



G U I D E - S P E C

Sure-Weld® FleeceBACK Mechanically Fastened Roofing System

January 2025

This **GUIDE-SPEC** is a brief outline of Carlisle's Sure-Weld FleeceBACK Mechanically Fastened Roofing System requirements and is intended for use as a submittal with a bid package. Specifiers and the Carlisle Authorized Roofing Applicator must comply with the applicable Sections of Carlisle's Technical Manual, prior to design or bid.

PART I GENERAL

1.01 DESCRIPTION

The **Sure-Weld FleeceBACK Mechanically-Fastened Roofing System** incorporates 45, 60 or 80-mil thick, 12' or 6' wide white, gray, tan or Special Color TPO, Sure-Weld membrane laminated to a 55-mil non-woven fleece backing resulting in a total finished sheet thickness of 100, 115 or 135-mils. Without an underlayment, the membrane can be installed directly over a smooth surfaced BUR, mineral surfaced cap sheet or modified bitumen and mechanically fastened to an acceptable steel or wood deck with Carlisle HP-X Fasteners and Piranha Plates spaced a maximum of 12" on center. Adjoining sheets of membrane are joined together with a minimum 1-1/2" wide hot air weld. Membrane securement to other types of decks will require an approval from Carlisle depending upon pullout values achieved.

1.02 QUALITY ASSURANCE

- A. This roofing system must be installed by a Carlisle Authorized Roofing Applicator in compliance with shop drawings as approved by Carlisle SynTec.
- B. Upon request, an inspection shall be conducted by a Field Service Representative of Carlisle to ascertain that the membrane roofing system has been installed according to Carlisle's published specifications and details applicable at the time of bid. This inspection is to determine whether a warranty shall be issued. It is not intended as a final inspection for the benefit of the owner.
- C. For specific code approvals achieved with this system, refer to Carlisle's FleeceBACK Code Approval Guide, DORA (Directory of Roof Assemblies), FM Approvals or UL Fire Resistance Directory for Roofing Materials and System.

1.03 SUBMITTALS

- A. To ensure compliance with Carlisle's warranty requirements, the following projects should be forwarded to Carlisle for review prior to installation, preferably prior to bid.
 - 1. Air pressurized buildings, canopies, and buildings with large openings, cold storage buildings or freezer facilities, adhered roofing system projects over 100' in height or projects where the FleeceBACK membrane is expected to come in direct contact with petroleum-based products, waste products (i.e., grease, oil, animal fats, etc) and other chemicals.
- B. Shop drawings must be submitted to Carlisle by the Carlisle Authorized Roofing Applicator along with a completely executed Notice of Award (Page 1 of Carlisle's Request For Warranty form) for approval. Approved shop drawings are required for inspection of the roof and on projects where on-site technical assistance is requested.

1.04 GENERAL DESIGN CONSIDERATIONS

- A. It is the responsibility of the building owner or his/her designated representative to verify structural load limitation. In addition, a core cut may be taken to verify weight of existing components when the roofing system is to be specified on an existing facility.
- B. On new construction projects, especially in cold climate regions, moisture generated due to the construction process could adversely impact various components within the roofing assembly if not addressed. [Refer to Design References DR-01-21 "Construction Generated Moisture" included in the Carlisle Technical Manual.]
- C. On structural concrete decks, when a vapor retarder is not used, gaps in the deck along the perimeter and around penetrations must be sealed along with vertical joints between tilt-up panels, if present, to prevent infiltration of hot humid air and possible moisture contamination resulting from condensation. This is



specifically important when adhesive is used to attach the roof insulation.

CAUTION: If left unaddressed, collected moisture could weaken insulation boards and facers resulting in a blow-off or increase the probability of mold growth.

D. Vapor Retarders

1. Carlisle does not require a vapor retarder for the protection of the membrane; however, it should be considered by the specifier for the protection of the roofing assembly (i.e. primarily insulation, underlayment and adhesives). The following criteria should be considered by the specifier:
 - a. Use of a vapor retarder to protect insulation and reduce moisture accumulation within an insulated roofing assembly, should be investigated by the specifier.
 - b. In the generally temperate climate of the United States, during the winter months, water vapor flows upward from a heated, more humid interior toward a colder, drier exterior. Vapor retarders are more commonly required in northern climates than in southern regions, where downward vapor pressure may be expected and the roofing membrane itself becomes the vapor retarder

1.05 WARRANTY

Table I FleeceBACK Mechanically Fastened Systems Warranty Options

Years	Minimum Membrane Thickness	Warranty Wind Speed			Additional Hail Coverage			
		55 or 72 mph	80 mph	90 or 100 mph	1" Dia. Hail	2" Dia. Hail	3" Dia. Hail	4" Dia. Hail
5,10, or 15 year	Sure-Weld 100-mil	√	N/A	N/A	N/A	N/A	N/A	N/A

Notes: N/A = Not Acceptable √= Acceptable

General: Mechanical Fastening refer to Attachment II, of the FleeceBACK Specification for number of fastening sheets and fasteners. Contact Carlisle for extended wind speed coverage or a 20-year System Warranty.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the job site in the original, unopened containers labeled with the manufacturer's name, brand name and installation instructions.
- B. Job site storage temperatures in excess of 90°F may affect shelf life of curable materials (i.e., adhesive, sealants and cleaners).
- C. Sure-Weld FleeceBACK Membrane should be stored in its original plastic wrap or be covered to protect from moisture. Any moisture absorbed by the fleece-backing must be removed by using a wet-vac system prior to membrane securement.

1.07 JOB CONDITIONS

- A. Refer to Carlisle Technical Manual for applicable project specific Job Conditions.

PART II PRODUCTS

2.01 GENERAL

The components of this roofing system are to be products of Carlisle or accepted by Carlisle as compatible. The installation, performance or integrity of products by others, **when selected by the specifier and accepted as compatible by Carlisle**, is not the responsibility of Carlisle and is expressly disclaimed by the Carlisle Warranty.

2.02 MEMBRANE

Sure-Weld FleeceBACK 100, 115 or 135 membrane incorporates 45, 60 or 80-mil thick Thermoplastic Polyolefin (TPO) membrane laminated to a 55-mil non-woven fleece backing resulting in a total finished sheet thickness of 100, 115 or 135- mils. Membrane sheets are available in rolls 12' or 6' wide by 50', 75' or 100' long. Sure-Weld FleeceBACK Membrane is available in white, gray, tan or Special Color TPO.

2.03 RELATED MATERIALS

- A. Sure-Weld Reinforced and Non-Reinforced Flashing, Pressure Sensitive Cover Strips, Cut-Edge Sealant, Weathered Membrane Cleaner,

Termination Bars, Insulation Fasteners and Water Cut-Off Mastic. Other Carlisle products such as insulation and edgings are also required when a System Warranty is specified.

- B. **Other Products:** Heat Weldable Walkway Pads, Pre-Molded Pipe Flashings, Split Pipe Seals, Curb Wraps, Inside and Outside Corners, LIQUISEAL Liquid Flashing and Pourable or Molded Sealant Pockets.

PART III EXECUTION

3.01 GENERAL

- A. When feasible, begin the application at the highest point of the highest roof level and work to the lowest point to prevent moisture infiltration and minimize construction traffic on completed sections. This will include completion of all flashings and terminations.

3.02 ROOF DECK CRITERIA

- A. A proper substrate shall be provided by the building owner. The structure shall be sufficient to withstand normal construction loads and live loads.
- B. Defects in the roof deck must be reported and documented to the specifier, general contractor and building owner for assessment. The Carlisle Authorized Roofing Applicator shall not proceed unless the defects are corrected.
- C. Refer to Carlisle Technical Manual for acceptable decks and the applicable Carlisle Fasteners (when mechanical attachment of insulation is specified).

3.03 SUBSTRATE REQUIREMENTS

- A. The membrane shall be installed over an existing smooth surfaced asphalt built-up roof (Type III or IV Asphalt), modified bitumen or mineral surfaced cap sheet and mechanically fastened to the roof deck with Carlisle HP-X Fasteners/Piranha Plates.
- B. The substrate must be dry, relatively smooth, free of protrusions, debris, sharp edges or foreign materials and must be free of accumulated water, ice and snow. Cracks or voids in the substrate greater than 1/4" must be filled with a suitable material.
- C. Cut and remove wet insulation as identified by the specifier and fill all voids with new insulation, so that it is relatively flush.

3.04 INSTALLATION

Refer to the applicable Safety Data Sheets and Product Data Sheets for cautions and warnings.

A. Membrane Installation

- 1. Sure-Weld FleeceBACK Membrane shall be positioned over the existing roof surface and mechanically fastened to the roof deck with Carlisle HP-X Fasteners and Piranha Plates spaced a maximum of 12" on center.

2. Perimeter Securement Requirements

The membrane shall be secured around the building perimeter using additional rows of HP-X Fasteners and Piranha Plates positioned along the centerline of the 12' wide sheets as follows.

Sure-Weld Pressure-Sensitive Cover Strips (in conjunction with TPO Primer) or a minimum 6" wide Sure-Weld Reinforced Membrane (hot air welded) shall be used to overlay the fasteners and plates.

- 3. Adjoining sheets of Sure-Weld FleeceBACK Membrane are overlapped approximately 5-1/2" along the length of the membrane (at the selvage edge) where fastening plates will be located. At end laps (along the width of the sheet), membranes shall be butted together which will be overlaid with minimum 6" wide Sure-Weld reinforced membrane hot air welded on all edges.

4. Membrane Splicing – Heat Welding

- a. Along the length of the membrane (at selvage edges), heat weld membrane sheets a minimum of 1-1/2" with an Automatic Heat Welder or Hot Air Hand Welder and silicone roller. Refer to the Carlisle Technical Manual for specific heat welding procedures.
- b. Membrane that has been exposed to the elements for approximately 7 days must be prepared by scrubbing the splice area with a Scotch Brite Pad and Carlisle Weathered Membrane Cleaner. Clean all residue from the prepared splice area with a HP Splice Wipe or clean natural fiber (cotton) rag prior to welding.

B. Additional Membrane Securement

The membrane must be secured at the perimeter of each roof level, roof section, expansion joint, curb, skylight, interior wall, penthouse,

etc., at any angle change which exceeds 2" in one horizontal foot and at all other penetrations in accordance with Carlisle's Details published in the Carlisle Technical Manual.

C. Membrane Flashing

1. Flash all walls and curbs with Sure-Weld reinforced membrane. Non-Reinforced membrane shall be limited to inside and outside corners, field fabricated pipe seals, scuppers and Sealant Pockets where the use of pre-molded accessories are not practical.
2. On vertical surfaces, such as walls, curbs and pipes, Bonding Adhesive is not required when the flashing height is 12" or less and the membrane is terminated under a metal counterflashing (nailed). When a coping or termination bar is used for vertical terminations, Bonding Adhesive may be eliminated for flashing heights 18" or less.
3. When using the Pressure-Sensitive Cover Strip to overlay metal edging flanges or fasteners/plates, Carlisle Weathered Membrane Cleaner is used to clean surfaces as needed. Apply Carlisle TPO Primer prior to applying Pressure-Sensitive Cover Strip.
4. Terminate the flashing in accordance with the appropriate Carlisle Details above anticipated slush line.

Note: Fleece backing must be removed from the back of the membrane prior to completing compression seal terminations so Water Cut-Off Mastic is applied directly to the membrane surface. Apply heat to the fleece material until the bottom of the membrane is visible.

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Physical properties of Sure-Weld FleeceBACK Membrane can be referenced in Part II, "Products" of the FleeceBACK Specification.

Attach copies of the applicable Carlisle Details that pertain to the individual project to complete a bid package submittal.