TECHNICAL INSTALLATION PROCEDURES

TIP-001
Single-Ply
Roof Replacement

A. DESCRIPTION:

This procedure is for the installation of the MID System in a replacement roofing system where the existing roofing system is being removed down to a sound vapor retarder or roof deck. The replacement roofing system consists of new insulation and a single ply membrane mechanically attached, fully adhered, loose laid and ballasted, or equalizer valve attached.

B. PURPOSE:

This procedure is designed to maximize the performance of the MID System, ensure proper sensor installation in roofing systems, and to act as a guideline for Contractors to generate pricing for proposals. Also, the intent of this procedure is to standardize the method of installation to ensure that each MID System installed meets all of the specification requirements and warranty criteria.

C. ROOF TYPE:

1.Deck: All types.
2. With or without a vapor retarder.
3.Tapered with a flat insulation overlayment or flat insulation installed in two layers minimum with staggered joints between layers. Note: 1st layer of insulation 1" thick min. And the overlayment 1/2" thick minimum.
4. A 6 mil min. polyethylene sheeting installed over the bottom layer of insulation with the joints overlapped a minimum of 12 inches and taped with 2" Polyethylene tape.
5. All layers of insulation board mechanically attached.
6. Single-ply membrane.

D. SENSOR TYPE:

There are two (2) sensor types: the Main Sensor and the Satellite Sensor. The sensors are manufactured in three configurations, one sensor, three sensors, and five sensors with each sensor having a unique number code.

E. TOOLS/MATERIALS REQUIRED:

1. Sensor layout shop drawing.
2. Chalk box and chalk.

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3. Razor blade knife.
4. MID Systems hand coring tool.
5. Tape measure.
6. MID System sensors.
7. Flat tip screw driver.
8. Loose fill insulation.
9. 2 inch polyethylene tape.
10. Safety glasses with side shields or goggles.
11. Red permanent marker.
12. Zip lock plastic storage bags.

F. INSTALLATION:

1. After installation of the insulation (tapered or flat) and prior to the installation of the polyethylene sheeting, layout the sensors in the grid pattern as required in a group of three (3) or in a group of five (5) where the cable connecting the Main Sensor to the two (2) or four (4) Satellite Sensors will not run perpendicular to the overlayment insulation board. Refer to the sensor layout shop drawing and use a chalk line to establish the grid pattern and location of the sensors. There may be installations that will require the cable to be run perpendicular to the overlayment board. If so, the location of the mechanical fasteners should be checked to keep from cutting or damaging the cable.

   NOTE: The center of each sensor shall be directly beneath the T-joint of the overlayment board.

2. Set the depth gauge on the tool or device used for cutting the hole for the installation of the sensor.

3. With the hand coring tool, carefully cut a hole into the bottom layer of insulation to the required depth for the sensor, being sure not to cut into the vapor retarder if present. Remove the required insulation to ensure that the top of the sensor will finish slightly below (1/8" - 1/2") below the top of the bottom layer of insulation. If too much insulation is removed from the hole, repack the hole with the required amount of loose fill insulation.

4. Install a 6 mil polyethylene sheet over the bottom insulation with the side and head joints overlapped approximately 12 inches. The 6 mil polyethylene sheet joints shall be shingle-lapped installed with the direction of water drainage, where water cannot run under the sheet. Tape the joints in the polyethylene sheeting with 2" polyethylene tape.

5. Insert the Main Sensor in the hole cut in the insulation by applying pressure to the top of the sensor and pressing it into the hole ensuring the polyethylene sheeting is pushed down into the hole creating a tight fit. The sensor should be installed with the top of the sensor not exceeding flush with the top of the insulation or slightly recessed if possible.

   NOTE: If installing the sensors in tapered insulation, the sensor shall be installed with the same slope as the insulation with the battery located on the low side of the slope.

6. Layout the cable from the Main Sensor to the two (2) or four (4) Satellite Sensors, where the cable is directly beneath the joints of the overlayment insulation board or where the cable will not be damaged by the installation of the mechanical fasteners. Install the two (2) or four (4) Satellite Sensors following the same procedure used for installing the Main Sensor.

7. Indicate the Sensor number on the sensor layout shop drawing and provide accurate dimensions in each direction for the sensor installation as-built drawing. Also, note any known problems or variances from the installation procedure, specifications, etc. on the sensor layout shop drawing.

8. Install the overlayment insulation board as required.

   NOTE: Ensure that the cables connecting the Main Sensor to the Satellite Sensors are not in the way of the mechanical fasteners.

9. Mark the sensor number on the top of the overlayment board at each location with a permanent red marker.

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10. Loose-lay or Mechanically fasten all layers of insulation.

11. Install the Single-Ply roofing membrane as required.

G. GENERAL INFORMATION:

1. Store sensors in a dry covered area where they will not be exposed to the weather.

2. In situations where all three (3) or fine (5) sensors are not installed in the grouping of three (3) or five (5), insert the sensor(s) not installed in a plastic zip lock bag making sure the sensor will not be exposed to moisture or water. Seal around the cable with tape.

3. Do not expose sensor unit to direct contact with hot bitumen.

4. Do not use a sharp tool in the water collection area of the sensor housing when when pressing in place.

END OF SECTION