

TECHNICAL NOTE 97.04

Recover Systems: LIGHTGUARD® Recover Over Existing Mechanically Attached Single Ply Membranes

General

Codes allow only two roofs. This system, therefore, is designed to go over an existing, mechanically attached system. Prior to construction, the roof shall be surveyed for moisture; all saturated* insulation shall be removed and replaced with the same type of insulation as in the original installation. The deck shall be surveyed by others and declared sound. Record of the moisture and deck survey shall be provided by the contractor of record.

Wood or Steel Decks

The primary assumption with mechanically attached systems on wood and steel decks is that there is no air barrier under the membrane, but the membrane can be made into an air barrier.

The old, mechanically attached membrane will become the air barrier in the new system. Therefore, the existing membrane must be intact and reasonably watertight. Any existing splits and tears should be repaired with standard repair techniques for the existing membrane. If the existing membrane has shattered or is otherwise permeable, the system or the area of damage must be covered with minimum 6mil polyethylene sheet.

Over the existing or repaired system, mechanically attach a rigid insulation board to the structure deck. Minimum requirement is installation to the uplift requirements of Factory Mutual 1-60. Table 1 specifies the number of fasteners required. Figure 1 shows fastener placement. Fasteners must be corrosion resistant and exceed the minimum corrosion requirements of Factory Mutual. Table 2 shows approved recovery boards and insulations.

Note: Before specifying extruded polystyrene over steel deck, determine if a fire classified system exists below the existing membrane. Some classified systems include: minimum 0.5 inch gypsum board, 0.25 inch Dens Deck, 1.2 inch polyisocyanurate foam, 1 inch wood fiber, and 1 inch perlite.

The new membrane must be installed loose laid or fully adhered over the new rigid insulation. LIGHTGUARD® is installed over the membrane according to current T. Clear specifications for systems over loose laid membranes.

Concrete, Lightweight Concrete, Concrete T's, or Poured Gypsum Decks

The primary assumption is that the deck serves as an air barrier. Therefore, all perimeters and penetrations shall be made airtight, before proceeding with the re-cover.

After determining that all penetrations are airtight, proceed with installation of an approved insulation over the existing membrane system. The insulation shall not be mechanically fastened; it must be loose laid over the membranes.

Warranties

Re-cover systems, installed according to T. Clear Specifications, are eligible for T. Clear's Total Performance Warranty (10 year maximum).

* The insulation shall have greater than 80% of its original R-Value as defined by New Wetting Curves for Common Roof Insulation's: Tobiasson et. al.; Published in Third International Symposium on Roofing Technology. Alternatively drying curves developed and provided to T. Clear Corp. at Notice of Award must show the insulation completely drying in less than two years.

TABLE 1: FASTENERS REQUIRED

Exposure B: City, Suburban								
3 Second Gust ASCE 7-02	Fasteners, per 8 square feet							
Basic Wind Speed	85	90	100	110	120	130	140	150
<i>Building Height (ft.)</i>								
0 - 15	2	2	2	2	2	2	2	N
>15 - 30	2	2	2	2	2	2	2	N
>30 - 45	2	2	2	2	2	2	2	N
>45 - 60	2	2	2	2	2	2	2	N
>60 - 75	2	2	2	2	2	2	S	N
>75 - 90	2	2	2	2	2	2	S	N
>90 - 120	2	2	2	2	2	2	S	N
>120 - 150	2	2	2	2	2	S	S	N
Exposure C: Open, Flat								
3 Second Gust ASCE 7-02	Fasteners, per 8 square feet							
Basic Wind Speed	85	90	100	110	120	130	140	150
<i>Building Height (ft.)</i>								
0 - 15	2	2	2	2	2	2	2	N
>15 - 30	2	2	2	2	2	2	N	N
>30 - 45	2	2	2	2	2	S	N	N
>45 - 60	2	2	2	2	2	S	N	N
>60 - 75	2	2	2	2	2	S	N	N
>75 - 90	2	2	2	2	S	S	N	N
>90 - 120	2	2	2	2	S	S	N	N
>120 - 150	2	2	2	2	S	S	N	N

TABLE 1 KEY	2	50% more fasteners in corners.
	2	Double fasteners in corner area, 50% more within 8 feet of perimeter.
	2	Do not install LIGHTGUARD if parapet height is less than 3 feet in this wind zone.
	S	Do not install LIGHTGUARD if parapet height is less than 3 feet in this wind zone. Fastener pattern determined by latest FM wind load approval for 1-135 or higher requirements.
	N	Do not install LIGHTGUARD in this wind zone.

TABLE 2: APPROVED RECOVER INSULATION

Insulation	Minimum Thickness	Type
Extruded Polystyrene	1"	ASTM D578 Type 4
Dens Deck & Gypsum Board	.5"	
Iso Board	1.2"	

FIGURE 1

Fastener Placement 4 x 8 ft. (1.2 x 2.4m) boards.

