

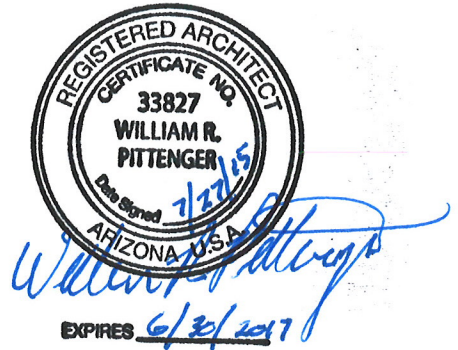
July 27, 2015

From: SPS+ Architects
8681 East Via de Negocio
Scottsdale, AZ 85258-3330

To: All Bidders, Suppliers and Other Interested Parties

Subject: **ADDENDUM NO. 3**

Project: GANADO UNIFIED SCHOOL DISTRICT 20
GANADO HIGH SCHOOL NEW ROOFING
SPS+ ARCHITECTS PROJECT NO. 1409A
BID #: IFB-16-27-16



Bid Date: Bids will be received until 1:00 P.M., Local time Thursday August 6, 2015 at the Business Office of Ganado Unified School District 20

With reference to the Plans and Specifications for the above-designated project, which are in your possession for the purpose of preparing a Proposal, please note the following information, all of which is hereby made a part of the Contract Documents. This addendum supersedes all previous information.

GENERAL:

Item 1. Base Bids & Alternates:

- A. Bids are being reorganized into four base bids. The only difference between the respective base bids is the APP roofing specification section. They are otherwise identical including the Additive Alternates.
- B. The District will select Base Bid #1, #2, #3 or #4 based upon consideration of Owner budget. Award will be based upon lowest responsible and responsive bid per Base Bid #1, #2, #3 or #4 and any combination of Additive Alternates as selected by Owner.
- C. Prime Contractors submitting bids must bid on at least one of the four base bids and may bid up to all four.
- D. Base Bid #1 = Base Bid as identified per plans and specifications including APP Roofing specification section 07 5213 and Additive Alternates #1, 2, 3, 4, 6, 7, 8 & 9.
- E. Base Bid #2 = Base Bid as identified per plans and specifications including APP Roofing specification section 07 5214 and Additive Alternates #1, 2, 3, 4, 6, 7, 8 & 9.
- F. Base Bid #3 = Base Bid as identified per plans and specifications including APP Roofing specification section 07 5215 and Additive Alternates #1, 2, 3, 4, 6, 7, 8 & 9.
- G. Base Bid #4 = Base Bid as identified per plans and specifications including APP Roofing specification section 07 5216 and Additive Alternates #1, 2, 3, 4, 6, 7, 8 & 9.

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GANADO HIGH SCHOOL NEW ROOFING
SPS+ Architects Project No. 1409A
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H. Additive Alternate #5 is 'not used'.

Item 2. Prior Approval Substitution Requests:

- A. In addition to requirements outlined in Section 01000 paragraph 4.0.B, the following shall apply: Roofing system substitution requests for either Base Bid 1, 2, 3 or 4 must include a list of fifteen (15) roofs of same manufacturer and specification installed and located in the Phoenix metropolitan area and/or northern Arizona. Provide date of installation and exact location of all fifteen (15) roofs with substitution request.
- B. Please indicate appropriate roofing Section # on the Substitution Request Form for roofing section requesting prior approval for. See Section 00 2000.

SPECIFICATION:

Item 1. Section 00 3100 – Bid Form:

- A. Replace Section per attachment.

Item 2. Section 00 4200 – Subcontractor Listing:

- A. Replace Section per attachment.

Item 3. Section 01 0100 – Summary of Work:

- A. Revise Paragraph 1.05.A.1.j to read: "Install new roofing system as specified on existing deck – Base Bids #1, #2, #3 or #4 APP roofing as specified per Sections 075213, 075214, 075215 & 075216 on tapered insulation, where occurs, matching existing thickness and profile on 2" rigid over roof deck."
- B. Revise Paragraph 1.05.A.1.u to read: "Additive Alternate #5: Not Used."

Item 4. Section 01 0300 – Additive Alternate Bids:

- A. Replace Section per attachment.

Item 5. Section 07 5213 – (APP) Modified Bituminous Membrane Roof System:

- A. Replace Section per attachment.

Item 6. Section 07 5214 – (APP) Modified Bituminous Membrane Roof System:

- A. Replace Section per attachment.

Item 7. Section 07 5215 – (APP) Modified Bituminous Membrane Roof System:

- A. Add Section per attachment.

Item 8. Section 07 5216 – (APP) Modified Bituminous Membrane Roof System:

- A. Add Section per attachment.

DRAWINGS:

Item 1. Sheet T1:

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A. 'ADDITIVE BIDS': Revise ADDITIVE ALTERNATE No. 5 to read, "NOT USED".

Item 2. Sheets A102, A103, A104, A105 & A106:

- A. 'ROOFING LEGEND', Item APP: Delete sentence "Also see Additive Bid #5" and replace with "Refer to Base Bids #1, #2, #3 & #4."
- B. 'ROOFING GENERAL NOTES', note #1, paragraph 2: Revise to read, "NEW ROOFING SYSTEM AS SPECIFIED PER BASE BIDS #1, #2, #3 OR #4 AS SELECTED BY OWNER."

PRIOR APPROVALS

The following listed manufacturers have met the requirements for prior approved submission, and their products have been deemed as equal to and/or in close compliance with those specified. Approval of manufacturers other than those originally specified does not relieve the listed manufacturer of responsibility for complete compliance to Drawings and Specifications, including the technical characteristics of all components and systems, the weight and space requirements, utility requirements and aesthetic appearance. Furthermore, in a system's configuration, all components shall be of one manufacturer and not made up of different approved subcomponents. Approvals for the following manufacturers' products does not relieve the supplier of full compliance with all requirements of the substitution provisions of the Instructions to Bidders. No additional costs will be granted due to modifications, etc., which may be required to accommodate the listed products.

A. **Sheet A105** Roof Coating,
key note no. 4

Polybrite 70

ATTACHMENTS:

- 1. Section 00 3100 Bid Form
- 2. Section 00 4200 Subcontractor Listing
- 3. Section 01 0300 Additive Alternate Bids
- 4. Section 07 5213 (APP) Modified Bituminous Membrane Roof System
- 5. Section 07 5214 (APP) Modified Bituminous Membrane Roof System
- 6. Section 07 5215 (APP) Modified Bituminous Membrane Roof System
- 7. Section 07 5216 (APP) Modified Bituminous Membrane Roof System

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM NO. 3 IN THE SPACE PROVIDED ON THE BID FORM.

- END -

[1409A]

TO: Governing Board
Ganado Unified School District No. 20
Attention: William Allsbrooks, Superintendent

BIDDING LOCATION: Ganado Unified School District
Ganado Procurement and Development
Ganado, Arizona

BIDDING DATE: 1:00 P.M., Local Time, August 6th, 2015

1. Pursuant to and in compliance with the Invitation to Bid, Instructions to Bidders and Contract Documents relating to the construction of:

**GANADO HIGH SCHOOL
NEW ROOFING PROJECT
GANADO UNIFIED SCHOOL DISTRICT NO. 20
BID # IFB-16-27-16**

as prepared by SPS+ ARCHITECTS LLP this is to certify that the above Documents, as well as the sites upon which the work is to be constructed and any and all conditions affecting the work, have been carefully examined, the amount and nature of the work to be accomplished is thoroughly understood, and at no time, will misunderstanding of the Drawings, Specifications or conditions to be overcome be plead.

2. I (We) acknowledge receipt of the following Addenda and have included their provisions in this Bid:

Addenda Nos. _____

3. BIDS: Contract will be awarded to the Contractor providing the total overall lowest, responsible and responsive cost to the District for Base Bid #1, #2, #3 or #4 and any combination of Additive Alternates as selected by the District.

- A. BASE BID #1: I (We) will construct the NEW ROOFING Project for the lump sum price of:

_____ DOLLARS (\$ _____).

- B. BASE BID #2: I (We) will construct the NEW ROOFING Project for the lump sum price of:

_____ DOLLARS (\$ _____).

- C. BASE BID #3: I (We) will construct the NEW ROOFING Project for the lump sum price of:

_____ DOLLARS (\$ _____).

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- D. BASE BID #4: I (We) will construct the NEW ROOFING Project for the lump sum price of:

_____ DOLLARS (\$_____).

(Amount to be shown in both words and figures.)

4. ADDITIVE ALTERNATIVES: See Section 01 0300. Additive Alternates, which are to be added to respective Base Bid #1, #2, #3 and #4 Costs. I (We) provide the following Additive Alternates in addition to our Base Bids provided. The District may choose to select any or all Alternates as relates to each Base Bid number, and in any order. There will be no cross over selection of Alternates from different Base Bid numbers. Contract between Owner and Contractor will reflect any additive alternates selected by the District.

- A. Additive Alternate No. "1": Modular Roof #18 Replacement

Add amount of: \$_____ (Base Bid #1)
Add amount of: \$_____ (Base Bid #2)
Add amount of: \$_____ (Base Bid #3)
Add amount of: \$_____ (Base Bid #4)

- B. Additive Alternate No. "2": Sealtite Flex Conduit

Add amount of: \$_____ (Base Bid #1)
Add amount of: \$_____ (Base Bid #2)
Add amount of: \$_____ (Base Bid #3)
Add amount of: \$_____ (Base Bid #4)

- C. Additive Alternate No. "3": Parapet Ladders

Add amount of: \$_____ (Base Bid #1)
Add amount of: \$_____ (Base Bid #2)
Add amount of: \$_____ (Base Bid #3)
Add amount of: \$_____ (Base Bid #4)

- D. Additive Alternate No. "4": Coating of Roof #4

Add amount of: \$_____ (Base Bid #1)
Add amount of: \$_____ (Base Bid #2)
Add amount of: \$_____ (Base Bid #3)
Add amount of: \$_____ (Base Bid #4)

- E. Additive Alternate No. "5": Not Used

- F. Additive Alternate No. "6": Underside of Existing Skylight Locations Finish Upgrades

Add amount of: \$_____ (Base Bid #1)
Add amount of: \$_____ (Base Bid #2)
Add amount of: \$_____ (Base Bid #3)
Add amount of: \$_____ (Base Bid #4)

- G. Additive Alternate No. "7": De-Icing System

Add amount of: \$_____ (Base Bid #1)
Add amount of: \$_____ (Base Bid #2)
Add amount of: \$_____ (Base Bid #3)

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Add amount of: \$ _____ (Base Bid #4)

H. Additive Alternate No. "8": Clearstory Coping

Add amount of: \$ _____ (Base Bid #1)

Add amount of: \$ _____ (Base Bid #2)

Add amount of: \$ _____ (Base Bid #3)

Add amount of: \$ _____ (Base Bid #4)

I. Additive Alternate No. "9": Pipe Stands

Add amount of: \$ _____ (Base Bid #1)

Add amount of: \$ _____ (Base Bid #2)

Add amount of: \$ _____ (Base Bid #3)

Add amount of: \$ _____ (Base Bid #4)

5. In submitting this Bid, I (we) the undersigned agree:

1. To hold my (our) Bid open for sixty (60) calendar days.
2. Date of Substantial Completion: As per Section 00 1000 Instruction to Bidders
3. Date of Final Completion: As per Section 00 1000 Instruction to Bidders
4. Liquidated Damages: As per Section 00 1000 Instruction to Bidders
5. Weather Delays: As per Section 00 1000 Instruction to Bidders
6. Calendar of Events: As per Section 00 1000 Instruction to Bidders
7. The Owner reserves the right to reject any and all Bids, or to waive or decline to waive any informality in any Bid.
8. To accept the provisions of Instructions to Bidders regarding disposition of Bid Security.
9. To include as part of his scheduling of the Work that a maximum weather related delay calendar days as specified per Section 00 1000, Instruction to Bidders for which additional time extension or additional monies cannot be listed or plead, beyond Substantial and/or Final Completion dates.
10. To enter into and execute an Agreement, if awarded on basis of this Bid, and to furnish Performance and Payment Bonds in the amount of one hundred (100%) percent of the total amount of Agreement. Said Bonds shall be attached to and shall form a part of Agreement. If awarded contract, the undersigned agrees to sign said Agreement and furnish required Bonds within seven (7) days after notice of award to Architect.

6. I (We) propose to use the following listed Surety Company for Performance and Payment Bonds:

Name of Company: _____

A. M. Best Rating: _____

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Agency of Record: _____

Agency Address: _____

Agency Telephone Number: _____

7. I (We) have attached the required Bid Bond, Power of Attorney, Non-Collusion Affidavit and Subcontractors Listing to this Bid.

Respectfully submitted,

Seal if by Corporation:

Type of Business:

☐Sole Propriety ☐Corporation ☐Partnership ☐other_ (specify)

Name of Business: _____

Signature: _____

Printed Name of Signer: _____

Title: _____

Arizona Contractors License No.: _____

Business Address: _____

Telephone Number: _____

Date of Proposal: _____

END OF SECTION 00 3100

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This attachment to the Bid Form shall be submitted along with the Form, each of which shall be placed in a separately sealed envelope.

Each envelope shall bear the name of the Contractor making the submittal, with identification of contents contained therein.

Prime Contractor must list below names of all qualified Subcontractors or suppliers he will employ for the various portions of work indicated. Failure on the part of the Contractor to complete or improperly complete this list will constitute sufficient grounds to reject his/her bid. In listing the Subcontractors and Suppliers below, the Contractor certifies that they are qualified to perform the work in accordance with the requirements of the Contract Documents.

All Subcontractors shall have the requisite license and be licensed to do business in the State of Arizona.

The Prime Contractor may list himself to perform one or more of the listed categories of work for which he/she has a requisite State License, as or when required. All personnel performing such work at the site shall be carried on the Prime Contractor's own payroll, except that he may sublet those portions of the work which are traditionally and commonly sublet by the representative Subcontractor within the area. If equipment is leased with operators, the operator(s) need not be carried on the Prime Contractor's payroll. Write in the word "Self" adjacent to the category of work for which the Prime Contractor assumes the responsibility of the Subcontractor.

Lists submitted by unsuccessful Prime Contractors will be returned, unopened, unless required in order to determine responsibility and responsiveness of the Subcontractors and the Prime Contractor's bids. List only a single name for each category. List names for Base Bids, as well as Additive Bid Categories. Subcontractors listed herein shall be utilized on this Project.

X Base Bid #1 Roofer

X Base Bid #2 Roofer

X Base Bid #3 Roofer

X Base Bid #4 Roofer

X Electrician

X Stucco

X Painter

X Plumber

X Steel

Respectfully submitted,

By: _____

Title: _____

Date: _____

END OF SECTION 00 4200

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PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Identification and description of Additive Alternate Bid Work and a description of work to be included as part of Base Bids #1, #2, #3 & #4 exclusive of the Additive Bid.

1.02 RELATED REQUIREMENTS

- A. Section 003100 – Bid Form: Quotation of each Additive Alternate Bid.
- B. Technical Specifications – Description of materials, methods of installation of each Additive Alternate Bid item where applies.
- C. Owner-Contractor Agreement – Acceptance of an additive alternate has the effect of adding the alternate to the respective base bids (#1, #2, #3 and #4) and increasing the contract price according to the additive amount as identified on the bid form.

1.03 PROCEDURES

- A. Additive Alternate Bids will be exercised at option of Owner and in any order. There will be no cross over selection of Alternates from one Base Bid to another.
- B. Coordinate related work and modify surrounding work as required to complete work, including changes under each Additive Alternate Bid, when acceptance is designated in Owner-Contractor Agreement.
- C. Owner-Not Accepted or Accepted Additive Alternate Bids shall have no effect and/or extension of time allowed for Final Completion, and shall not be plead as an extension of time concerning liquidated damages.
- D. Additive Alternates that in effect reduce the dollar amount of the Base Bid (representative of a cost reduction over the base bid condition) shall be indicated with a minus sign and/or in parentheses.

PART 2 ADDITIVE ALTERNATE BIDS

STATE ADDITION TO BASE BIDS #1, #2, #3 and #4 TO FURNISH ALL LABOR, MATERIAL, EQUIPMENT AND SERVICES NECESSARY TO FURNISH AND INSTALL THE FOLLOWING:

2.01 ADDITIVE ALTERNATE NO. 1: MODULAR ROOF #18 REPLACEMENT

- A. Base Bid: no work this area.
- B. Acceptance of Additive Bid: Full replacement of roof at roof #18 as detailed and specified per drawings.

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2.02 ADDITIVE ALTERNATE NO. 2: SEALTITE FLEX CONDUIT

- A. Base Bid: Re-use existing flex conduit. Provide standard flex conduit at new de-icing system as specified and detailed.
- B. Acceptance of Additive Bid: Provide and install Sealtite flex conduit at all connections and as indicated and specified per plans.

2.03 ADDITIVE ALTERNATE NO. 3: PARAPET LADDERS

- A. Base Bid: no work this area.
- B. Acceptance of Additive Bid: Provide roof access parapet ladders as indicated per plan.

2.04 ADDITIVE ALTERNATE NO. 4: COATING ROOF #4

- A. Base Bid: no work this area.
- B. Acceptance of Additive Bid: Provide coating at roof #4 as indicated per plan.

2.05 ADDITIVE ALTERNATE NO. 5: NOT USED2.06 ADDITIVE ALTERNATE NO. 6: UNDERSIDE OF EXISTING SKYLIGHT LOCATIONS FINISH UPGRADES

- A. Base Bid: no work
- B. Acceptance of Additive Bid: Provide framing, drywall, mud, tape, texture and paint to trim out abandoned skylight light well shaft at locker room skylights and as detailed. Clean, prep and paint deck patch at Gym skylights and as detailed.

2.07 ADDITIVE ALTERNATE NO. 7: DE-ICING SYSTEM

- A. Base Bid: no work
- B. Acceptance of Additive Bid: Provide de-icing system at all roof drains including all electrical boxes, conduit, conductors, grounds, circuits to existing panels, etc. and as indicated per sheet A101.

2.08 ADDITIVE ALTERNATE NO. 8: CLERESTORY COPING

- A. Base Bid: no work

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- B. Acceptance of Additive Bid: Replace existing straight and radius coping with new prefinished metal coping to match existing. Replace existing radius flashing with new prefinished flashing to match existing.

2.09 ADDITIVE ALTERNATE NO. 9: PIPE STANDS

- A. Base Bid: provide treated wood stands at roof top pipe and conduit in areas of new roofing as indicated per plans and detail 17/A301.
- B. Acceptance of Additive Bid: provide manufactured stands per Section 077230 at roof top pipe and conduit in areas of new roofing as indicated per plans and detail 32/A301.

END OF SECTION 01 0300

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. An APP modified bitumen roof system with three layer reinforced (glass and polyester) granulated membrane surface sheet, fire rated and a 20 year manufacturers full NDL roof system guarantee.
- B. Insulation, flat and tapered.
- C. Deck sheathing, 5/8" Type 'X' Gypsum Board (Buildings 1, 5 & 6), ASTM C36/1396
- D. Base flashings.
- E. Roofing cant strips, accessories, roofing expansion joints, and walkway pads.

1.02 RELATED REQUIREMENTS

- A. Section 06 1053 - Rough Carpentry: Wood nailers and curbs.
- B. Section 06 1053 - Rough Carpentry: Wood cant strips.
- C. Section 07 0150.19 - Preparation for Re-Roofing.
- D. Section 07 6200 - Sheet Metal Flashing and Trim: Counterflashings, reglets, and copings.
- E. Section 07 7100 - Roof Specialties: Flashing collars.
- F. Section 07 7200 - Roof Accessories: Roof hatch, roof drains.
- G. Section 07 7230 - Roof Top Pipe Supports

1.03 SYSTEM DESCRIPTION

- A. Insulation: Mechanically fasten single layer of Derbiboard CA polyisocyanurate to steel deck with complete penetration in accordance with Manufacturers recommendations. Provide additional layer of polyisocyanurate tapered insulation at areas noted or required.
- B. Base sheet: PRS Derbibase.
- C. Surface Sheet: Derbicolor XPS/FR (white).
- D. Adhesive: PRS Permastic

1.04 APPLICATOR QUALIFICATIONS

- A. Applicator – Company specializing in APP modified bitumen membrane roofing application with five (5) years experience, approved by roofing materials manufacturer.
- B. Roofing Contractor shall be a manufacturer's approved roofing contractor of system choice.

1.05 SUBMITTALS

- A. Submit shop drawings and data in accordance with Section 01 3000, Administrative Requirements.
- B. Submit manufacturer's certification that materials meet or exceed specified requirements.
- C. Submit installation instructions.
- D. Submit product data for membrane and base flashing materials.

1.06 QUALITY ASSURANCE

- E. Deliver products to site in accordance with Section 016000, Material and Equipment.
- F. Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.
- G. Store materials in weather-protected environment, clear of ground and moisture.
- H. Stand roll materials on end.
- I. Remove damaged or contaminated materials from site.

1.2 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply roofing membrane during inclement weather or when air temperature may fall below 40 degrees F.
- B. Do not apply roofing membrane to damp or frozen deck surface.
- C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

1.3 PRE-INSTALLATION CONFERENCE

- A. Convene a preconstruction conference one (1) week prior to commencing work of this Section to discuss application procedures and any other inconsistencies of actual project conditions.
- B. Require attendance of parties directly affecting work of this section.
- C. Review installation procedures and coordination required with related work.

1.4 INSTALLATION

- A. Roofing Contractor to ensure that all preservative treated wood nailers and roof edging is properly installed and ready to receive work. Manufacturer of roof material to accept substrate prior to new roof material commencement.

1.5 RESPONSIBILITY

- A. Contract for providing and installation of all roofing materials from steel roof deck up, including insulation systems, required nailers and blocking, gutter systems, APP roof membrane, roofing and flashing, metal roofing, all incidental flashings and items to provide a wholly-waterproof, weatherproof system to be the responsibility of a single roof manufacturer and contractor.

1.6 GUARANTEE

- A. Once bidder is notified of intent to award, bidder shall within 5 working days provide to the Architect, Manufactures 20 year written guarantee for complete roof system guarantee for approval prior to award of contract. This is not a written guarantee prior to commencement of work but a guarantee upon approval the Owner and Architect will require at completion of work and prior to acceptance of work.
- B. Roof Manufacturer to provide Performance Roof System's – 20 Year Derbicolor Complete Roof System Guarantee prior to acceptance to work, which covers repairs required to maintain roof, including flashing, in watertight, weather tight condition. Guarantee limited to ordinary wear and tear by the elements or defects due to faulty materials and workmanship. Make all repairs at no expense to Owner.

- C. Guarantee: Cover damage to work resulting from failure to resist penetration of moisture.
- D. Manufacturer shall be responsible for repairs at anytime during the guarantee period at any time the Roofing Contractor fails to make repairs.
- E. Contractor shall be responsible for the complete roofing system, which includes the insulation, sheet metal flashings and sealants, and shall guarantee this system to be watertight for two (2) year guarantee period. Cover damage to work resulting from failure to resist penetration of moisture.
- F. Roof Manufacturer shall provide inspections of all roofing in project at 18 months and 5 years past date of Substantial Completion, respectively, with Owner in attendance. Prime Contractor shall provide inspections of all roofing in project at 11 months and 23 months past the date of Substantial Completion, respectively, with Owner in attendance."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Brands indicated herein are based on those manufactured by Performance Roof Systems, Inc., Derbigum Roofing Membrane Products. Specified product and system are the established minimum standard of quality. Alternative products and systems may be considered per the prior approval submittal process requirements. Prior approval request submittal shall provide sufficient information to determine the quality of the product and system in comparison to the specified products and system.
- B. Roofing Systems and Products.
 - 1. Finished Roofs: PRS Derbicolor XPS/FR (100#/SQ). ASTM D-6223-Type I. Three layer reinforced.
 - a. White.
 - 2. Permastic.
 - 3. Perflash.
 - 4. Performance Derbibase base sheet (50#/SQ).
 - 5. Performance Roof Systems standard details (see also drawings for details).
- C. Insulation
 - 1. Polyisocyanurate roof insulation, Derbiboard CA: ASTM C-1289-02, Type II, glass fiber rigid board, top surface coated with Cementitious Fiberglass Mat.
 - 2. Single Layer – 2.00 inch thickness, R-12, mechanically fastened to steel roof deck.
- D. Tapered Insulation
 - 1. PRS Derbibarod CA tapered ASTM C-1289-02 Type II
- E. Nailers, Blocking And Miscellaneous Wood
 - 1. Sizes as indicated, equal to insulation thickness, refer to Section 061053, Miscellaneous Rough Carpentry.
 - 2. All wood pressure-treated with water-borne salts approved by Wood Preserver's Association.
- F. Fasteners

1. Mechanical Fasteners: Roof insulation to be attached to metal decks using mechanical fasteners in accordance with manufacturer's and Factory Mutual's recommendations for I-90 approval. Fastener used acceptable to membrane manufacturer.
 - a. "Glasfast" fasteners for insulation, length as required to provide penetration into steel deck bottom of flutes as manufactured by Buildex Corp.
 2. Attachment of Nailers: Flat-headed sheet metal screws, self-tapping, power-driven to provide penetration into steel deck and/or red head anchors into post tensioned concrete deck.
- G. Adhesive
1. (Roof Membrane/Base) PRS Permastic – 80% Solid Volume, VOC Compliant with Rubberlux.
 2. (Tapered Roof Insulation) Olybond 500 as manufactured by OMG.
- H. Accessories
1. Cants: As may be required by roofing materials manufacturer; compatible with roof insulation and roofing materials to provide smooth tapered surface application for roof membrane.
 2. Provide (1) layer 5/8" Type 'X' gypsum sheathing per ASTM C36/1396 on top of roof deck at 1/2" per foot structural slope roofs 1, 5 & 6. Provide tapered insulation at crickets only. Refer to plans.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Verify deck is clean and smooth, free of depressions, waves or projections.
- B. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof area solidly set, wood nailing strips and reglets are in place. Verify deck supported and secured.
- C. Verify deck surfaces are dry and free of moisture.
- D. Beginning of installation means acceptance of substrate.
- E. Manufacturer's representative shall make a minimum of two (2) site inspections, pre-construction, two (2) intermediate and final, with written field reports from each visit that shall be submitted with warranty documents.

3.2 COORDINATION

- A. This contractor will ensure that all wood items, miscellaneous metals, flashings and counter-flashings, including gutters, are installed and secured properly; that all required blocking is in proper location to assure proper fastening of sheet metal roof.
- B. Coordinate with Section 061053, Miscellaneous Rough Carpentry, for treated wood requirements for all roof insulation stops, etc.

3.3 PROTECTION

- A. Protect building surfaces against damage from insulation and roofing work.
- B. Assure that interior of building will be protected from infiltration of water at close of each day.

- C. Assure that interiors of all buildings will be protected from infiltration of hot bitumen.
- D. Properly close off and or protect all roof openings as relates to fall protection prior to commencing roofing work.

3.4 INSTALLATION

- A. Steel Decks:
 - 1. Apply insulation in strict conformance with Performance Roof Systems Specification 111X-DC/FR procedures found in latest edition of Performance Roof Systems roof insulation applicator's guide.
 - 2. Single layer of insulation to be applied to steel deck with long edges perpendicular to steel deck flutes, with staggered joints and all short edges bearing solidly on deck flute surfaces.
 - 3. Mechanically fasten with Glasfast fasteners per requirements of Factory Mutual I-90, using five (5) fasteners per 4 foot x 4 foot board.
 - 4. Install treated wood nailers, trimmed to same depth as insulation, for perimeter wood, gutters and specially located blocking as insulation is laid, as indicated or required by the Roofing Contractor.
 - 5. Edges of insulation boards mitered at edges and elsewhere to prevent open joints or irregular surfaces. Edges butted to provide moderate contact but not deformed.
 - 6. Provide treated wood nailers on all inclines exceeding 2 inches per foot as directed by the roofing manufacturer. Nailers trimmed to insulation thickness.
- B. Wet Insulation: Protective membrane roofing shall not be applied over wet insulation.

3.5 CANTS

- A. Provide at all vertical intersections to be flashed, or where indicated or required, to facilitate protective membrane and roofing manufacturer's guaranteed roofing system.

3.6 NAILING STRIPS

- A. Provide treated wood nailing strips at all roof edges and at locations required by the roofing manufacturer at all roof slopes over 2 inches per foot, and as detailed, built-up to same thickness as finished surface of roof insulation material. Secure with power-driven sheet metal fasteners at 12 inches o.c. and to each layer of multiple-layered nailers. If bolt anchorage for perimeter nailers are used, provide nuts and washers countersunk and bolts cut flush with top of nailer.

3.7 CLEANING

- A. Leave roof deck clean and in proper shape to receive APP Modified Bitumen roofing.

3.8 BASE SHEET AND MEMBRANE APPLICATION

- A. System (Base) Sheet: Install the underlayment base sheet system by shingling from the low point on the roof. Provide 3 inch side and 4 inch end laps, fully heat adhered laps.
- B. Derbicolor Membrane: Install the Derbicolor XPS/FR membrane by shingling from the low point on the roof or by strapping with the slope of the roof deck, running the Derbicolor membrane parallel to the direction of the system base ply offsetting side laps from laps in the system base ply a minimum of 6 inches. The Derbicolor membrane shall be adhered by heat welding or Permastic adhesive squeegeed at 1-1/2 gallons

per 100 S.F. solidly over the base ply. Side laps shall be minimum 3 inches, end laps minimum 4 inches. Side and end laps shall be rolled with a 20 pound steel roller, with a continuous bead of Permastic which should be visible at all laps/seams after application. Roll out membrane to ensure exact positioning. Apply Permastic to Derbibase sheet by means of manufacturer approved squeegee or spray. After membrane has been fully adhered to Base Ply, check all side and end laps with a trowel to ensure that laps are fully adhered. Any areas where full adhesion of the ply is not obtained must be re-adhered and trowelled into place so that total adhesion of entire lap is accomplished. Edge of lap shall then be rounded off with a trowel to provide smooth seam.

- C. Flashings conform to manufacturer's recommended flashing details and as detailed per Architectural drawings whichever is stricter to provide weather tight, watertight installation.
 - 1. Roof Edge: Extend Derbicolor membrane to edge of roof. Install edge metal as detailed, prime, and Permastic adhere or heat weld on Derbigum stripping over metal and extending 6 inches onto Derbigum membrane.
 - 2. Vertical Walls: Extend deck membrane up vertical surface minimum of 8 inches or as noted. Overlap continuous strip of Derbigum 4 inches above deck membrane and extend down and over deck surface minimum of 6 inches and torch on. Provide metal counter-flashing and install over flashing, or under cap flashing.

3.9 FLASHINGS

- A. Apply Derbicolor flashing to seal membrane to vertical elements.
- B. Coordinate with the installation of roof accessories and sheet metal edges and related flashings. Roof installer and Roof Manufacturer are responsible for integrity of all flashings per Roof Manufacturer's full system guarantee.
- C. Seal flashings and flanges of items protruding through membrane.

3.10 CLEANING

- A. Remove bituminous markings from finished surfaces. In areas where finished surfaces are soiled by asphalt or any other source of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning, advise and conform to their instructions.

END OF SECTION 07 5213

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. An APP modified bitumen roof system with three layer reinforced (glass and polyester) granulated membrane surface sheet, fire rated and a 20 year manufacturers full NDL roof system guarantee.
- B. Insulation, flat and tapered.
- C. Deck sheathing, 5/8" Type 'X' Gypsum Board (Buildings 1, 5 & 6), ASTM C36/1396
- D. Base flashings.
- E. Roofing cant strips, accessories, roofing expansion joints, and walkway pads.

1.02 RELATED REQUIREMENTS

- A. Section 06 1053 - Rough Carpentry: Wood nailers and curbs.
- B. Section 06 1053 - Rough Carpentry: Wood cant strips.
- C. Section 07 0150.19 - Preparation for Re-Roofing.
- D. Section 07 6200 - Sheet Metal Flashing and Trim: Counterflashings, reglets, and copings.
- E. Section 07 7100 - Roof Specialties: Flashing collars.
- F. Section 07 7200 - Roof Accessories: Roof hatch, roof drains.
- G. Section 07 7230 - Roof Top Pipe Supports

1.03 SYSTEM DESCRIPTION

- A. Insulation: Mechanically fasten single layer of JM Enrgy 3 AGF polyisocyanurate Roof Insulation to steel deck with complete penetration in accordance with Manufacturers recommendations. Provide additional layer of polyisocyanurate tapered insulation at areas noted or required.
- B. Base sheet: JM APP Base Sheet
- C. Surface Sheet: JM Tricor M FR. ASTM D-6223, Type II, Grade G.
- D. Adhesive: Premium Cold Application Adhesive

1.04 APPLICATOR QUALIFICATIONS

- A. Applicator – JM Peak Advantage Contractor specializing in APP modified bitumen membrane roofing application with five (5) years experience.

1.05 SUBMITTALS

- A. Submit shop drawings and data in accordance with Section 01 3000, Administrative Requirements.
- B. Submit manufacturer's certification that materials meet or exceed specified requirements.
- E. Submit installation instructions.
- F. Submit product data for membrane and base flashing materials.

1.06 QUALITY ASSURANCE

- G. Deliver products to site in accordance with Section 01 6000, Material and Equipment.

- H. Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.
- I. Store materials in weather-protected environment, clear of ground and moisture.
- J. Stand roll materials on end.
- K. Remove damaged or contaminated materials from site.

1.2 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply roofing membrane during inclement weather or when air temperature may fall below 40 degrees F.
- B. Do not apply roofing membrane to damp or frozen deck surface.
- C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

1.3 PRE-INSTALLATION CONFERENCE

- A. Convene a preconstruction conference one (1) week prior to commencing work of this Section to discuss application procedures and any other inconsistencies of actual project conditions.
- B. Require attendance of parties directly affecting work of this section.
- C. Review installation procedures and coordination required with related work.

1.4 INSTALLATION

- A. Roofing Contractor to ensure that all preservative treated wood nailers and roof edging is properly installed and ready to receive work. Manufacturer of roof material to accept substrate prior to new roof material commencement.

1.5 RESPONSIBILITY

- A. Contract for providing and installation of all roofing materials from steel roof deck up, including insulation systems, required nailers and blocking, gutter systems, APP roof membrane, roofing and flashing, metal roofing, all incidental flashings and items to provide a wholly-waterproof, weatherproof system to be the responsibility of a single roof manufacturer and contractor.

1.6 GUARANTEE

- A. Once bidder is notified of intent to award, bidder shall within 5 working days provide to the Architect, Manufacturer's 20 year written guarantee for complete roof system guarantee for approval prior to award of contract. This is not a written guarantee prior to commencement of work but a guarantee upon approval the Owner and Architect will require at completion of work and prior to acceptance of work.
- B. Roof Manufacturer to provide Johns Manville Roof System's – 20 Year Complete Roof System Guarantee prior to acceptance to work, which covers repairs required to maintain roof, including flashing, in watertight, weather tight condition. Guarantee limited to ordinary wear and tear by the elements or defects due to faulty materials and workmanship. Make all repairs at no expense to Owner.
- C. Guarantee: Cover damage to work resulting from failure to resist penetration of moisture.

- D. Manufacturer shall be responsible for repairs at anytime during the guarantee period at any time the Roofing Contractor fails to make repairs.
- E. Contractor shall be responsible for the complete roofing system, which includes the insulation, and other single source components marketed by JM, and shall guarantee this system to be watertight for two (2) year guarantee period. Cover damage to work resulting from failure to resist penetration of moisture.
- F. Roof Manufacturer shall provide inspections during the guarantee period of all roofing in project at 18 months and 5 years past date of Substantial Completion, respectively, with Owner in attendance. Prime Contractor shall provide inspections of all roofing in project at 11 months and 23 months past the date of Substantial Completion, respectively, with Owner in attendance."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Brands indicated herein are based on those manufactured by Johns Manville Corporation Roofing System Products. Specified product and system are the established minimum standard of quality. Alternative products and systems may be considered per the prior approval submittal process requirements. Prior approval request submittal shall provide sufficient information to determine the quality of the product and system in comparison to the specified products and system.
- B. Roofing Systems and Products.
 - 1. Finished Roofs: JM Tricor M FR, "ASTM D-6223, Type G. Three layer reinforced.
 - a. White.
 - 2. JM Premium Cold Application Adhesive.
 - 3. MBR Flashing Cement.
 - 4. JM APP Base Sheet, ASTM D-6509.
 - 5. Johns Manville standard details (see also drawings for details).
- C. Insulation
 - 1. Polyisocyanurate roof insulation, JM Enrgy 3: ASTM C-1289, Type II, glass fiber rigid board, top surface coated with Cementitious Fiberglass Mat.
 - 2. Single Layer – 2.00 inch thickness, R-12, mechanically fastened to steel roof deck.
- D. Tapered Insulation
 - 1. JM Tapered Enrgy 3, ASTM C-1289
- E. Nailers, Blocking And Miscellaneous Wood
 - 1. Sizes as indicated, equal to insulation thickness, refer to Section 061053, Miscellaneous Rough Carpentry.
 - 2. All wood pressure-treated with water-borne salts approved by Wood Preserver's Association.
- F. Fasteners
 - 1. Mechanical Fasteners: Roof insulation to be attached to metal decks using mechanical fasteners in accordance with manufacturer's and Factory Mutual's recommendations for I-90 approval. Fastener used acceptable to membrane manufacturer.
 - a. "Ultrafast" fasteners for insulation, length as required to provide penetration into steel deck bottom of flutes as manufactured by JM.
 - 2. Attachment of Nailers: Flat-headed sheet metal screws, self-tapping, power-driven to provide penetration into steel deck and/or red head anchors into post tensioned concrete deck.

G. Adhesive

1. (Roof Membrane/Base) JM Premium Cold Application Adhesive.
2. (Tapered Roof Insulation) JM Two-Part Urethane Insulation Adhesive.

H. Accessories

1. Cants: As may be required by roofing materials manufacturer; compatible with roof insulation and roofing materials to provide smooth tapered surface application for roof membrane.
2. Provide (1) layer 5/8" Type 'X' gypsum sheathing per ASTM C36/1396 on top of roof deck at 1/2" per foot structural slope roofs 1, 5 & 6. Provide tapered insulation at crickets only. Refer to plans.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Verify deck is clean and smooth, free of depressions, waves or projections.
- B. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof area solidly set, wood nailing strips and reglets are in place. Verify deck supported and secured.
- C. Verify deck surfaces are dry and free of moisture.
- D. Beginning of installation means acceptance of substrate.
- E. Manufacturer's representative shall make a minimum of two (2) site inspections, pre-construction, two (2) intermediate and final, with written field reports from each visit that shall be submitted with warranty documents.

3.2 COORDINATION

- A. This contractor will ensure that all wood items, miscellaneous metals, flashings and counter-flashings, including gutters, are installed and secured properly; that all required blocking is in proper location to assure proper fastening of sheet metal roof.
- B. Coordinate with Section 061053, Miscellaneous Rough Carpentry, for treated wood requirements for all roof insulation stops, etc.

3.3 PROTECTION

- A. Protect building surfaces against damage from insulation and roofing work.
- B. Assure that interior of building will be protected from infiltration of water at close of each day.
- C. Assure that interiors of all buildings will be protected from infiltration of hot bitumen.
- D. Properly close off and or protect all roof openings as relates to fall protection prior to commencing roofing work.

3.4 INSTALLATION

- A. Steel Decks:

1. Apply insulation in strict conformance with Factory Mutual procedures found in latest edition of FM Global Guide.
2. Single layer of insulation to be applied to steel deck with long edges perpendicular to steel deck flutes, with staggered joints and all short edges bearing solidly on deck flute surfaces.
3. Mechanically fasten with Ultrafast fasteners per requirements of Factory Mutual I-90, using five (5) fasteners per 4 foot x 4 foot board.
4. Install treated wood nailers, trimmed to same depth as insulation, for perimeter wood, gutters and specially located blocking as insulation is laid, as indicated or required by the Roofing Contractor.
5. Edges of insulation boards mitered at edges and elsewhere to prevent open joints or irregular surfaces. Edges butted to provide moderate contact but not deformed.
6. Provide treated wood nailers on all inclines exceeding 2 inches per foot as directed by the roofing manufacturer. Nailers trimmed to insulation thickness.

B. Wet Insulation: Protective membrane roofing shall not be applied over wet insulation.

3.5 CANTS

- A. Provide at all vertical intersections to be flashed, or where indicated or required, to facilitate protective membrane and roofing manufacturer's guaranteed roofing system.

3.6 NAILING STRIPS

- A. Provide treated wood nailing strips at all roof edges and at locations required by the roofing manufacturer at all roof slopes over 2 inches per foot, and as detailed, built-up to same thickness as finished surface of roof insulation material. Secure with power-driven sheet metal fasteners at 12 inches o.c. and to each layer of multiple-layered nailers. If bolt anchorage for perimeter nailers are used, provide nuts and washers countersunk and bolts cut flush with top of nailer.

3.7 CLEANING

- A. Leave roof deck clean and in proper shape to receive APP Modified Bitumen roofing.

3.8 BASE SHEET AND MEMBRANE APPLICATION

- A. System (Base) Sheet: Install the underlayment base sheet system by shingling from the low point on the roof. Provide 3 inch side and 4 inch end laps, fully heat adhered laps.
- B. Tricor M FR Membrane: Install the Tricor M FR membrane by shingling from the low point on the roof or by strapping with the slope of the roof deck, running the Tricor M FR membrane parallel to the direction of the system base ply offsetting side laps from laps in the system base ply a minimum of 6 inches. The APP membrane shall be adhered by heat welding or JM Cold Adhesive squeegeed at 2 gallons per 100 S.F. solidly over the base ply. Side laps shall be minimum 3 inches, end laps minimum 4 inches. Side and end laps shall be rolled with a 20 pound steel roller, with a continuous bead of JM Cold Adhesive which should be visible at all laps/seams after application. Roll out membrane to ensure exact positioning. Apply JM Cold Adhesive to JM APP Base sheet by means of manufacturer approved squeegee or spray. After membrane has been fully adhered to Base Ply, check all side and end laps with a trowel to ensure that laps are fully adhered. Any areas where full adhesion

of the ply is not obtained must be re-adhered and trowelled into place so that total adhesion of entire lap is accomplished. Edge of lap shall then be rounded off with a trowel to provide smooth seam.

- C. Flashings conform to manufacturer's recommended flashing details and as detailed per Architectural drawings whichever is stricter to provide weather tight, watertight installation.
 - 1. Roof Edge: Extend Tricor M FR membrane to edge of roof. Install edge metal as detailed, prime, and JM Cold Adhesive adhere or heat weld on Tricor M FR stripping over metal and extending 6 inches onto Tricor M FR membrane.
 - 2. Vertical Walls: Extend deck membrane up vertical surface minimum of 8 inches or as noted. Overlap continuous strip of Tricor M FR 4 inches above deck membrane and extend down and over deck surface minimum of 6 inches and torch on. Provide metal counter-flashing and install over flashing, or under cap flashing.

3.9 FLASHINGS

- A. Apply Tricor M FR flashing to seal membrane to vertical elements.
- B. Coordinate with the installation of roof accessories and sheet metal edges and related flashings. Roof installer and Roof Manufacturer are responsible for integrity of all flashings per Roof Manufacturer's full system guarantee.
- C. Seal flashings and flanges of items protruding through membrane.

3.10 CLEANING

- A. Remove bituminous markings from finished surfaces. In areas where finished surfaces are soiled by asphalt or any other source of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning, advise and conform to their instructions.

END OF SECTION 07 5214

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. An APP modified bitumen roof system with a two layer reinforced (glass and polyester) granulated membrane surface sheet, fire rated and a 20 year manufacturers Full NDL roof system guarantee.
- B. Insulation, flat and tapered
- C. Deck sheathing, 5/8" Type 'X' Gypsum Board (Buildings 1, 5 & 6), ASTM C36/1396
- D. Base flashings.
- E. Roofing cant strips, accessories, roofing expansion joints, and walkway pads.

1.02 RELATED REQUIREMENTS

- A. Section 06 1053 - Rough Carpentry: Wood nailers and curbs.
- B. Section 06 1053 - Rough Carpentry: Wood cant strips.
- C. Section 07 0150.19 - Preparation for Re-Roofing.
- D. Section 07 6200 - Sheet Metal Flashing and Trim: Counterflashings, reglets, and copings.
- E. Section 07 7100 - Roof Specialties: Flashing collars.
- F. Section 07 7200 - Roof Accessories: Roof hatch, roof drains.
- G. Section 07 7230 - Roof Top Pipe Supports

1.03 SYSTEM DESCRIPTION

- A. Insulation: Mechanically fasten single layer of JM Enrgy 3 AGF or PRS DerbiBoard CA Isocyanurate Roof Insulation to steel deck with complete penetration in accordance with Manufacturers recommendations. Provide additional layer of tapered polyisocyanurate insulation at areas noted or required.
- B. Base sheet: JM APP Base Sheet or PRS DerbiBase
- C. Surface Sheet: JM Bicolor M FR or PRS Derbicolor GP/FR. ASTM D-6223, Type II, Grade G.
- D. Adhesive: Premium Cold Application Adhesive or PRS Permastic

1.04 APPLICATOR QUALIFICATIONS

- A. Applicator – JM Peak Advantage Contractor or PRS Derbigum Approved Contractor specializing in APP modified bitumen membrane roofing application with five (5) years' experience.

1.05 SUBMITTALS

- A. Submit shop drawings and data in accordance with Section 01 3000, Administrative Requirements.
- B. Submit manufacturer's certification that materials meet or exceed specified requirements.
- E. Submit installation instructions.
- F. Submit product data for membrane and base flashing materials.

1.06 QUALITY ASSURANCE

- G. Deliver products to site in accordance with Section 016000, Material and Equipment.
- H. Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.
- I. Store materials in weather-protected environment, clear of ground and moisture.
- J. Stand roll materials on end.
- K. Remove damaged or contaminated materials from site.

1.2 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply roofing membrane during inclement weather or when air temperature may fall below 40 degrees F.
- B. Do not apply roofing membrane to damp or frozen deck surface.
- C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

1.3 PRE-INSTALLATION CONFERENCE

- A. Convene a preconstruction conference one (1) week prior to commencing work of this Section to discuss application procedures and any other inconsistencies of actual project conditions.
- B. Require attendance of parties directly affecting work of this section.
- C. Review installation procedures and coordination required with related work.

1.4 INSTALLATION

- A. Roofing Contractor to ensure that all preservative treated wood nailers and roof edging is properly installed and ready to receive work. Manufacturer of roof material to accept substrate prior to new roof material commencement.

1.5 RESPONSIBILITY

- A. Contract for providing and installation of all roofing materials from steel roof deck up, including insulation systems, required nailers and blocking, gutter systems, APP roof membrane, roofing and flashing, metal roofing, all incidental flashings and items to provide a wholly-waterproof, weatherproof system to be the responsibility of a single roof manufacturer and contractor.

1.6 GUARANTEE

- A. Once bidder is notified of intent to award, bidder shall within 5 working days provide to the Architect, Manufactures 20 year written guarantee for complete roof system guarantee for approval prior to award of contract. This is not a written guarantee prior to commencement of work but a guarantee upon approval the Owner and Architect will require at completion of work and prior to acceptance of work.
- B. Provide Johns Manville Roof System's – 20 Year Complete Roof System Guarantee or PRS 20 Year Derbigum Complete Roof System Guarantee prior to acceptance to work, which covers repairs required to maintain roof, including flashing, in watertight, weather tight condition. Guarantee limited to ordinary wear and tear by the elements or defects due to faulty materials and workmanship. Make all repairs at no expense to Owner.

- C. Guarantee: Cover damage to work resulting from failure to resist penetration of moisture.
- D. Manufacturer shall be responsible for repairs at anytime during the guarantee period at any time the Roofing Contractor fails to make repairs.
- E. Contractor shall be responsible for the complete roofing system from JM or PRS, which includes the insulation, and other single source components marketed by JM or PRS, and shall guarantee this system to be watertight for two (2) year guarantee period. Cover damage to work resulting from failure to resist penetration of moisture.
- F. Roof Manufacturer shall provide inspections during the guarantee period of all roofing in project at 18 months and 5 years past date of Substantial Completion, respectively, with Owner in attendance. Prime Contractor shall provide inspections of all roofing in project at 11 months and 23 months past the date of Substantial Completion, respectively, with Owner in attendance.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Brands indicated herein are based on those manufactured by Performance Roof Systems, Inc., Derbigum Roofing Membrane Products and Johns Manville Corporation Roofing System Products. Specified products and systems are the established minimum standard of quality. Alternative products and systems may be considered per the prior approval submittal process requirements. Prior approval request submittal shall provide sufficient information to determine the quality of the product and system in comparison to the specified products and systems.
- B. Roofing Systems and Products.
 - 1. Finished Roofs: JM Bicolor M FR or PRS Derbicolor GP/FR, "ASTM D-6223, Type G. Two layer reinforced.
 - a. White.
 - 2. JM Premium Cold Application Adhesive or PRS Permastic.
 - 3. MBR Flashing Cement or PRS Perflash.
 - 4. JM APP Base Sheet or PRS Derbibase, ASTM D-6509.
 - 5. Johns Manville or Derbigum standard details (see also drawings for details).
- C. Insulation
 - 1. Polyisocyanurate roof insulation, JM Enrgy 3 or PRS Derbiboard CA: ASTM C-1289, Type II, glass fiber rigid board, top surface coated with Cementitious Fiberglass Mat.
 - 2. Single Layer – 2.00 inch thickness, R-12, mechanically fastened to steel roof deck.
- D. Tapered Insulation
 - 1. JM Tapered Enrgy 3 or PRS Derbiboard CA, ASTM C-1289
- E. Nailers, Blocking And Miscellaneous Wood
 - 1. Sizes as indicated, equal to insulation thickness, refer to Section 061053, Miscellaneous Rough Carpentry.
 - 2. All wood pressure-treated with water-borne salts approved by Wood Preserver's Association.
- F. Fasteners
 - 1. Mechanical Fasteners: Roof insulation to be attached to metal decks using mechanical fasteners in accordance with manufacturer's and Factory Mutual's

- recommendations for I-90 approval. Fastener used acceptable to membrane manufacturer.
- a. "Ultrafast" fasteners for insulation, length as required to provide penetration into steel deck bottom of flutes as manufactured by JM.
- 2. Attachment of Nailers: Flat-headed sheet metal screws, self-tapping, power-driven to provide penetration into steel deck and/or red head anchors into post tensioned concrete deck.
- G. Adhesive
 - 1. (Roof Membrane/Base) JM Premium Cold Application Adhesive or PRS Permastic.
 - 2. (Tapered Roof Insulation) JM Two-Part Urethane Insulation Adhesive or PRS Olybond.
- H. Accessories
 - 1. Cants: As may be required by roofing materials manufacturer; compatible with roof insulation and roofing materials to provide smooth tapered surface application for roof membrane.
 - 2. Provide (1) layer 5/8" Type 'X' gypsum sheathing per ASTM C36/1396 on top of roof deck at 1/2" per foot structural slope roofs 1, 5 & 6. Provide tapered insulation at crickets only. Refer to plans.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Verify deck is clean and smooth, free of depressions, waves or projections.
- B. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof area solidly set, wood nailing strips and reglets are in place. Verify deck supported and secured.
- C. Verify deck surfaces are dry and free of moisture.
- D. Beginning of installation means acceptance of substrate.
- E. Manufacturer's representative shall make a minimum of two (2) site inspections, pre-construction, two (2) intermediate and final, with written field reports from each visit that shall be submitted with warranty documents.

3.2 COORDINATION

- A. This contractor will ensure that all wood items, miscellaneous metals, flashings and counter-flashings, including gutters, are installed and secured properly; that all required blocking is in proper location to assure proper fastening of sheet metal roof.
- B. Coordinate with Section 061053, Miscellaneous Rough Carpentry, for treated wood requirements for all roof insulation stops, etc.

3.3 PROTECTION

- A. Protect building surfaces against damage from insulation and roofing work.
- B. Assure that interior of building will be protected from infiltration of water at close of each day.
- C. Assure that interiors of all buildings will be protected from infiltration of hot bitumen.

- D. Properly close off and or protect all roof openings as relates to fall protection prior to commencing roofing work.

3.4 INSTALLATION

- A. Steel Decks:
 - 1. Apply insulation in strict conformance with Factory Mutual procedures found in latest edition of FM Global Guide.
 - 2. Single layer of insulation to be applied to steel deck with long edges perpendicular to steel deck flutes, with staggered joints and all short edges bearing solidly on deck flute surfaces.
 - 3. Mechanically fasten with Ultrafast fasteners per requirements of Factory Mutual I-90, using five (5) fasteners per 4 foot x 4 foot board.
 - 4. Install treated wood nailers, trimmed to same depth as insulation, for perimeter wood, gutters and specially located blocking as insulation is laid, as indicated or required by the Roofing Contractor.
 - 5. Edges of insulation boards mitered at edges and elsewhere to prevent open joints or irregular surfaces. Edges butted to provide moderate contact but not deformed.
 - 6. Provide treated wood nailers on all inclines exceeding 2 inches per foot as directed by the roofing manufacturer. Nailers trimmed to insulation thickness.
- B. Wet Insulation: Protective membrane roofing shall not be applied over wet insulation.

3.5 CANTS

- A. Provide at all vertical intersections to be flashed, or where indicated or required, to facilitate protective membrane and roofing manufacturer's guaranteed roofing system.

3.6 NAILING STRIPS

- A. Provide treated wood nailing strips at all roof edges and at locations required by the roofing manufacturer at all roof slopes over 2 inches per foot, and as detailed, built-up to same thickness as finished surface of roof insulation material. Secure with power-driven sheet metal fasteners at 12 inches o.c. and to each layer of multiple-layered nailers. If bolt anchorage for perimeter nailers are used, provide nuts and washers countersunk and bolts cut flush with top of nailer.

3.7 CLEANING

- A. Leave roof deck clean and in proper shape to receive APP Modified Bitumen roofing.

3.8 BASE SHEET AND MEMBRANE APPLICATION

- A. System (Base) Sheet: Install the base sheet to the roof insulation with adhesive by shingling from the low point on the roof. Provide 3 inch side and 4 inch end laps, fully heat adhered laps.
- B. Bicolor M FR or Derbicolor GP/FR Membrane: Install the membrane by shingling from the low point on the roof or by strapping with the slope of the roof deck, running the membrane parallel to the direction of the system base ply offsetting side laps from laps in the system base ply a minimum of 6 inches. The APP membrane shall be adhered by heat welding or adhesive squeegeed at 2 gallons per 100 S.F. solidly over the base ply. Side laps shall be minimum 3 inches, end laps minimum 4 inches. Side and end laps shall be rolled with a 20 pound steel roller, with a continuous bead of adhesive which

should be visible at all laps/seams after application. Roll out membrane to ensure exact positioning. Apply adhesive to base sheet by means of manufacturer approved squeegee or spray. After membrane has been fully adhered to Base Ply, check all side and end laps with a trowel to ensure that laps are fully adhered. Any areas where full adhesion of the ply is not obtained must be re-adhered and trowelled into place so that total adhesion of entire lap is accomplished. Edge of lap shall then be rounded off with a trowel to provide smooth seam.

- C. Flashings conform to manufacturer's recommended flashing details and as detailed per Architectural drawings whichever is stricter to provide weather tight, watertight installation.
 - 1. Roof Edge: Extend the membrane to edge of roof. Install edge metal as detailed, prime, and adhere or heat weld on membrane stripping over metal and extending 6 inches onto the membrane surface.
 - 2. Vertical Walls: Extend deck membrane up vertical surface minimum of 8 inches or as noted. Overlap continuous strip of surface membrane 4 inches above deck membrane and extend down and over deck surface minimum of 6 inches and torch on. Provide metal counter-flashing and install over flashing, or under cap flashing.

3.9 FLASHINGS

- A. Apply Bicolor M FR or Derbicolor GP/FR flashing to seal membrane to vertical elements.
- B. Coordinate with the installation of roof accessories and sheet metal edges and related flashings. Roof installer and Roof Manufacturer are responsible for integrity of all flashings per Roof Manufacturer's full system guarantee.
- C. Seal flashings and flanges of items protruding through membrane.

3.10 CLEANING

- A. Remove bituminous markings from finished surfaces. In areas where finished surfaces are soiled by asphalt or any other source of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning, advise and conform to their instructions.

END OF SECTION 07 5215

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. An APP modified bitumen roof system with one layer reinforced polyester granulated membrane surface sheet, fire rated and a 20 year manufacturers Full NDL roof system guarantee.
- B. Insulation, flat and tapered
- C. Deck sheathing, 5/8" Type 'X' Gypsum Board (Buildings 1, 5 & 6), ASTM C36/1396
- D. Base flashings.
- E. Roofing cant strips, accessories, roofing expansion joints, and walkway pads.

1.02 RELATED REQUIREMENTS

- A. Section 06 1053 - Rough Carpentry: Wood nailers and curbs.
- B. Section 06 1053 - Rough Carpentry: Wood cant strips.
- C. Section 07 0150.19 - Preparation for Re-Roofing.
- D. Section 07 6200 - Sheet Metal Flashing and Trim: Counterflashings, reglets, and copings.
- E. Section 07 7100 - Roof Specialties: Flashing collars.
- F. Section 07 7200 - Roof Accessories: Roof hatch, roof drains.
- G. Section 07 7230 - Roof Top Pipe Supports

1.03 SYSTEM DESCRIPTION

- A. Insulation: Mechanically fasten single layer of Polytherm polyisocyanurate Roof Insulation to steel deck with complete penetration in accordance with Manufacturers recommendations. Provide additional layer of polyisocyanurate tapered insulation at areas noted or required.
- B. Base sheet: Elastoflex SA V FR
- C. Surface Sheet: Polyflex G FR. ASTM D-6222, Type I.
- D. Adhesive: Premium Cold Application Adhesive

1.04 APPLICATOR QUALIFICATIONS

- A. Applicator – Manufacturer Approved Contractor specializing in APP modified bitumen membrane roofing application with five (5) years' experience.

1.05 SUBMITTALS

- A. Submit shop drawings and data in accordance with Section 01 3000, Administrative Requirements.
- B. Submit manufacturer's certification that materials meet or exceed specified requirements.
- E. Submit installation instructions.
- F. Submit product data for membrane and base flashing materials.

1.06 QUALITY ASSURANCE

- G. Deliver products to site in accordance with Section 01 6000, Material and Equipment.

- H. Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.
- I. Store materials in weather-protected environment, clear of ground and moisture.
- J. Stand roll materials on end or as required by Manufacturer.
- K. Remove damaged or contaminated materials from site.

1.2 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply roofing membrane during inclement weather or when air temperature may fall below 40 degrees F.
- B. Do not apply roofing membrane to damp or frozen deck surface.
- C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

1.3 PRE-INSTALLATION CONFERENCE

- A. Convene a preconstruction conference one (1) week prior to commencing work of this Section to discuss application procedures and any other inconsistencies of actual project conditions.
- B. Require attendance of parties directly affecting work of this section.
- C. Review installation procedures and coordination required with related work.

1.4 INSTALLATION

- A. Roofing Contractor to ensure that all preservative treated wood nailers and roof edging is properly installed and ready to receive work. Manufacturer of roof material to accept substrate prior to new roof material commencement.

1.5 RESPONSIBILITY

- A. Contract for providing and installation of all roofing materials from steel roof deck up, including insulation systems, required nailers and blocking, gutter systems, APP roof membrane, roofing and flashing, metal roofing, all incidental flashings and items to provide a wholly-waterproof, weatherproof system to be the responsibility of a single roof manufacturer and contractor.

1.6 GUARANTEE

- A. Once bidder is notified of intent to award, bidder shall within 5 working days provide to the Architect, Manufactures 20 year written guarantee for complete roof system guarantee for approval prior to award of contract. This is not a written guarantee prior to commencement of work but a guarantee upon approval the Owner and Architect will require at completion of work and prior to acceptance of work.
- B. Roof Manufacturer to provide 20 Year Complete Roof System Guarantee prior to acceptance of work, which covers repairs required to maintain roof, including flashing, in watertight, weather tight condition. Guarantee limited to ordinary wear and tear by the elements or defects due to faulty materials and workmanship. Make all repairs at no expense to Owner.
- C. Guarantee: Cover damage to work resulting from failure to resist penetration of moisture.

- D. Manufacturer shall be responsible for repairs at anytime during the guarantee period at any time the Roofing Contractor and/or Prime Contractor fails to make repairs.
- E. Prime Contractor shall be responsible for the complete roofing system from Polyglass, which includes the insulation, and other single source components, and shall guarantee this system to be watertight for two (2) year guarantee period. Cover damage to work resulting from failure to resist penetration of moisture.
- F. Roof Manufacturer shall provide inspections during the guarantee period of all roofing in project at 18 months and 5 years past date of Substantial Completion, respectively, with Owner in attendance. Prime Contractor shall provide inspections of all roofing in project at 11 months and 23 months past the date of Substantial Completion, respectively, with Owner in attendance.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Brands indicated herein are based on those manufactured by Polyglass. Specified products and systems are the established minimum standard of quality. Alternative products and systems may be considered per the prior approval submittal process requirements. Prior approval request submittal shall provide sufficient information to determine the quality of the product and system in comparison to the specified products and systems.
- B. Roofing Systems and Products.
 - 1. Finished Roofs: Polyglass – Polyflex G FR, “ASTM D-6222, Type I. One layer reinforced.
 - a. White.
 - 2. Polyglass Premium Cold Application Adhesive.
 - 3. Polyglass Flashing Cement.
 - 4. Polyglass – Elastoflex SA V FR ASTM D-5147 & D-1970.
 - 5. Polyglass standard details (see also drawings for details).
- C. Insulation
 - 1. Polyisocyanurate roof insulation, Polytherm: ASTM C-1289, Type II, Class 1, glass fiber rigid board, top surface fiber reinforced black no asphaltic organic facer.
 - 2. Single Layer – 2.00 inch thickness, R-12, mechanically fastened to steel roof deck.
- D. Tapered Insulation
 - 1. Polyisocyanurate roof insulation, Polytherm: ASTM C-1289, Type II, Class 1, glass fiber rigid board, top surface fiber reinforced black no asphaltic organic facer.
- E. Nailers, Blocking And Miscellaneous Wood
 - 1. Sizes as indicated, equal to insulation thickness, refer to Section 061053, Miscellaneous Rough Carpentry.
 - 2. All wood pressure-treated with water-borne salts approved by Wood Preserver's Association.
- F. Fasteners
 - 1. Mechanical Fasteners: Roof insulation to be attached to metal decks using mechanical fasteners in accordance with manufacturer's and Factory Mutual's recommendations for I-90 approval. Fastener used acceptable to membrane manufacturer.
 - a. "Glasfast" fasteners for insulation, length as required to provide penetration into steel deck bottom of flutes as manufactured by Buildex Corp.

2. Attachment of Nailers: Flat-headed sheet metal screws, self-tapping, power-driven to provide penetration into steel deck and/or red head anchors into post tensioned concrete deck.
- G. Adhesive
1. Polyglass Cold Application Adhesive.
 2. (Tapered Roof Insulation) Two-Part Urethane Insulation Adhesive.
- H. Accessories
1. Cants: As may be required by roofing materials manufacturer; compatible with roof insulation and roofing materials to provide smooth tapered surface application for roof membrane.
 2. Provide (1) layer 5/8" Type 'X' gypsum sheathing per ASTM C36/1396 on top of roof deck at 1/2" per foot structural slope roofs 1, 5 & 6. Provide tapered insulation at crickets only. Refer to plans.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Verify deck is clean and smooth, free of depressions, waves or projections.
- B. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof area solidly set, wood nailing strips and reglets are in place. Verify deck supported and secured.
- C. Verify deck surfaces are dry and free of moisture.
- D. Beginning of installation means acceptance of substrate.
- E. Manufacturer's representative shall make a minimum of two (2) site inspections, pre-construction, two (2) intermediate and final, with written field reports from each visit that shall be submitted with warranty documents.

3.2 COORDINATION

- A. This contractor will ensure that all wood items, miscellaneous metals, flashings and counter-flashings, including gutters, are installed and secured properly; that all required blocking is in proper location to assure proper fastening of sheet metal roof.
- B. Coordinate with Section 061053, Miscellaneous Rough Carpentry, for treated wood requirements for all roof insulation stops, etc.

3.3 PROTECTION

- A. Protect building surfaces against damage from insulation and roofing work.
- B. Assure that interior of building will be protected from infiltration of water at close of each day.
- C. Assure that interiors of all buildings will be protected from infiltration of hot bitumen.
- D. Properly close off and or protect all roof openings as relates to fall protection prior to commencing roofing work.

3.4 INSTALLATION

- A. Steel Decks:

1. Apply insulation in strict conformance with Factory Mutual procedures found in latest edition of FM Global Guide.
2. Single layer of insulation to be applied to steel deck with long edges perpendicular to steel deck flutes, with staggered joints and all short edges bearing solidly on deck flute surfaces.
3. Mechanically fasten with Ultrafast fasteners per requirements of Factory Mutual I-90, using five (5) fasteners per 4 foot x 4 foot board.
4. Install treated wood nailers, trimmed to same depth as insulation, for perimeter wood, gutters and specially located blocking as insulation is laid, as indicated or required by the Roofing Contractor.
5. Edges of insulation boards mitered at edges and elsewhere to prevent open joints or irregular surfaces. Edges butted to provide moderate contact but not deformed.
6. Provide treated wood nailers on all inclines exceeding 2 inches per foot as directed by the roofing manufacturer. Nailers trimmed to insulation thickness.

B. Wet Insulation: Protective membrane roofing shall not be applied over wet insulation.

3.5 CANTS

- A. Provide at all vertical intersections to be flashed, or where indicated or required, to facilitate protective membrane and roofing manufacturer's guaranteed roofing system.

3.6 NAILING STRIPS

- A. Provide treated wood nailing strips at all roof edges and at locations required by the roofing manufacturer at all roof slopes over 2 inches per foot, and as detailed, built-up to same thickness as finished surface of roof insulation material. Secure with power-driven sheet metal fasteners at 12 inches o.c. and to each layer of multiple-layered nailers. If bolt anchorage for perimeter nailers are used, provide nuts and washers countersunk and bolts cut flush with top of nailer.

3.7 CLEANING

- A. Leave roof deck clean and in proper shape to receive base sheet.

3.8 BASE SHEET AND MEMBRANE APPLICATION

- A. System (Base) Sheet: Install the base sheet to the roof insulation with self adhesive by shingling from the low point on the roof. Fold the aligned membrane in half, exposing the dual release film. Peel release film at a 90 degree angle in a constant motion ensuring to keep weight on the outer edges, Position the next sheet by overlapping seems and line up the overlap on the top sheet edge with the inside of the bottom sheet's factory selvage SEALLap edges. Overlap and cut end laps minimum 6". Press the membrane into place with firm, even pressure. At seam overlap minimum 4", align next sheet of application, fold sheet back, and remove split release film. Remove, from the installed roll, the protective tape, SEALLap and apply even pressure to the self sealing SEALLap area, while overlapping the next sheet. After adhering rolls, roll entire sheet areas by using an 80lb (minimum) weighted roller.
- B. Polyflex G FR Membrane: Install the membrane by shingling from the low point on the roof or by strapping with the slope of the roof deck, running the membrane parallel to the direction of the system base ply offsetting side laps from laps in the system base ply a minimum of 6 inches. The APP membrane shall be adhered by heat welding or adhesive squeegeed at 2 gallons per 100 S.F. solidly over the base ply. Side laps shall

be minimum 3 inches, end laps minimum 6 inches. Side and end laps shall be rolled with a 20 pound steel roller, with a continuous bead of adhesive which should be visible at all laps/seams after application. Roll out membrane to ensure exact positioning. Apply adhesive to base sheet by means of manufacturer approved squeegee or spray. After membrane has been fully adhered to Base Ply, check all side and end laps with a trowel to ensure that laps are fully adhered. Any areas where full adhesion of the ply is not obtained must be re-adhered and trowelled into place so that total adhesion of entire lap is accomplished. Edge of lap shall then be rounded off with a trowel to provide smooth seam.

- C. Flashings conform to manufacturer's recommended flashing details and as detailed per Architectural drawings whichever is stricter to provide weather tight, watertight installation.
 - 1. Roof Edge: Extend the membrane to edge of roof. Install edge metal as detailed, prime, and adhere or heat weld on membrane stripping over metal and extending 6 inches onto the membrane surface.
 - 2. Vertical Walls: Extend deck membrane up vertical surface minimum of 8 inches or as noted. Overlap continuous strip of surface membrane 4 inches above deck membrane and extend down and over deck surface minimum of 6 inches and torch on. Provide metal counter-flashing and install over flashing, or under cap flashing.

3.9 FLASHINGS

- A. Apply Polyflex G FR flashing to seal membrane to vertical elements.
- B. Coordinate with the installation of roof accessories and sheet metal edges and related flashings. Roof installer and Roof Manufacturer are responsible for integrity of all flashings per Roof Manufacturer's full system guarantee.
- C. Seal flashings and flanges of items protruding through membrane.

3.10 CLEANING

- A. Remove bituminous markings from finished surfaces. In areas where finished surfaces are soiled by asphalt or any other source of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning, advise and conform to their instructions.

END OF SECTION 07 5216