

SECTION 07220 – ROOF AND DECK INSULATION BOARDS AND ASSOCIATED ACCESSORIES

1.1 SECTION INCLUDES: Rigid roof insulation, vapor retarder, fasteners.

- A. INSULATION: Material and manufacturer acceptable and responsible to Roofing Membrane manufacturer for compatibility with total roofing systems; rigid board units not over **48" x 48"** size, used in a combination with a minimum of two (2) layer installation system with taper shown or as noted. Maximum thickness of any flat polyisocyanurate roof insulation board to be 1.5" thick, maximum (unless otherwise specified). Maximum thickness of any tapered polyisocyanurate roof insulation board to be 2.5" thick, maximum.
- B. VAPOR BARRIER: Install one layer of specified vapor barrier (see Section 07541) over the top of the prepared roof deck, prior to installation of the new roof insulation. Seal off all penetrations and perimeter with approved vapor barrier tape to insure vapor and air seal. Tape all laps of vapor barrier with approved tape.
- C. TAPERED EDGE: 1½ " x 18" tapered edge strip (**at roof drains, etc.**), ½" x 6" tapered edge strip at start of taper system.
- D. INSULATION PLATES - 3 inch square or round, stamping of SAE 1010 steel with an AZ 55 Galvalume coating:
 - 1. Sarnafil - Sarnaplate-HD/CD
 - 2. FiberTite - #330 FTR Insulation Plate
- E. INSULATION FASTENERS - A #14 (minimum) corrosion-resistant fastener with a buttress thread, used with insulation plates to attach insulation boards to steel or wood roof decks.
 - 1. Sarnafil - Sarnafastener-HD
 - 2. FiberTite - FTR #14 Fastener
- F. FASTENING REQUIREMENTS - Fasten at a minimum rate of one fastener every two (2) square feet **or** as required to meet Factory Mutual (FM) I-90 and Bulletin 1-28s wind requirements, **whichever is more stringent**. Comply with additional fastening requirements at perimeter and corners per FM Bulletin 1-28s.
- G. GYPSUM/TECTUM DECK AREAS: Roofing Nails: Galvanized or non-ferrous type, size as required to suit application. Base sheet fasteners over gypsum/tectum roof deck to be **ES** FM-90 or **ES** Nail-Tite® Type R fasteners with 1.7" (minimum) diameter integral plate, and as approved by the Thermoplastic Roof Membrane Manufacturer.

END OF SECTION 07220

SECTION 07720 – ROOF ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES:

- A. Retrofit Roof Drains.

1.2 RELATED SECTIONS

- A. Section 02072: Minor Demolition and Renovation Work
- B. Section 07221: Insulation.
- C. Section 07541: Adhered thermoplastic membrane roofing.

1.3 REFERENCES

- A. ULC/ORD C790.4-1996 Roof Drains.
- B. Underwriters' Laboratories, Inc. (UL):
 - 1. UL94 Specification for flammability of materials.
- C. National Plumbing Code.
- D. Manufactured under ISO 9002 Quality Standard

1.4 SYSTEM DESCRIPTION

- A. Replacement Roof Drain System: spun aluminum roof drain system with Cast Aluminum Strainer Dome, Cast Aluminum Clamping Ring and Connection Seal for roof top drain replacement to interface with Section 07541.

1.5 SUBMITTALS

- A. Submit drain manufacturer's product data and rain water leader seal connection instructions under provisions of Division One.
- B. Submit roof membrane manufacturer's accepted drain flashing detail and any necessary shop drawings under provisions of Division One.
- C. Prior to the commencement of any work, test all roof rain water leaders and verify that they do not leak and are functional. Any rain water leaders found to be nonfunctional must be clearly identified so that the owner can make necessary repairs prior to installing the new roof assembly. Testing shall be done by the contractor.
- D. For accurate sizing of new retrofit drain installation include an inside diameter of all existing rain water leaders, and depth measurement to the top of any elbow immediately under the roof deck and the exact location of each drain.

LPS Roof Specifications

- E. After completion of the installation of the retrofit roof drains and subsequent membrane flashing, submit written documentation that the Compression Seals of the retrofit roof drain assemblies have been checked, are fully expanded, and new retrofit roof drain assemblies have been installed in full compliance with the manufacturer's installation recommendations and specifications. Include the manufacturer's model number, diameter and exact location of each newly installed retrofit roof drain assembly in submitted documentation.
- F. After completing the installation of the new roof assembly again test all rain water leaders in the presence of the Architect. At this time any damaged drains or clogged rain water leaders should be repaired, replaced or cleared at no cost to the owner. Submit written documentation that all drains are complete and fully functional.

1.6 QUALITY ASSURANCE

- A. Applicator: Company specializing in roofing and/or plumbing.
- B. Independent Inspector: Appointed by owner.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver products to site under provisions of Division One.
- B. Store and protect products under provisions of Division One.

1.8 WARRANTY

- A. As per the manufacturers' warranty.

PART 2 PRODUCTS

2.1 DESCRIPTION

- A. Retrofit type roof drains: Prefabricated units of sizes and design to permit solderless insertion into existing drain pipes, and comprised of a one piece seamless spun aluminum Drain Body with six aluminum studs welded for the attachment of a cast aluminum Clamping Ring, a cast Aluminum Strainer Dome and long lasting EPDM Compression Seal for water tight connection between the inserted Drain Body and the existing drain pipe/leader. Provide manufacturer recommended long square head screwdriver for installation. Drain Body may be shortened by cutting the aluminum drain stem prior to installing the seal connection. The outside diameter of the new retrofit roof drain assembly shall conform to the manufacturer's installation recommendations relevant to the inside diameter of the existing drain pipe.

2.2 MANUFACTURER

- A. Sarnafil - Sarnafil - Sarnadrain-RAC
- B. FiberTite - U-Flow Aluminum Hercules Drain

2.3 MATERIALS

- A. Spun aluminum Drain Body manufactured in series 1100 alloy. Minimum flange diameter 445 mm (17.5"), drain outside diameter sizes: 69.90 mm (2.75"), 94.70 mm (3.73"), 120.60 mm (4.75") and 142.50 mm (5.61"). Sump area provided 6.35 mm (0.250") deep and 275.59 mm (10.85") in diameter. Provided pipe stem height from top surface of flange 304.80 mm (12") (not including the seal dimension). Thickness of drain pipe and flange material 3.175 mm (0.125").
 - 1. Brinell Hardness: 23
 - 2. Tensile Strength at Yield: ASTM D638 103.42 MPa (15,000 psi) min.
 - 3. Yield Strength: ASTM D790 34.47 MPa (5,000 psi) min.
 - 4. Ultimate Elongation: D412 32.5%.
- B. Mechanical compressible Seal Gasket complying with the following specifications:
 - 1. Hardness: ASTM D2240 75A durometer.
 - 2. Tensile Strength: D412 6.20 MPa (900 psi).
 - 3. Ultimate Elongation: D412 275%.
- C. Cast Aluminum Clamping Ring, with a maximum outside diameter of 262.69 mm (10.35") and a minimum inside diameter of 144.78 mm (5.70"), with an integral gravel stop 25.4 mm (1.0") high. Clamping Ring has 15 tapered "V" shaped perimeter openings to facilitate drainage. Clamping Ring is secured to the Drain Body by means of securing stainless steel self locking Hex head nuts to the welded drain studs.
- D. Cast Aluminum Strainer Dome 248 mm (9.77") diameter 191 mm (7.5") high, externally fastened by means of 3 stainless steel screws fastened into the provided Clamping Ring tapped screw holes. Strainer Dome complies with National Plumbing Code requirements.
- E. U-Flow Seal: EPDM and Nylon seal with stainless steel screws.

2.4 ACCESSORIES

- A. Screwdriver: 450 mm (18") long square head (#2 Robertson) with anti-loss cord for installation.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Prior to the commencement of any work, the contractor shall test all rain water leaders. Any rain water leaders found to be non functional must be clearly identified by the contractor so that the owner can make necessary repairs prior to the installing of the new roof assembly. Testing shall be done by the contractor.
- B. Verify that roof system is installed in accordance with Section 07525.
- C. Verify sizing of existing plumbing system relevant to the outside diameter of the retrofit drains to be installed. Include an accurate inside diameter of the existing rain water leader, and depth measurement to the top of any elbow immediately under the roof deck and the exact location of each drain.
- D. Verify that insulation slopes to drain providing a sump to eliminate ponding.

3.2 PREPARATION

- A. Remove any components of the existing drain which prevent the retrofit drain flange from sitting flush with the roof membrane.

3.3 INSTALLATION

- A. Insert retrofit Drain Body down into the existing drain pipe until the retrofit drain flange is flush with roof membrane. If the Drain Body is too long it, may be shortened by cutting the aluminum drain stem prior to installing the seal connection. Tighten the compression screws on the seal using the U-Flow Screwdriver. The screws should be hand tight.
- B. Prior to flashing the drain, fasten the drain with 4 evenly spaced pan head fasteners to a secure substrate. The substrate shall be secured in a manner to resist 1000 lbs. in vertical uplift. Flash flange around vertical Drain Body welded studs as per roof membrane manufacturer's flashing requirements. Use the U-Flow hole puncher tool to make neat membrane penetrations for the drain studs.
- C. Place Clamping Ring over raised studs. Install stainless steel self locking nuts to tighten Clamping Ring against membrane flashing until secure.
- D. Place the cast Aluminum Strainer Dome onto Clamping Ring and secure the Strainer Dome to the Clamping Ring with screws provided.

END OF SECTION 07720