DIVISION 07 – THERMAL AND MOISTURE PROTECTION
07 70 00 ROOF AND WALL SPECIALTIES AND ACCESSORIES

PART 1 - GENERAL

1.01 DESIGN CRITERIA

A. Roof Protection:

1. Wherever required for service personnel to walk on roof decks, install 1/2 inch walking pads compatible with the roofing material.

2. Where ice can fall from eaves above to lower roofs below:

i. Install snow and ice guards
ii. Protect lower roof by installing compatible walking pads.
iii. Post a sign warning of falling ice hazard.

B. Roof-mounted Piping and Conduit:

1. Roof Penetrations: All roof penetrations shall be sealed watertight with manufacturer-recommended, factory-made pipe seals compatible with the roof surface (example: Carlisle Sure-Seal EPDM Pipe Seals or equivalent).

2. Horizontal Runs:

1) Roof Surfaces: Roof-mounted piping and conduit shall be supported with manufacturer-recommended, factory-made saddles compatible with the roof surface (example: Erico Caddy Pyramid fixed strut supports or equivalent).

2) Parapets: Piping and conduit runs over parapets are discouraged, and require specific approval from the WSU Project Manager.

1) When required and approved, piping and conduit runs over parapets shall be supported with galvanized metal framing compatible with the parapet surface (example: Power-Strut PS 500 steel channel or equivalent).

C. Roof-mounted Equipment:

1. Any roof-mounted equipment shall be placed such that it rests on galvanized steel support beams with vibration isolation mechanisms.

2. Roof wells for roof-mounted equipment are not acceptable.

D. Access Hatches

1. All access hatches shall conform to the requirements of WAC 296-24-75003.

2. All access hatches shall be safely oriented such that, when opened, the user is not facing the edge of the roof.

3. If the hatch opens onto the roof with egress from a ladder:

   i. Provide a tie-off near the top of the ladder if the hatch is locked.
   ii. Ladder shall be permanently installed and shall comply with current ANSI standards for fixed ladders.

4. The following restrictions additionally apply if a 42" parapet is not present on the roof (see section 07 40 00):

   i. Any roof access hatches installed within ten feet (10') of the roof edge requires guardrails conforming to the requirements of WAC 296-24-75011 (at a minimum).
   ii. On sloped roofs, install a tie-off at the exit point from the hatch.
   iii. Ensure the hatch is designed to fully open (to a vertical status) and a grab bar meeting fall protection standards is present, extendable to 42" above the roof.

E. Fall Protection Anchors: Provide fall protection anchors as required per WSU Design Standard 07 00 00.

1. Contractor shall provide the WSU Construction Manager (CM) with documentation of on-site testing of all fall protection devices as recommended by the manufacturer.

2. Fall protection anchors shall be installed per manufacturer's recommendations.

F. Heating Cables

1. All drains, overflows, eaves, gutters, and downspouts shall be provided with heating cable per WSU Standard Drawing 23 83 13 E1 "Typical Heating Cable Control Schematic."

2. Design Criteria:

   i. Heating cable shall vary power output inversely with temperature (i.e., power output decreases as temperature increases). Constant watt output cables are not acceptable.

   ii. Provide current proof on each heating cable circuit using Veris Hawkeye current switches. Monitor current switch position using the WSU Building Automation System (BAS). The BAS shall be

programmed to alarm when heating cables should be on but are not drawing current.

iii. Design breaker sizing based on a heater startup temperature of 0°F.

iv. Set local controller to turn on heating cables below 40°F. Utilize a multi-pole contactor for multi-circuit applications as needed.

v. Design circuits for 1.5A draw minimum.

vi. Heating cable shall deliver a nominal power output of 8 watts per foot in drains, ice, and snow, or other wattage output as approved by the WSU Integrated Engineering and Infrastructure Group (IEIG).

vii. Heating cable shall be powered at designated voltage without use of transformers.

PART 2 - PRODUCTS

2.01 FALL PROTECTION ANCHORS:

A. Anchor Points: Galvanized steel stanchions with steel base plate designed for anchorage over reinforced concrete and/or structural steel base.

1. Manufacturer: Guardian Fall Protection CB-18 or approved equal.

B. Swivel Anchors: Galvanized steel wall anchors for anchorage into reinforced concrete.

1. Manufacturer: Guardian Fall Protection Swivel Anchor Model 00293 or approved equal.

2.02 HEATING CABLES

A. Cables: Raychem Wintergard H612 or approved equivalent.

B. Warranty: Contractor shall provide a 10-year manufacturer warranty for heating cables and accessories.

2.03 CONTROLS & MONITORING

A. Reference WSU Typical Heating Cable Control Schematic E 28 83 13.

B. Local Controller: Honeywell Farm-O-Stat

END OF SECTION