 - 1. Remove demolition debris to designated disposal area promptly.
 - 2. Do not store or burn materials on-site.
 - 3. Disposal areas shall be approved by Department of Environmental Protection and any other authorities having jurisdiction.

END OF SECTION

SECTION 02 82 00
ASBESTOS REMOVAL AND DISPOSAL

PART 1 GENERAL

1.1 DESCRIPTION

- A. The Work of this Section includes, but is not limited to:
1. Project/work identification
 2. Plan of action.
 3. Asbestos hazard.
 4. Contractor use of premises.
 5. Instruct and train each worker involved in asbestos abatement or maintenance and repair of friable asbestos-containing materials in proper respiratory use and require that each worker always wear respirator, properly fitted on face in Work Area, from start of any operation which may cause air-borne asbestos fibers until Work Area is completely decontaminated.
 - a. Use respiratory protection appropriate for fiber level encountered in work place or as required for other toxic or oxygen-deficient situations encountered.
 6. Procedures for removal and disposal of asbestos-containing materials.
 - a. Disposal includes packaging of asbestos-containing waste materials.
 - b. Disposal may be accomplished either by land filling or converting asbestos-containing materials to non-asbestos waste.
- B. Work Identification:
1. Testing of the original built-up roofing system and original flashing for asbestos.
 2. Following testing results, if asbestos is found, work would include removal of and disposal of all asbestos containing materials.

1.2 QUALITY ASSURANCE

- A. Related requirements and conditions indicated in the Contract Documents include the following:
1. Applicable codes and regulations.
 2. Notices and permits.
- B. Reference Standards:
1. Except to extent that more stringent requirements are written directly into Contract Documents, following regulations and standards have same force and effect, and are made part of Contract Documents by reference, as if copied directly into Contract Documents, or as if published copies were bound in.
 - a. Pennsylvania Department of Environmental Protection (PA DEP).
 - b. The Pennsylvania Department of Labor and Industry.
 2. When there is conflict in requirements set forth in these regulations and standards, meet more stringent requirement.
 - a. OSHA: U.S. Department of Labor, Occupational Safety and Health Administration, Safety and Health Standards 29 CFR 1910, Section 1001 and Section 1910.134. 29 CFR 1926.58.
 - b. CGA: Compressed Gas Association, Inc., New York, Pamphlet G-7, Compressed Air for Human Respiration, and Specification G-7.1 Commodity Specification for Air.
 - c. CSA: Canadian Standard Association, Rexdale, Ontario, Standards Z180.1-1978, Compressed Breathing Air.

- d. ANSI: American National Standards Institute, Z88.2-1980, Standard Practices for Respiratory Protection.
 - e. NIOSH: National Institute for Occupational Safety and Health.
 - f. MSHA: Mine Safety and Health Administration.
3. Respiratory Protection Program:
 - a. Submit Contractor's written respiratory protection program manual as required by OSHA 1926.58.
 4. Respiratory Protection Schedule:
 - a. Submit level of respiratory protection intended for each operation required by project.

1.3 SUBMITTALS

- A. Plan of Action:
 1. Submit a detailed plan of procedures proposed for use in complying with requirements of this Specification.
 - a. Include the following in the plan: Sequencing of asbestos work, visitors to site, disposal plan including location of approved disposal site, and detailed description of methods to be employed to control pollution.
 - b. Closing out of building's HVAC system, method of removal to prohibit visible emissions in work area, and packaging of removed asbestos debris.
 - c. If required by the AHJ (Authority having Jurisdiction) the plan must be approved by Department prior to commencement of asbestos removal.
- B. If required by the AHJ, before start of work, submit following to Department for review.
 1. Copy of State or Local license for waste hauler.
 2. Name and address of landfill where asbestos-containing waste materials are to be buried; include contact person and telephone number, copy of handling procedures, and protective equipment utilized at the landfill, prepared and signed by landfill owner.
 3. Chain of Custody form and form of waste manifest proposed.
 4. Sample of disposal bag and any added labels to be used.

1.4 ASBESTOS HAZARD

- A. Disturbance or dislocation of asbestos-containing materials may cause asbestos fibers to be released into building's atmosphere, creating potential health hazard to workmen and building occupants.
 1. Apprise all workers, supervisory personnel, subcontractors and consultants who will be at job site of seriousness of hazard and of proper procedures which must be followed.
- B. When, in performance of work, workers, supervisory personnel, subcontractors, or consultants may encounter, disturb, or otherwise function in immediate vicinity of any identified asbestos-containing materials, take appropriate continuous measures to protect all building occupants from potential hazard of exposure to air-borne asbestos.
 1. Measures include procedures and methods of described, and compliance with regulations of applicable Federal, State, and local agencies.

1.5 CONTRACTOR USE OF PREMISES

- A. Contractor shall limit his use of premises to work indicated.
- B. Use of Site:

1. Confine operations at site to areas permitted under Contract.
2. Do not unreasonably encumber site with materials or equipment.

PART 2 PRODUCTS

2.1 WETTING MATERIALS

- A. For wetting prior to disturbance of asbestos-containing materials, use either amended water or removal encapsulant:
1. Amended Water:
 - a. Provide water to which surfactant has been added.
 - b. Use mixture of surfactant and water which results in wetting of asbestos-containing material and retardation of fiber release during disturbance of material equal to or greater than that provided by use of 1 ounce of surfactant consisting of 50% polyoxyethylene ester and 50 percent polyoxyethylene ether mixed with 5 gallons of water.
 2. Removal Encapsulant:
 - a. Provide penetrating type encapsulant designed specifically for removal of asbestos-containing material.
 - b. Use material which results in wetting of asbestos-containing material and retardation of fiber release during disturbance of material equal to or greater than that provided by water amended with surfactant consisting of 1 ounce of mixture of 50 percent polyoxyethylene ester and 50% polyoxyethylene ether in 5 gallons of water.

2.2 POLYETHYLENE SHEET

- A. Flame-resistant polyethylene film that conforms to requirements described by NFPA 701, Small Scale Fire Test for Flame-Resistant Textiles and Films. Provide largest size possible to minimize seams, 4 or 6 mil thick as indicated, frosted or black as indicated.

2.3 DUCT TAPE

- A. 2-inch or 3-inch widths, with adhesive formulated to stick aggressively to sheet polyethylene.

2.4 SPRAY CEMENT

- A. In aerosol cans, specifically formulated to stick tenaciously to sheet polyethylene.

2.5 DISPOSAL BAGS

- A. Provide 6 mil thick, leak-tight polyethylene bags, labeled with four labels with text as follows:
1. First Label:

CAUTION
CONTAINS ASBESTOS FIBERS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS IS HAZARDOUS
TO YOUR HEALTH

2. Second Label: Provide in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard:

DANGER
CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
BREATHING AIR-BORNE ASBESTOS,
THERMOLITE, ANTHOPHYLLITE, OR
ACTINOLITE FIBERS IS HAZARDOUS
TO YOUR HEALTH

3. Third Label: Provide in accordance with U.S. Department of Transportation regulation on hazardous waste marking; 49 CFR parts 171 and 172. Hazardous Substances: Final Rule; published November 21, 1986, and revised February 17, 1987:

RQ HAZARDOUS
SUBSTANCE,
SOLID, NOS,
ORM-E, NA 9188
(ASBESTOS)

4. Fourth Label: Label containers or wrapped materials with the name of the waste generator and the location at which the waste was generated.

2.6 FELT

- A. Standard type, approximately 1/16 inch thick and 36 inch to 72 inch in width.

PART 3 EXECUTION

3.1 RESPIRATORY PROTECTION

- A. Respiratory Protection Program: Comply with ANSI Z88.2-1980, Practices for Respiratory Protection, and OSHA 29 CFR 1910 and 1926.
- B. Require that respiratory protection be used at all times that there is any possibility of disturbance of asbestos-containing materials whether intentional or accidental.
- C. Require that respirator be worn by anyone in Work Area at all times, regardless of activity, during period that starts with any operation which could cause air-borne fibers.
- D. Regardless of air-borne fiber levels, require that minimum level of respiratory protection used by half-face air-purifying respirators with high efficiency filters.

3.2 WORKER PROTECTION

- A. Before beginning work with any material for which MSDS has been submitted, provide workers with required protective equipment.
 - 1. Require that appropriate protective equipment be used at all times.

3.3 WET REMOVAL

- A. Thoroughly wet to satisfaction of Asbestos Program Manager, asbestos-containing materials to be removed prior to stripping or tooling to reduce fiber dispersal into air.
 - 1. Accomplish wetting by fine spray (mist) of amended water or removal encapsulant.
 - 2. Saturate material sufficiently to wet to base without causing excess dripping.
 - 3. Allow time for amended water or removal encapsulant to penetrate material thoroughly.

4. When amended water is used, spray material repeatedly during work process to maintain continuously wet condition.
 5. When removal encapsulant is used, apply in strict accordance with manufacturer's written instructions.
 6. Perforate outer covering of any installation which has been painted or jacketed in order to allow penetration of amended water or removal encapsulant, or use injection equipment to wet material under covering.
 7. Where necessary, carefully strip away while simultaneously spraying amended water or removal encapsulant on installation to minimize dispersal of asbestos fibers into air.
- B. Mist work area continuously with amended water when necessary to reduce air-borne fiber levels.
- C. Remove saturated asbestos-containing material in small sections from all areas.
1. Do not allow material to dry out.
 2. As it is removed, simultaneously pack material while still wet into disposal bags.
 3. Twist neck of bags, bend over, and seal with minimum three wraps of duct tape.
 4. Clean outside and move to Wash-Down Station adjacent to material decontamination unit.
 5. Evacuate air from disposal bags with HEPA filtered vacuum cleaner before sealing.

3.4 DISPOSAL

- A. All waste is to be hauled by waste hauler with all required licenses from all State and Local authorities with jurisdiction.
- B. Load all asbestos-containing waste material in disposal bags or leak-tight drums; all materials to be contained in one of following:
1. Two 6-mil disposal bags.
 2. Two 6-mil disposal bags and fiberboard drum.
 3. Sealed steel drum with no bag.
- C. Protect interior of truck or dumpster with critical and primary barriers.
- D. Carefully load containerized waste in fully enclosed dumpsters, trucks, or other appropriate vehicles for transport.
1. Exercise care before and during transport, to ensure that no unauthorized persons have access to material.
- E. Do not store containerized materials outside of Work Area.
1. Take containers from Work Area directly to sealed truck or dumpster.
- F. Do not transport disposal bagged materials on open trucks.
1. Label drums with same warning labels as bags.
 2. Uncontaminated drums may be reused.
 3. Treat drums that have been contaminated as asbestos-containing waste and dispose of in accordance with this Specification.
- G. Advise landfill operator or processor, minimum 10 days in advance of transport, of quantity of material to be delivered.
- H. Unload containerized waste.
1. At disposal site, sealed plastic bags shall be carefully unloaded from truck.
 - a. If bags are broken or damaged, return to work site for rebagging.
 - b. Clean entire truck and contents.

2. At processing site, truck and loading dock are arranged as controlled work area and containerized waste is transferred to storage area by site personnel.
 - a. All bags, including broken ones, will be transferred.
- I. Retain receipts from landfill or processor for materials disposed of.
- J. At completion of hauling and disposal of each load, submit copy of waste manifest, Chain of Custody form, and landfill receipt to Department.

END OF SECTION

SECTION 06 10 00
ROUGH CARPENTRY**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Non-structural dimension lumber framing.
- B. Roofing nailers.
- C. Preservative treated wood materials.

1.2 RELATED REQUIREMENTS

- A. Section 07 53 00 - Elastomeric Membrane Roofing.

1.3 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- B. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.
- C. PS 20 - American Softwood Lumber Standard; 2010.
- D. SPIB (GR) - Grading Rules; 2014.

1.4 SUBMITTALS

- A. Product Data: Provide technical data on wood preservative materials.
- B. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

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

PART 2 PRODUCTS**2.1 GENERAL REQUIREMENTS**

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
 - 2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
- B. Lumber fabricated from old growth timber is not permitted.

2.2 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: S-dry or MC19.

2.3 ACCESSORIES

- A. Fasteners and Anchors:

1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
- B. Water-Resistive Barrier: No. 15 asphalt felt.

2.4 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
- B. Preservative Treatment:
 1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
 - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
 - b. Treat lumber in contact with roofing, flashing, or waterproofing.

PART 3 EXECUTION

3.1 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.2 ROOF-RELATED CARPENTRY

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.
- B. Provide wood curb at all roof openings except where specifically indicated otherwise. Form corners by alternating lapping side members.

3.3 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.4 CLEANING

- A. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- B. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 07 53 00
ELASTOMERIC MEMBRANE ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Elastomeric roofing membrane, fully adhered application with mechanically fastened cover board as indicated on drawings.
- B. Tapered insulation used for crickets.
- C. Insulation for deck infills.
- D. Roof edge metals.
- E. Flashings.
- F. Roofing cant strips, stack boots, roofing expansion joints, and walkway pads.

1.2 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Wood nailers and curbs.
- B. Section 07 62 00 - Sheet Metal Flashing and Trim.
- C. Section 07 92 00 - Joint Sealant.
- D. Section 22 10 06 - Plumbing Piping Specialties: Roof drains.

1.3 REFERENCE STANDARDS

- A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2014.
- B. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane; 2013.
- C. ANSI/SPRI FX-1: Standard Field Test Procedure for Determining the Withdrawal Resistance of Roofing Fasteners; 2016.
- D. FM DS 1-28 - Wind Design; Factory Mutual Research Corporation; 2007.
- E. NRCA ML104 - The NRCA Roofing and Waterproofing Manual; National Roofing Contractors Association; Fifth Edition, with interim updates.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with installation of associated counterflashings installed under other sections.
- B. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers; review preparation and installation procedures and coordination and scheduling necessary for related work.

1.5 SUBMITTALS

- A. Product Data: Provide data indicating membrane materials, flashing materials, insulation, and fasteners.
- B. Shop Drawings: Indicate joint or termination detail conditions and conditions of interface with other materials.
- C. Test Reports: Provide test reports from testing of existing gypsum roof deck for pull tests as per ANSI/SPRI FX-1: Standard Field Test Procedure for Determining the Withdrawal Resistance of Roofing Fasteners; 2016 for installation of mechanically fastened cover board where existing roof decks are identified as gypsum roof decks.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

- E. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.
- F. Manufacturer's Field Reports: Indicate procedures followed, ambient temperatures, humidity, wind velocity during application, and supplementary instructions given.
- G. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.6 QUALITY ASSURANCE

- A. Perform work in accordance with NRCA Roofing and Waterproofing Manual and manufacturer's instructions.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience and approved by manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.
- B. Store products in weather protected environment, clear of ground and moisture.
- C. Protect foam insulation from direct exposure to sunlight.

1.8 FIELD CONDITIONS

- A. Do not apply roofing membrane during unsuitable weather.
- B. Do not apply roofing membrane when ambient temperature is below 40 degrees F or above 120 degrees F.
- C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

1.9 WARRANTY

- A. Provide 30 year manufacturer's material and labor warranty to cover failure to prevent penetration of water.
 - 1. Provide 30 year installers warranty to cover failure to prevent penetration of water.

PART 2 PRODUCTS

2.1 EPDM MEMBRANE MATERIALS:

- A. Basis of Design Manufacturer: Carlisle Syntec Systems, Inc; Sure-Seal EPDM with enhanced details: www.carlisle-syntec.com.
- B. Acceptable Manufacturers: Subject to compliance with requirements, provide one of the following adhered EPDM roofing systems, with indicated and necessary enhancements:
 - 1. RubberGard®; Firestone Building Products Co.
 - 2. GenFlex; GenFlex Roofing Systems, GenCorp Polymer Products.
 - 3. JM EPDM NR 90 MIL; Johns Manville Co.
 - 4. Versigard™; Versico, Inc.

2.2 ROOFING

- A. Elastomeric Membrane Roofing: One ply membrane, fully adhered, over cover board.
- B. Acceptable Insulation Types - Constant Thickness Application: Any type that meets requirements and is approved by membrane manufacturer for application.
- C. Acceptable Insulation Types - Tapered Application: Any type that meets requirements and is approved by membrane manufacturer for application.

2.3 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

- A. Membrane: Ethylene-propylene-diene-terpolymer (EPDM); Type I non-reinforced; complying with minimum properties of ASTM D4637.
 - 1. Thickness: 0.090 inch.
 - 2. Color: Black.
 - 3. Seaming Materials: As recommended by membrane manufacturer.
 - 4. Membrane Adhesive: As recommended by and approved by membrane manufacturer.
 - 5. Flexible Flashing Material: Same material as membrane.
 - 6. Vapor Barrier: Carlisle SynTec Inc. VapAir Seal MD (Self-adhered).
 - a. To be placed on concrete deck prior to insulation installation.
- B. Insulation Cover Board: Basis of Design Manufacturer: Carlisle Syntec Systems, Inc; SecurShield HD Plus Polyiso, 1/2 inch thick, glass-mat faced, high density polyiso insulation:
 - 1. Type II, Class 4, Grade 1 meeting ASTM C1289.
 - 2. Or equal: As approved by roofing membrane manufacturer.

2.4 INSULATION

- A. Polyisocyanurate Board Insulation: Basis of Design Manufacturer: Carlisle Syntec Systems, Inc; SecurShield; rigid cellular foam, complying with ASTM C1289, Type II, Class 2, cellulose felt or glass fiber mat both faces; Grade 1 and with the following characteristics:
 - 1. Compressive Strength: 25 psi.
 - 2. Board Size: 48 by 48 inch or 48 by 96 inch.
 - 3. Tapered Board for Crickets: Slope as indicated; minimum thickness, 1/2 inch; fabricate of fewest layers possible.
 - 4. Manufacturer: As approved by roofing membrane manufacturer.

2.5 ACCESSORIES

- A. Prefabricated Roofing Expansion Joint Flashing: Sheet butyl over closed-cell foam backing seamed to galvanized steel flanges.
- B. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; same material as membrane.
- C. Cant and Edge Strips: Wood fiberboard, compatible with roofing materials; cants formed to 45 degree angle.
- D. Termination Bars: Stainless steel surface mounted type with flanged top for caulking as approved by roofing manufacturer.
- E. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches wide; self adhering.

- F. Insulation and Cover Board Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
- G. Membrane Adhesive: As recommended by membrane manufacturer.
- H. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.
- I. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.
- J. Insulation Adhesive: As recommended by insulation manufacturer.
- K. Sealants: As recommended by membrane manufacturer.
- L. Mechanical Fasteners for Insulation Cover Board: As recommended by insulation cover board and roofing manufacturers for type of roof deck indicated on the drawings and pull out resistance required to meet warranty specified.

2.6 METAL COPING

- A. Basis of Design: SecurEdge 200 Coping by Carlisle Syntec; www.carlisle-syntec.com or approved equal by Carlisle Syntec as required to achieve warranty specified.
 - 1. Material: .050 inch thick aluminum
 - 2. Concealed splice plates: 8" wide. Finish to match finish of coping cap with factory applied dual non-curing sealant strips.
 - 3. Anchor/Support Cleat: 20 ga. prepunched galvanized cleat with stainless steel spring mechanically locked to cleat normally 12" (305 mm) wide @ 6'-0" (1525 mm) on center. Mechanically fastened as indicated and detailed.
 - 4. Fasteners: #12 x 1-5/8" corrosion resistant fasteners provided with drivers. No exposed fasteners shall be permitted. Fasteners shall be electrolytically compatible.
 - 5. Size and profile: To match existing or as indicated on drawings.
 - 6. Corner Fabrication: Corners to be mitered and factory welded.
 - 7. Finish: Kynar 500 finish system from manufacturer's standard color to match existing as close as possible and approved by Owner.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck is supported and secure.
- C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, and suitable for installation of roof system.
- D. Verify deck surfaces are dry and free of snow or ice.
- E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.

3.2 INSULATION - UNDER MEMBRANE

- A. Attachment of Insulation:
 - 1. Install self-adhering vapor barrier to concrete deck in accordance with roofing manufacturer's instructions prior to installation of insulation.
 - 2. Base Layer for Fully Adhered method for roof locations as indicated on drawings: Fully adhere first layer of insulation to deck in accordance with roofing manufacturer's instructions and Factory Mutual requirements.

3. Additional Layers for Fully Adhered Method: Embed each subsequent layer of insulation in full bed of adhesive in accordance with roofing and insulation manufacturers' instructions.
4. Lay subsequent layers of insulation with joints staggered minimum 6 inch from joints of preceding layer.
5. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.
6. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
7. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.
8. At roof drains, use factory-tapered boards to slope down to roof drains over a distance of 24 inches.
9. Do not apply more insulation than can be covered with membrane in same day.

3.3 COVER BOARD INSTALLATION

- A. Fully adhere cover board to top layer of insulation where indicated on drawings, in accordance with Factory Mutual recommendations and roofing manufacturer's instructions.

3.4 MEMBRANE APPLICATION

- A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.
- B. Shingle joints on sloped substrate in direction of drainage.
- C. Fully Adhered Application: Apply adhesive to substrate at rate required by membrane manufacturer. Fully embed membrane in adhesive except in areas directly over or within 3 inches of expansion joints. Fully adhere one roll before proceeding to adjacent rolls.
- D. At intersections with vertical surfaces:
 1. Extend membrane over cant strips and up a minimum of 4 inches onto vertical surfaces.
 2. Fully adhere flexible flashing over membrane and up to nailing strips.
 3. Around roof penetrations, seal flanges and flashings with flexible flashing.
 4. Install roofing expansion joints where indicated. Make joints watertight.
 - a. Install prefabricated joint components in accordance with manufacturer's instructions.
 5. Coordinate installation of roof drains and sumps and related flashings.

3.5 FIELD QUALITY CONTROL

- A. Require site attendance of roofing material manufacturers daily during installation of the Work.

3.6 CLEANING

- A. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.
- B. Repair or replace defaced or damaged finishes caused by work of this section.

3.7 PROTECTION

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION

SECTION 07 62 00
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 SECTION INCLUDES

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

1.2 RELATED REQUIREMENTS

- A. Section 07 53 00 - Elastomeric Membrane Roofing.
- B. Section 07 92 00 - Joint Sealants: Sealing non-lap joints between sheet metal fabrications and adjacent construction.

1.3 REFERENCE STANDARDS

- A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.
- B. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012).
- C. CDA A4050 - Copper in Architecture - Handbook; current edition.
- D. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week before starting work of this section.

1.5 SUBMITTALS

- A. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.6 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

1.7 DELIVERY, STORAGE, AND HANDLING

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

PART 2 PRODUCTS

2.1 SHEET MATERIAL

- A. Basis of Design: Fry Reglet - MA Masonry Reglet and Springlok counterflashing or comparable product meeting project requirements as approved by Architect.
 - 1. Material: 0.020 inch, Type 304 stainless steel.

2.2 ACCESSORIES

- A. Fasteners: Stainless steel, with soft neoprene washers.
- B. Primer: Zinc chromate type.

- C. Protective Backing Paint: Zinc molybdate alkyd.
- D. Sealant to be Concealed in Completed Work: Non-curing butyl sealant.
- E. Sealant to be Exposed in Completed Work: ASTM C920; elastomeric sealant, 100 percent silicone with minimum movement capability of plus/minus 25 percent and recommended by manufacturer for substrates to be sealed; clear.

2.3 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest possible lengths.
- C. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- D. Form material with flat lock seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
- F. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

PART 3 EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

- A. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.3 INSTALLATION

- A. Saw cut existing mortar joint to depth required by reglet manufacturer.
- B. Insert flashings into reglets to form tight fit.
- C. Secure flashings in place using concealed fasteners.
- D. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- E. Seal metal joints watertight.
- F. Repoint mortar joint once counterflashing is installed. Wipe counterflashing clean of excess mortar.

3.4 SCHEDULE

- A. Counterflashings at Roofing Terminations (over roofing base flashings):

END OF SECTION

SECTION 07 72 00
ROOF ACCESSORIES**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Roof hatch, manual operation.

1.2 RELATED REQUIREMENTS

- A. Section 07 53 00 - Elastomeric Membrane Roofing.

1.3 REFERENCE STANDARDS**1.4 SUBMITTALS**

- A. Product Data: Manufacturer's data sheets on each product to be used.
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Maintenance requirements.
- B. Shop Drawings: Submit detailed layout developed for this project and provide dimensioned location and number for each type of roof accessory.
- C. Warranty Documentation:
 - 1. Submit manufacturer warranty.
 - 2. Ensure that forms have been completed in Owner's name and registered with manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store products under cover and elevated above grade.

1.6 WARRANTY

- A. Provide manufacturer's standard warranty.

PART 2 PRODUCTS**2.1 ROOF HATCH**

- A. Roof Hatch Manufacturers: Basis of Design; Bilco Company Type F-50TB aluminum hatch or products meeting project requirements by one of the following:
 - 1. Babcock-Davis: www.babcockdavis.com/#sle.
 - 2. Nystrom, Inc: www.nystrom.com/#sle.
- B. Roof Hatches : Factory-assembled aluminum frame and cover, complete with operating and release hardware.
 - 1. Style: Provide flat metal covers unless otherwise indicated.
 - 2. Mounting Substrate: Provide frames and curbs suitable for mounting on existing concrete roof deck.
 - 3. Thermally Broken Hatches: Provide insulation within frame and cover.
 - 4. Size: As indicated on drawings; single-leaf style unless otherwise indicated.

- C. Frames and Curbs: One-piece curb and frame with integral cap flashing to receive roof flashings; extended bottom flange to suit mounting.
 - 1. Material: Mill finished aluminum, 11 gauge, 0.0907 inch thick.
 - 2. Insulation: Manufacturer's standard; 1 inch rigid glass fiber, located on outside face of curb.
 - 3. Curb Height: 12 inches from surface of roof deck, minimum.
- D. Metal Covers: Flush, insulated, hollow metal construction.
 - 1. Capable of supporting 40 psf live load.
 - 2. Material: Mill finished aluminum; outer cover 11 gauge, 0.0907 inch thick, liner 0.04 inch thick.
 - 3. Insulation: Manufacturer's standard 1 inch rigid glass fiber.
 - 4. Gasket: Neoprene, continuous around cover perimeter.
- E. Hardware: Steel, zinc coated and chromate sealed, unless otherwise indicated or required by manufacturer.
 - 1. Lifting Mechanisms: Compression or torsion spring operator with shock absorbers that automatically opens upon release of latch; capable of lifting covers despite 10 psf load.
 - 2. Hinges: Heavy duty pintle type.
 - 3. Hold open arm with vinyl-coated handle for manual release.
 - 4. Latch: Upon closing, engage latch automatically and reset manual release.
 - 5. Manual Release: Pull handle on interior.
 - 6. Locking: Padlock hasp on interior.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using methods recommended by manufacturer for achieving acceptable results for applicable substrate under project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions, in manner that maintains roofing system weather-tight integrity.

3.4 CLEANING

- A. Clean installed work to like-new condition.

3.5 PROTECTION

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

END OF SECTION

SECTION 07 92 00
JOINT SEALANTS**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Nonsag gunnable joint sealants.
- B. Joint backings and accessories.

1.2 RELATED REQUIREMENTS

- A. Section 07 53 00 - Elastomeric Membrane Roofing: Sealants required in conjunction with roofing system.
- B. Section 07 62 00 - Sheet Metal Flashing and Trim.

1.3 REFERENCE STANDARDS

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2006 (Reapproved 2011).
- B. ASTM C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants; 2015.
- C. ASTM C834 - Standard Specification for Latex Sealants; 2010.
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.
- E. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2000 (Reapproved 2011).
- F. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.
- G. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2008 (Reapproved 2012).
- H. ASTM C1311 - Standard Specification for Solvent Release Sealants; 2010.
- I. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2002 (Reapproved 2013).
- J. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2005 (Reapproved 2010).
- K. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

1.4 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. Sample product warranty.
 - 7. Certification by manufacturer indicating that product complies with specification requirements.

- B. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- C. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- D. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.
- C. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
 - 1. Adhesion Testing: In accordance with ASTM C794.
 - 2. Compatibility Testing: In accordance with ASTM C1087.
 - 3. Allow sufficient time for testing to avoid delaying the work.
 - 4. Deliver to manufacturer sufficient samples for testing.
 - 5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
 - 6. Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.

1.6 WARRANTY

- A. Correct defective work within a five year period after Date of Substantial Completion.
- B. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Nonsag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
 - 1. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
 - 2. Dow Corning Corporation: www.dowcorning.com/construction.
 - 3. Pecora Corporation: www.pecora.com.
 - 4. Sika Corporation: www.usa-sika.com.
 - 5. R. Meadows, Inc: www.wrmeadows.com.

2.2 JOINT SEALANT APPLICATIONS

- A. Scope:
 - 1. Exterior Joints: Seal open joints, whether or not the joint is indicated on the 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. Openings below ledge angles in masonry.
- e. Other joints indicated below.
2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
 - a. Joints between door, window, and other frames and adjacent construction.
 - b. Other joints indicated below.
3. Do not seal the following types of joints.
 - a. Intentional weepholes in masonry.
 - b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
 - c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
 - d. Joints where installation of sealant is specified in another section.
 - e. Joints between suspended panel ceilings/grid and walls.
- B. Exterior Joints: Use nonsag non-staining silicone sealant, unless otherwise indicated.
 1. Lap Joints in Sheet Metal Fabrications: Butyl rubber, non-curing.
 2. Lap Joints between Manufactured Metal Panels: Butyl rubber, non-curing.
 3. Control and Expansion Joints in Concrete Paving: Self-leveling polyurethane "traffic-grade" sealant.
- C. Interior Joints: Use nonsag polyurethane sealant, unless otherwise indicated.
 1. Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
 2. Wall and Ceiling Joints in Wet Areas: Nonsag polyurethane sealant for continuous liquid immersion.
 3. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.

2.3 JOINT SEALANTS - GENERAL

- A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in South Coast Air Quality Management District (SCAQMD); Rule 1168.

2.4 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. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
 3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
 4. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
 5. Color: To be selected by Professional from manufacturer's standard range.
 6. Cure Type: Single-component, neutral moisture curing.
 7. Service Temperature Range: Minus 65 to 180 degrees F.
 8. Products:
 - a. Dow Corning Corporation; 756 SMS Building Sealant: www.dowcorning.com/construction.
 - b. Pecora Corporation; 890NST Ultra Low Modulus Architectural Silicone Sealant - Class 100: www.pecora.com.

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- c. Sika Corporation; Sikasil WS-290: www.usa-sika.com.
 - B. 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 25 percent, minimum.
 - 2. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
 - 3. Color: To be selected by Professional from manufacturer's standard range.
 - 4. Cure Type: Single-component, neutral moisture curing
 - 5. Service Temperature Range: Minus 65 to 180 degrees F.
 - 6. Products:
 - a. Dow Corning Corporation; 758 Silicone Weather Barrier Sealant: www.dowcorning.com/construction.
 - b. Pecora Corporation; Pecora AVB Silicone: www.pecora.com.
 - c. Sika Corporation; Sikasil GP: www.usa-sika.com.
 - C. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multicomponent; not expected to withstand continuous water immersion or traffic.
 - 1. Movement Capability: Plus and minus 25 percent, minimum.
 - 2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
 - 3. Color: To be selected by Professional from manufacturer's standard range.
 - 4. Service Temperature Range: Minus 40 to 180 degrees F.
 - 5. Products:
 - a. Pecora Corporation; DynaTrol I-XL General Purpose One Part Polyurethane Sealant: www.pecora.com.
 - b. Sika Corporation; Sikaflex-1a: www.usa-sika.com.
 - c. R. MEADOWS, Inc.; POURTHANE NS: www.wrmeadows.com.
 - D. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
 - 1. Color: To be selected by Professional from manufacturer's standard range.
 - 2. Grade: ASTM C834; Grade - Minus 18 Degrees C.
 - 3. Products:
 - a. Pecora Corporation; AC-20 + Silicone Acrylic Latex Caulking Compound: www.pecora.com.
 - E. Butyl Sealant: Solvent-based; ASTM C1311; single component, nonsag; not expected to withstand continuous water immersion or traffic.
 - 1. Hardness Range: 10 to 30, Shore A, when tested in accordance with ASTM C661.
 - 2. Color: To be selected by Professional from manufacturer's standard range.
 - 3. Service Temperature Range: Minus 13 to 180 degrees F.
 - F. Non-Curing Butyl Sealant: Solvent-based; ASTM C1311; single component, nonsag,
 - 1. non-skinning, non-hardening, non-bleeding; vapor-impermeable; intended for fully concealed applications.

2.5 **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.
 - 1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.

2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
 3. Open Cell: 40 to 50 percent larger in diameter than joint width.
 4. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.

PART 3 EXECUTION

3.1 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.

3.2 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.
- E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in inconspicuous area to verify that it does not stain or discolor slab.

3.3 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.
- H. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

END OF SECTION

SECTION 22 10 06
PLUMBING PIPING SPECIALTIES**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Roof drains.

1.2 RELATED REQUIREMENTS

- A. Division 07 53 00 - Elastomeric Membrane Roofing.

1.3 REFERENCE STANDARDS

- A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.
- B. ASME A112.6.4 - Roof, Deck, and Balcony Drains; 2003.

1.4 SUBMITTALS

- A. Listed manufacturers and series are for reference only and do not promote any single product. Series are provided for reference and should not be used as an ordering model number. Accessories and options may be custom components purchased separately.
- B. Product Data: Provide manufacturer's most current catalog data sheet for equipment indicating rough-in size, finish, and accessories. Manufacturer's data sheets on each item of equipment and device, shall be clearly marked up to identify the items, accessories and options to be used on the project.
 - 1. Provide component sizes, rough-in requirements, service sizes, and finishes. Indicate dimensions, weights, and placement of openings and holes.
 - 2. Indicate Manufacturer's Installation Instructions: Indicate assembly and support requirements.
 - 3. Roof Drains. (22 10 06 - 001 -A)
- C. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views.

PART 2 PRODUCTS**2.1 ROOF DRAINS**

- A. Roof Drains:
 - 1. Assembly: ASME A112.6.4.
 - 2. Body: Lacquered cast iron with sump with deck clamp.
 - 3. Strainer: Removable polyethylene dome with vandal proof screws.
 - 4. Accessories: Coordinate with roofing type, refer to Division 07:
 - a. Under deck clamp.
 - b. Drain receiver.
 - 5. Size: To match existing drain indicated to be replaced, field verify.
 - 6. Manufacturers:
 - a. Jay R. Smith Manufacturing Company; Series 1015: www.jrsmith.com/#sle.
 - b. OMG Roofing Products: www.omgroofing.com/#sle.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install in accordance with the following:
 - 1. Federal, State and Local Codes.
 - 2. 36 CFR 1191
 - 3. NSF 61
- B. Roof Drains:
 - 1. Install roof drain within roofing system. Refer to Division 075300 - Elastomeric Membrane Roofing for roof systems.

END OF SECTION