



# School District of Indian River County

## **Purchasing Department**

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Date: March 1, 2019  
To: All Participants  
From: Jeff Carver, CPPO, Director of Purchasing  
Re: ADDENDUM 3 SDIRC 10-0-2019/JC ITB Single Point of Entry: Elementary School

### **ADDENDUM 3**

The School District of Indian River County has issued this addendum to provide specifications for roof insulation in lieu of lightweight concrete system.

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Signature of Respondent

Date

**\*Failure to include this signed addendum with your submittal may result in disqualification.**

## **SECTION 07 23 00**

### **ROOF INSULATION**

#### **PART 1 GENERAL**

##### **1.1 SECTION INCLUDES**

- A. Applications of foam board roof insulation, crickets/saddles, cover board, and deck board.

##### **1.2 RELATED SECTIONS**

- A. Section 075419-Thermoplastic Membrane Roofing.
- B. Section 075555-Modified Bitumen Roofing.
- C. Section 076200-Flashing and Sheet Metal.

##### **1.3 REFERENCES**

- A. ANSI Standard SI2.60-Acoustical Performance Criteria, Design Requirements and Guidelines for Schools.
- B. ASTM C 518-Standard Test Method for Steady-State Thermal Transmission Properties by Means of Heat Flow Meter Apparatus.
- C. ASTM C 1177/C1177M-Glass Mat Gypsum Substrate for Use as Sheathing.
- D. ASTM C 1289-Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
- E. ASTM D 41-Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
- F. ASTM D 312-Standard Specification for Asphalt Used in Roofing.
- G. ASTM D 1621-Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
- H. ASTM D 3273-Resistance to Growth of Mold on the surface of Interior Coating on an Environmental Chamber.
- I. ASTM E 84-Standard Test Method for Surface Burning Characteristics of Burning Materials.
- J. Florida Building Code (FBC).
- K. GREENGUARD Product Emission Standard for Children & Schools.
- L. International Organization for Standardization (ISO) 14021 – 1999; Environmental Labels and Declarations

- M. NRCA-National Roofing Contractors Association Roofing and Waterproofing Manual.
- N. Standard Practice for The Testing Of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda. California Department of Health Services.
- O. Underwriters Laboratory, Inc. (UL): Fire Hazard Classification Rating.

#### **1.4 SUBMITTALS**

- A. Manufacturer's Data: Submit manufacturer's specifications and installation instructions for roof insulation and required fasteners. Include data substantiating that materials comply with specified requirements.
  - 1. Low Emitting Materials.
    - (a) Submit manufacturer's Material Safety Data Sheet Indicating VOC limits of all products.
    - (b) Submit manufacturer's certification that all products comply with Standard Practice for The Testing Of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda. California Department of Health Services or GREENGUARD Product Emission Standard for Children & Schools.
  - 2. Recycled Content:
    - (a) Indicate recycled content; indicate percentage of pre-consumer and post-consumer recycled content per unit of product.
    - (b) Indicate relative dollar value of recycled content product to total dollar value of product included in project.
    - (c) If recycled content product is part of an assembly, indicate the percentage of recycled content product in the assembly by weight.
    - (d) If recycled content product is part of an assembly, indicate relative dollar value of recycled content product to total dollar value of assembly.

#### **1.5 QUALITY ASSURANCE**

- A. Fire Ratings: Comply with Florida Building Code and Florida Fire Prevention Code for required fire resistance.
- B. Thermal Conductivity: Provide thickness required to produce the average R-Value specified. The thickness specified is for the thermal conductivity, k-value at 75 degrees Fahrenheit. Provide adjusted thickness as directed for the equivalent use of material having a different thermal conductivity.
- C. Roof Slopes at the membrane level for all roof surfaces:
  - 1. New Construction: Ensure not less than 1/4 inch per foot.
  - 2. Re-Roofing Existing: Ensure not less than 1/8 inch per foot and confirm code compliance with SBBC Building Department.
  - 3. Slope Verification (new or existing): After installation of "dry-in" membrane, Contractor shall employ the services of a licensed Land Surveyor, registered in the State of Florida, to verify that decks with insulation possess a minimum slope as required above.
    - (a) At areas of concrete deck that do not have the minimum required slope, Contractor shall add insulation as required to achieve the required slope.

- (b) Re-Roofing: Add insulation on a Unit Price basis, as required to maintain the required slope, if this work was not indicated to be included in the lump sum bid.
- 4. Secure Owners approval for special conditions where the above required slopes can not be provided.
- 5. Contractor shall also address areas of ponding in the same manner as above.

## **1.6 DELIVERY, STORAGE, and HANDLING**

- A. Protection from Deterioration: Do not allow insulation materials to become wet or soiled.
- B. Comply with manufacturer's recommendations for handling, storage and protection during installation.

## **1.7 PROJECT CONDITIONS**

- A. Examination of Substrate: Examine the substrate and the conditions under which the insulation work is to be performed. Do not proceed with the insulation work until unsatisfactory conditions have been corrected.

## **1.8 SPECIAL WARRANTIES**

- A. Total System Warranty by manufacturer: Provide manufacturer's Non-Pro Rated 20-year written full warranty, NDL (No Dollar Limit), with a wind rider up to winds equal to the design wind speeds required by the Florida Building Code, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within the specified warranty period. Failure includes roof leaks. The warranty shall be a term type, with no conditions, exclusions, including exclusions of remedies by the Owner, deductibles or limitations on coverage amount. Any conditions, exclusions, or limits proposed by the manufacturer must be approved by the Project Consultant and Owner in writing.
  - 1. Roofing System includes, but is not limited to: Roofing membranes (base, inter, and cap plies as applicable), roof insulation (foam and LWIC including EPS board), fasteners, cover and deck boards, accessories, flashing and sheet metal, grounds/nailers, gutters and downspouts, scuttles and vents, curbs, and other components of roofing system.
- B. Total System Warranty by installer: Provide installer's 5-year warranty, in which installer agrees to repair or replace components of roofing system that fail in materials or workmanship with the specified warranty period. Failure includes roof leaks. The warranty shall be a term type, with no conditions, exclusions, exclusions of remedies by the Owner, deductibles or limitations on coverage amount. Any conditions, exclusions, or limits proposed by the installer must be approved by the Project Consultant and Owner in writing. Each Installer shall list which roof system component(s) are covered by them.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- A. Toxicity/IEQ: All roof insulation products are to comply with Standard Practice for The Testing Of Volatile Organic Emissions from Various Sources Using Small-Scale

Environmental Chambers, including 2004 Addenda. California Department of Health Services or GREENGUARD Product Emission Standard for Children & Schools.

## 2.2 POLYISOCYANURATE INSULATION

- A. Polyisocyanurate Board Insulation: Insulation consisting of a rigid polyisocyanurate foam complying with the following requirements:
1. Type II, felt or glass-fiber mat facer on both sides.
  2. Aged R-value at 75 Degrees Fahrenheit mean temperature: **R-25** average for the roof deck. R-value must comply with ASTM C 518 and FBC.
  3. Compressive Strength: 25 psi minimum under provisions of ASTM D1621.
  4. Flame Spread: 25 or less under provisions of ASTM E84.
  5. Environmental Requirements: Provide insulation that is ozone-safe, have hydrocarbon (HC) blowing agents, shall be CFC and HCFC free, and complying with ASTM C 1289.
- B. Sizes: Provide manufacturer's standard maximum lengths and widths. Provide in thickness to provide a minimum R-value noted herein.
- C. Slopes: Provide tapered and flat board insulation at low-slope applications as necessary to provide specified roof slopes.
- D. Manufacturers: Subject to compliance with the specified requirements, provide products by one of the following manufacturers:
1. Atlas Roofing Corporation.
  2. Dow Chemical Company.
  3. Firestone.
  4. GAF Materials Corp.
  5. Johns Manville.
  6. Rmax Inc.
  7. Substitutions: Will be considered by the A/E and Owner when submitted per requirements of Division-0, Division-1, and Section 01630-Product Substitution Procedures.

## 2.3 COVER BOARD and DECK BOARD

- A. Follow asphalt manufacturer's recommendations when using these boards.
- B. A non-structural glass mat faced, noncombustible, nonstructural, moisture resistant, treated gypsum core roof panel, comply with ASTM C 1177/C1177M.
1. Subject to compliance with the specified requirements, provide products by one of the following manufacturer: Acceptable Manufacturer: Georgia-Pacific; Product: DensDeck Prime Roof Boards.
- C. A multiply, semi-rigid asphaltic roofing substrate board composed of a mineral fortified asphaltic core formed between two asphaltic saturated fiberglass liners.
1. Subject to compliance with the specified requirements, provide products by one of the following manufacturer: Acceptable Manufacturer: Soprema; Product: Sopraboard.
- D. An impact-resistant, nonstructural, specially engineered gypsum and cellulose fiber board with 95 percent recycled content. Uniform water-resistance throughout core and surface. Subject to compliance with the specified requirements, provide products by one of the following manufacturers: Flame spread 5, smoke developed 0

when tested in compliance with ASTM E 84. Mold resistance "a perfect 10" when tested in compliance with ASTM D 3273.

1. Subject to compliance with the specified requirements, provide products by one of the following manufacturer: Acceptable Manufacturer: USG Corporation; Product: Securock Roof Board.
- E. Thickness: Deck Board shall not be less than 1/4 inch and Cover Board shall not less than 5/8 inch.

## **2.4 INSULATION ACCESSORIES**

- A. Mechanical Fasteners: Factory-coated steel fasteners and metal or plastic, corrosion-resistant, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer, comply with current Miami-Dade County Protocols and Product Acceptance Approvals (NOAs).
- B. Cold Fluid-Applied Adhesive: Manufacturer's standard formulated to adhere roof insulation to substrate, comply with current Miami-Dade County Protocols and Product Acceptance Approvals (NOAs).
- C. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drains. Fabricate to slopes indicated.
- D. Blocking and Grounds: Refer to Section 07600-Flashing and Sheet Metal.

## **PART 3 EXECUTION**

### **3.1 REMOVALS**

- A. Structural Concrete Decks: Remove completely all existing roof membranes and insulation materials to structural decks and provide a uniform surface for application of insulation.

### **3.2 EXAMINATION OF SURFACES**

- A. Verify decks and insulation are dry and free of moisture of any form.
1. Verify proper placement of roof drains and other penetrations.
  2. Verify proper securement of penetrating or roof mounted equipment.
- B. Inspect roof perimeters, edges, penetrations and transitions to vertical surfaces to ensure that blocking and grounds have been installed where appropriate and have been secured to comply with design up-lift pressures.

### **3.3 PREPARATION**

- A. Verify that work done by other trades meet the following requirements:
1. Roof curbs, blocking and grounds, equipment supports, vents and other items penetrating the roof are properly attached to substrate and otherwise properly prepared.
  2. Concrete surfaces are properly primed and free of fines, edges and voids.

### **3.4 INSTALLATION**

- A. Comply with manufacturer's written instructions and current Miami-Dade County Protocols and Product Acceptance Approvals (NOAs) for the particular conditions of installation in each case including method of anchorage to the substrate as appropriate for the application indicated. Boards shall be anchored to substrate to withstand the design pressures shown on the Contract Documents. If printed instructions are not available, or do not apply to the project conditions, consult the manufacturer's technical representative for specific recommendations before proceeding with the Work.
- B. Extend insulation full thickness as shown over entire surface to be insulated. Cut and fit tightly around obstructions and fill voids with insulation.
- C. Apply a single layer of insulation of the thickness indicated, or the required thickness for the thermal value indicated, unless otherwise shown or required to make up the total thickness.
- D. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- E. Install tapered insulation under area of roofing to conform to slopes indicated.
- F. Where multiple layers occur, stagger joints of each succeeding layer from joints of previous layer a minimum of 6 inches in each direction.
- G. Installation System Description:
  - 1. Insulation Board: Mechanically fasten to structural concrete decks, mechanically fasten through metal decks, or use cold adhesive; comply with Florida Building Code (FBC) High Velocity Hurricane Zones (HVHZ) Protocols and required product Notice of Acceptance (NOA).
  - 2. Cover/Deck Board: Mechanically fasten to structural concrete decks, mechanically fasten through metal decks, or use cold adhesive, or foam adhesive; comply with FBC HVHZ Protocols and required product Notice of Acceptance (NOA).
  - 3. Deck Board: Install over metal deck with ends/edges fully supported on top of flutes running into the edge.
- H. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:
  - 1. Set each layer of insulation in a cold adhesive, foam adhesive; comply with FBC HVHZ Protocols and required product Notice of Acceptance (NOA).
- I. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
  - 1. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof; comply with FBC HVHZ Protocols and required product Notice of Acceptance (NOA).
- J. Mechanically Fastened and Adhered Insulation: Install each layer of insulation and secure first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
  - 1. Mechanically fasten or adhere first layer of insulation to resist uplift pressure at corners, perimeter, and field of roof; comply with FBC HVHZ Protocols and required product Notice of Acceptance (NOA).

2. Install subsequent layers of insulation in a cold adhesive or foam adhesive; comply with FBC HVHZ Protocols and required product Notice of Acceptance (NOA).
- K. Install cover board over insulation with long joints in continuous straight lines with end joints staggered between rows. Loosely butt cover boards together and fasten to roof deck.
1. Fasten to resist uplift pressures at corners, perimeter, and field of roof; comply with FBC HVHZ Protocols and required product Notice of Acceptance (NOA).

**3.5 CLEANING**

- A. Remove all trash and debris from roof insulation surface prior to the application of the roofing membrane.

**END OF SECTION**