

SECTION 07220
ROOF INSULATION

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Inspect the deck to be sure it is dry, sound and clean of all dirt dust and debris. Replace drains with new cast iron drains and drain strainers.
- B. Mechanically fasten polyisocyanurate insulation to the deck. Rigid insulation is to be attached to the deck using fastening patterns specified in wind uplift calculations. Tapered insulation is needed to establish a **minimum ¼:12 slope** over the roof area.
- C. Install crickets as needed to navigate the equipment curbs and rails. The subsequent layers of tapered insulation including the crickets will be mechanically fastened.
- D. One layer of 3/8" Secure Rock or ½" primed DensDeck shall be mechanically fastened with the insulation to the deck. Stagger all joints in both directions.
- E. Provide all labor, equipment, and materials to install roof insulation over the properly prepared substrate.

1.2 RELATED SECTIONS

- A. Drawing and general provisions of the Contract, including General Supplementary Conditions Apply to this Section.
- B. RELATED SECTIONS
 - 1. Section 07550 - Modified Bitumen Roofing
 - 2. Section 07720 - Roof Accessories

1.3 SUBMITTALS

- A. Product Data: Provide manufacturer's specification data sheets for each product in accordance with General Conditions.
- B. Certification
 - 1. Submit roof manufacturer's certification that insulation furnished is acceptable to roofing manufacturer as a component of roofing system and is eligible for roof manufacturer's system warranty.
 - 2. Submit certification that insulation and fastening system furnished is Tested and Approved by Factory Mutual for I-90 Wind Up-Lift Requirements.

1.4 QUALITY ASSURANCE

- A. Fire Classification

It is the intent of this specification to provide a roof system with a Class A fire rating. The descriptions given below are general descriptions. The insulation, recovery board, and other components shall be as required by the membrane manufacturer to provide a Class A fire resistance rating.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original, unopened containers or packages with labels intact and legible.
- B. Store all insulation materials in manner to protect them from the wind, sun, and moisture damage prior to and during installation. Any insulation that has been exposed to any moisture shall be removed from the project site.
- C. Keep materials enclosed in a watertight, ventilated enclosure (i.e. tarpaulins)
- D. Store materials off the ground. Any warped or broken insulation boards shall be removed from the site.

PART 2 - PRODUCTS

2.1 APPROVED EQUIVALENT

- A. Contractor must submit any product not specified a minimum five days before the bid date to Owner in order for product to be considered for approval. The Owner will notify Contractor, in writing, of decision to accept or reject request.

2.2 INSULATION MATERIALS

- A. Provide thicknesses of insulation as indicated, provide combination of types and thicknesses to provide a complete system.

1. POLYISOCYANURATE ROOF INSULATION

- a. Qualities: Factory Tapered, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers.
- b. Insulation board shall meet the following requirements
 - 1. UL, WH or FM listed under Roofing Systems
 - 2. Federal Specification HH-I-1972, Class 1
- c. Physical Properties

Dimensional Stability	ASTM D2126	2% max.
Compressive Strength	ASTM D1621	25 psi min.
Vapor Permeability	ASTM E-96	1 perm max.
Foam Core Density	ASTM D-1622	2.0 pcf min.
Water Absorption	ASTM C209	<1%
R-Factor HR per inch		
Thickness	ASTM C518	5.6 (Design Value)

2. RECOVERY BOARD

- a. Qualities: Impact resistant, nonstructural fiber-reinforced gypsum panels.

1. Board Size: 4'x4'.
2. Thickness: Minimum ½".
- b. Source
 1. SecureRock, USG Corp.
 2. DensDeck
- c. Insulation board shall meet the following requirements
 1. UL, WH, FM listed under Roofing Systems.
 2. Federal Specification LLL-I-535-B

2.3 RELATED MATERIALS

- A. Fiber Cant and Tapered Edge Strips: Performed rigid insulation units of sizes/shapes indicated, matching insulation board or of perlite or organic fiberboard, as per the approved manufacturer.
 1. Acceptable Manufacturers
 - a. Celotex
 - b. International Permalite, Inc.
 - c. Approved Equivalent

PART 3 - EXECUTION

3.1. INSPECTION OF SURFACES

- A. Roofing contractor shall be responsible for preparing and adequate substrate to receive insulation.
 1. Verify that work which penetrates roof deck has been completed.
 2. Verify that wood nailers are properly and securely installed.
 3. Examine surfaces for defects, rough spots, ridges, depressions, foreign material, moisture, and unevenness.
 4. Do not proceed until defects are corrected.
 5. Do not apply insulation until substrate is sufficiently dry.
 6. Broom clean substrate immediately prior to application.
 7. Use additional insulation to fill depressions and low spots that would otherwise cause ponding water.
 8. Verify that temporary roof has been completed.

3.3 CLEANING

- A. Remove debris and cartons from roof deck. Leave insulation clean and dry, ready to receive roofing membrane.

END OF SECTION