PART 1 - GENERAL

1.1 SUMMARY:

A. Section Includes:

1. Roofing membrane.
2. Roof insulation.
3. Base flashing.
4. Vapor retarder.
5. Thru-wall scuppers.
6. Copings and flashing.
7. Fasteners, adhesive and sealants.

B. Related Sections:

1. Section 07600 - Flashing and Sheet Metal.

1.2 REFERENCES:

A. Codes/Standards:

1. Roof system shall comply with all I.C.B.O. requirements, match FM I-90 wind uplift resistance criteria and be compatible with application on specified deck.
2. UL Listed Products: Provide materials which have been tested and listed by UL for Class A.
3. Conform to Uniform Building Code Requirements for "high wind" areas. Provide ICBO approval documentation and, if necessary, design calculations for building and site conditions.
4. Design roof system to resist wind velocities indicated on the Boulder County Wind Map. Note that wind speeds vary across the campus.

1.3 SUBMITTALS:

A. Submit complete description, specifications, and details of total roof system.

B. Shop Drawings:

1. Submit shop drawings showing sheet layout, seam locations, penetrations, special conditions and details not standard with the manufacturer.

2. For tapered insulation systems, furnish layout shop drawings showing thickness, slopes, valleys, ridges, top elevations, straight and tapered unit locations, as required to provide uniform drainage pattern and meet thermal performance requirements.
C. Submit samples.
D. Submit certification or test data substantiating aged thermal performance of insulation.

1.4 QUALITY ASSURANCE:
A. Qualifications:
   1. Roof applicator shall have minimum of 5 years satisfactory continuous experience under the same company name and shall be approved in writing by roof system manufacturer for application of roof for which warranty will be issued. Submit satisfactory evidence of conformance.
   2. Roof system manufacturer shall have roofing systems installed in the metro area with a minimum of 5 years satisfactory continuous performance. All components of proposed system shall be the same as system which has had 5 years satisfactory performance.
B. Pre-Roofing Conference:
   1. Meet at the project site and review requirements for the work and conditions which could possibly interfere with successful performance of the work. Require every party who is concerned with the work, or required to coordinate with it or to protect it thereafter, to attend the conference.
   2. Confirm that the applicator and manufacturer accepts the roofing substrate. Coordinate with appropriate party any remedial action required to make substrate acceptable.
   3. Where roofing is required to be guaranteed by the manufacturer, require manufacturer's technical representative to participate in the conference.

1.5 WARRANTY:
A. Provide a minimum 10-year written warranty to extend from date of the Notice of Acceptance and to cover materials and workmanship.
B. Warranty to cover entire system and to be signed by both applicator and manufacturer.

PART 2 - MATERIALS

2.1 MANUFACTURERS:
A. Carlisle SynTec Systems
B. Firestone Industrial Products Co.
C. Fibertite
2.2 MATERIALS:

A. EPDM Sheet System:

1. EPDM synthetic rubber (ethylene propylene diene monomer) in 60 mil thick sheet for ballasted system, largest widths (up to 40 ft.) suited to application, complying with ASTM D4637, Type I, Class U. Sheet polymer must be 100% by weight EPDM and sheet must contain at least 30% by weight EPDM polymer. 90mil EPDM is also acceptable.

2. 60 + 10 Shore A hardness.

3. 1400 psi tensile strength.

4. 125 lbs. per in. tear strength.

5. 300% elongation.

6. -75° F. brittleness temperature.

7. Provide 60 mil uncured EPDM flashings and rubber pipe penetration boots.

8. Produced and recommended specifically by manufacturer for use in a roofing system.

B. Surface Ballast:

1. Pavers: For all areas, precast concrete pavers weighing not less than 10 psf nor more than 15 psf, manufacturer's standard size (maximum 24" x 24") with drainage channel backs and interlocking edges. Fabricate from air-entrained, reinforced, normal weight concrete with a minimum 28-day compressive strength of 4000 psi.

2. Roof pavers, as acceptable to the roofing system manufacturer.

C. Vapor Retarder:

1. Laminated, reinforced polyethylene sheet as manufactured by Griffolyn Division of Reef Industries or approved substitute.

2. Include adhesives, tapes, flashing, and accessories as recommended by manufacturer to maintain vapor rating.

3. Provide for roofs over pools, shower rooms, kitchens, and other high humidity areas.

D. Protection Sheet: Carlisle HP polyester protection sheet, or approved substitute placed
between top of membrane and surface ballast. Lap protection sheet per manufacturer recommendations. Arrange ballast and protection sheet to avoid blocking roof drainage.

E. Thermal Barrier: ASTM C442 dens-deck, 5/8" type X or ASTM C36 gypsum board, 0.625" thick, Type X, 4' width, square edge.

 PROVIDE THERMAL BARRIER ONLY WHERE REQUIRED.

2.3 INSULATION:

A. General:

1. Insulation installed over steel roof deck shall be fire approved for Class I steel deck construction by Factory Mutual Research Corporation, or for metal roof deck constructions fire labeled by Underwriters' Laboratories, Incorporated.

2. Insulation type and brand must be acceptable to roofing system manufacturer and of the type approved for the UL rating specified.

3. Expanded polystyrene (EPS), "Bead Board" is not acceptable as component on any type roofing system.

B. Board Insulation:

1. Rigid polyisocyanurate insulation board integrally faced both sides, complying with FS HH-I-1972, Class 1 (faced both sides with fibrous mat membrane); thermal resistance (R-value at 75°F) when aged in accordance with RIC/TIMA Bulletin 281-1 but not to exceed 5.56 per inch; manufacturer's standard sizes and bearing RIC/TIMA label on packaging.

C. Tapered System:

1. Where insulation is indicated as sloped or tapered to form crickets or provide slope for drainage, provide full thickness polyisocyanurate tapered units, used in combination with other specified nontapered boards to form required levels.

 D. Insulation Thickness: As required to achieve an average R=30 thermal resistance for total roof system.

PART 3 - EXECUTION

3.1 INSTALLATION:
A. Mechanically fasten the first course of insulation. Do not use fasteners which will damage the vapor retarder, if any.

B. Vapor Retarder: Loose lay vapor retarder in between insulation layers, below the dew point.
   Lap, tape, seal, and flash vapor retarder to maintain integrity of the system.

C. Curb height from finished roof shall be 12” from roof to top of curb.

D. On Jobs the use glue, make sure lids are on cans around any air intakes to make sure fumes do not go inside to the air handling systems.

E. PVC roofs are acceptable. When job is completed, check all seams to ensure there are no cold welds. Use weldable metal for all scuppers and overflows and edge metal. Protect roofing membrane from damage if other trades are working on finished product. Small amount of material be given to roofing shop for any repairs necessary after warranty expires. On all pipes, use boots over pipe where possible. Do not wrap pipes unless absolutely necessary.

END OF SECTION 07530