PART 0 DESIGN STANDARDS

0.01 GENERAL DESIGN GUIDELINES

A. Roofing systems preferred by DPS, in order of preference:

1. Built-up
2. Fully adhered EPDM

B. Fully detail the roofing system. Details shall be custom designed to address the specific conditions present on the building, including corners, changes in direction and differences in adjacent roof elevations. Manufacturer's standard details shall not be assumed to be adequate for the needs of DPS. Although details need to be acceptable to the manufacturer, details may be different than the manufacturer's standard details.

C. Roof assembly shall be designed to meet UL Class A, for combustible or noncombustible deck types.

D. Roof assembly shall be designed to meet FM I-90 wind uplift rating.

E. Roof system general design requirements, roof deck numbering: Refer to standard Section 07240.

F. Roof system slope and drainage: Refer to standard Section 07240.

G. Where included in the scope of services, the A/E shall provide daily construction observation reports to the DPS Project Manager.

H. Equipment support systems

1. Rooftop equipment shall be mounted to curbs that are flashed in to the roof system. Roof curbs shall be specified in appropriate specification sections.
2. Rooftop conduits shall be supported using methods approved by DPS. Supports shall not penetrate the roof membrane.
3. Gas lines shall be supported using an alternate method specified under the mechanical sections, and the method shall be approved by DPS.
4. A/E shall coordinate minimum heights and clearances with applicable codes.

I. At base-flashing details where the roof deck/roof framing is not supported by the higher wall, a wall expansion joint detail shall be used. This shall be achieved using a wood curb of continuous elevation, with 8" minimum height above high point of adjacent insulation elevation, including any crickets/saddles that intersect the perimeter in question. Wall expansion joint detail shall be sealed using a single-ply membrane drape and sheet metal cover, as directed in Section 07620.

J. Exhaust all other options prior to approving or designing a pitch pan.

K. A/E shall lay out all roof penetrations and shall provide clear documentation of the acceptable minimum separation between penetrations, considering flashing requirements.

L. Permanent walkway pads are required around the perimeters of major rooftop mechanical equipment (exhaust fans excepted) and at roof access points.

PART 1 GENERAL

1.01 QUALITY ASSURANCE

A. Qualifications of Trade Contractor

B. Qualifications of Installers

C. Supervisor Qualifications

1.02 WARRANTY

A. The Contractor shall warrant all materials and workmanship for a period of two years from the date of acceptance of the completed work by DPS. The Contractor shall make good any defects in materials or workmanship that may develop during the two-year period by repairing or replacing such defects at his own expense without cost to DPS.

B. Contractor shall perform all warranty work within 10 days of notification that a defect has been discovered. Unless specifically approved in writing by the DPS Project Manager, Owner may undertake repairs at Contractor's cost if Contractor fails to repair/replace defective materials or workmanship within 10 days of notification.

C. Membrane Manufacturer's 10-year, total installed cost, labor and material, total roof system warranty shall be provided. The total system warranty shall include the following:

1. Roof membrane
2. Roof membrane adhesion
3. Roof membrane flashings
4. Roof insulation
5. Roof insulation attachment
6. Roof system fasteners, termination bars, pre-manufactured metalwork, and other miscellaneous accessories supplied by the membrane manufacturer
7. Warranty shall cover defects in materials and workmanship. Warranty shall not include any buy-out clauses and shall not be prorated.
8. The warranty shall be underwritten by the Membrane Manufacturer.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Johns Manville Roofing Systems Group

B. TAMKO Roofing Products

C. Firestone Building Products

D. GAF Materials Corporation

E. Owens Corning

F. Celotex

2.02 PRODUCTS

A. Roof insulation: See Section 07240.

B. Roofing Felts

1. Sheets: Four plies of asphalt-impregnated glass fiber mat, Type IV.
2. Felt Envelopes: Non-perforated, asphalt-saturated organic roof felt, Type I.

C. Roofing Bitumens

1. Asphalt Bitumen

a) Interply moppings: Type III or IV to be determined by A/E

b) Flood coat: Type II or III to be determined by A/E

c) Flashings: Type III or IV to be determined by A/E

2. Asphalt Primer

D. Flashings

1. Base Flashing Materials: One ply of SBS polymer modified bitumen reinforced with a polyester and/or glass fiber mat. Top ply shall be granule surfaced.
2. Strip Flashing Materials: One ply of granule-surfaced SBS polymer modified bitumen sheet reinforced with a polyester and/or glass fiber mat:.

E. Surfacing: Gravel

F. Asphalt roof cement

G. Related materials

1. Lead flashing for roof drains 27” x 27”, minimum 4 pound lead.
2. Pipe or vent jackets shall be minimum 3 pound lead with cap designed for use on flat roof construction.
3. Wood nailers: See Section 06100.
4. Walk way pads
5. Flashing securement devices shall be of adequate design to achieve substantial and positive anchorage.
6. Pitch pan materials
   a) Pourable sealant: Two-component polyurethane sealant
   b) Primer: Polyurethane primer
   c) Grout: Quick set, non-shrink, cementitious grout
   d) Sheet metal: See Section 07620

PART 3 EXECUTION

3.01 PRE-ROOFING CONFERENCE

A. Prior to the start of roof installation, an on-site pre-roofing meeting shall be held with the A/E, Contractor, all necessary Trade Contractors, Crew Foremen, Roof Membrane Manufacturer, DPS Project Manager, and DPS Maintenance in attendance.

B. The purpose of the meeting will be to assist in coordination and scheduling; discuss access; review technical aspects (drawings, specifications, and submittals), and quality control issues.

3.02 PREPARATION

A. To the greatest extent possible, roofing work should not commence until drains, curbs, cants, blocking, nailers, penetrations and related construction are completed.

B. Notification of unacceptable conditions:

1. Trade Contractor shall notify General Contractor, A/E or DPS Project Manager of conditions which are unsuitable for roofing application.
2. Commencement of work shall be evidence of Contractor’s acceptance of existing conditions.

3.03 APPLICATION/INSTALLATION

A. See Section 07240 for roof insulation and drainage standards.

B. Ensure that fasteners do not penetrate conduit or other miscellaneous items located on the underside of the roof deck.

C. Do not apply roofing materials when water in any form (i.e. rain, dew, ice, frost, snow, etc.) is present.

D. No phased construction is allowed. Each roof section is to be fully completed at the end of each working day. If it becomes necessary to employ a phased application due to a sudden rainstorm, the temporarily installed felts shall be removed prior to proceeding with the installation.

E. Maintain asphalt temperature within 25 degrees F of recommended equiviscous temperature at the point of application..

F. Set roofing plies in hot asphalt bitumen at a solid nominal uniform rate of 25 lbs. per 100 square feet. The bitumen shall be sufficiently hot to ensure a complete bonding of plies. Certain weather and roof conditions may require brooming in all plies.

G. Do not walk directly on felts for a minimum of 20 minutes to allow for proper adhesion of the felts.

H. Envelopes shall be incorporated into the asphalt roof assembly at all edges and penetrations through the roof membrane.

I. Valleys/waterways. Install an additional ply of felt and mopping of bitumen at all valley and waterway locations.

J. Flashing height shall be minimum 8” above finished roof height.

K. Pitch Pans

1. Pitch pans shall be avoided where possible.
2. Pitch pans shall have a minimum depth of 4”, a minimum flange width of 4” and a minimum clearance of 2” from penetrations on all sides.
3. Prime pitch pan interior and penetration with polyurethane primer.
4. Fill the lower portion of pitch pan with non-shrink grout and allow to dry.
5. Fill top 2” with pourable sealer.
6. Pourable sealer shall be completely protected by a watertight sheet metal cover.

L. Temporary water cutoffs are to be constructed at the end of each working day to protect the insulation, roofing, building, and building interior from damage due to wind, snow, and rain.

1. All temporary water cutoffs shall be removed at the commencement of work the next working day

M. Roof surfacing shall commence only after completion of all necessary corrective work and written approval of the completed field membrane, flashings, and set-on metal accessories by the Contractor, Trade Contractor, Manufacturer, and A/E.

END OF SECTION 07521