SURE-FLEX™

G U I D E - S P E C
ADHERED ROOFING SYSTEM

January 2012

This **GUIDE-SPEC** is a brief outline of Carlisle's Sure-Flex™ Adhered Roofing System requirements and is intended for use as a submittal with a bid package. Specifiers and Carlisle Authorized Roofing Applicators must comply with the Sure-Flex Specification prior to design or bid.

PART I GENERAL

1.01 DESCRIPTION

The Sure-Flex Adhered Roofing System incorporates maximum 10' wide, 50-mil, 60-mil or 80-mil thick Polyester or Fiberglass reinforced Sure-Flex Polyvinyl Chloride (PVC) membrane. Carlisle Insulation is mechanically fastened to the roof deck or secured with an approved adhesive and the membrane is fully adhered to the substrate with Sure-Flex Low VOC Bonding Adhesive or Aqua Base 120 Bonding Adhesive (for maximum 15-year warranty). Adjoining sheets of membrane are overlapped and joined together with a minimum 1-1/2" wide heat weld.

A KEE enhanced (white only) Sure-Flex PVC membrane with Polyester Reinforcement is available in 10' width.

1.02 QUALITY ASSURANCE

A. This roofing system must be installed by a Carlisle Authorized 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 PVC Code Approval Guide, FM Approvals or UL Fire Resistance Directory for Roofing Materials and Systems.

1.03 SUBMITTALS

A. To ensure compliance with Carlisle's minimum 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 PVC 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 Spec Supplement G-01-11 "Construction Generated Moisture" included in the Carlisle Technical Manual or SPRI Advisory Bulletin included in the Design Reference DR-03-11 "Construction Generated Moisture".]

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.

CARLISLE SYNTEC SYSTEMS

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 **Adhered Membrane Systems Warranty Options (7)**

Years	Thermoplastic Membranes (Sure-Flex PVC)				
	55, 72, 80 or 90 mph	100 mph	110 to 120 mph	Minimum Membrane Thickness (6)	Additional Puncture Coverage (1)
	Adhered	Adhered	Adhered		
5,10, or 15 year	√(2)	√	√	Sure-Flex 50-mil (3)	Not Available - 80-mil Membrane Required
20 year	√	√	√	Sure-Flex 60 mil (3)(4)	Not Available - 80-mil Membrane Required
25 year (7)	√	√	N/A	Sure-Flex 80-mil (3)(5)	Available
30 year (7)	√	√	N/A	Sure-Flex KEE 80-mil	N/A

Notes: N/A = Not Acceptable √= Acceptable

(1) Limits of Hail/Puncture Coverage to be defined by other Tables.
(2) Water based adhesive may be used for projects with 15 year maximum warranty and wind speed coverage up to 55 mph.
(3) Sure-Flex FRS membrane can be used in lieu of Sure-Flex Polyester reinforced membrane for Adhered Roofing Systems Only.
(4) Sure-Flex KEE 50-mil membrane can be used in lieu of Sure-Flex 60-mil membrane fro Warranties Up to 20 Year.
(5) Sure-Flex KEE 60-mil membrane can be used in lieu of Sure-Flex 80-mil membrane for Warranties Up to 25 Year.
(6) All "T-Joints" must be overlaid with appropriate flashing material when using 60 or 80-mil membrane.
(7) Enhancements may be required for certain flashing details. Published details must be referenced for applicable requirements.

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. Store Sure-Flex membrane on provided pallets in original undisturbed plastic wrap.

C. Job site storage temperatures in excess of 90°F may affect shelf life of curable materials (i.e., adhesives and sealants).

D. When liquid adhesives and sealants are exposed to lower temperatures, restore to a minimum of 60°F before use.

E. Do not store adhesive containers with opened lids due to loss of solvent, which will occur from flash off.

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 by Carlisle,** is not the responsibility of Carlisle and is **expressly disclaimed** by the Carlisle Warranty.

2.02 MEMBRANE

Sure-Flex white, gray or tan 50-mil (100' long), 60-mil (80' long) or 80-mil (65' long) reinforced Polyvinyl Chloride (PVC) membrane is used for this system. Membrane sheets are 81" wide. For physical properties of the membrane, refer to Thermoplastic Specification.

2.03 RELATED MATERIALS

Carlisle FAST Adhesive, Sure-Flex Non-Reinforced Flashing, Reinforced Cover Strips, Cut Edge Sealant, Water Cut-Off Mastic, PVC Membrane Cleaner, One-Part Pourable Sealer, Heat Weldable Walkway Pads, Pre-Molded Inside/Outside Corners, Pipe Flashings and 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 to minimize construction traffic on completed sections. This will include completion of all flashings, terminations and daily seals.

B. Follow criteria outlined in the Sure-Flex Specification to prepare the roof deck or the existing substrate prior to application of the new roofing system.

3.02 ROOF DECK CRITERIA

A. The 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 Applicator shall not proceed with installation 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 PREPARATION

A. On retrofit-recover projects, cut and remove wet insulation, as identified by the specifier, and fill all voids with new insulation so it is relatively flush with the existing surface.

B. For all projects, substrate must be even without noticeable high spots or depressions, and must be free of accumulated water, ice or snow.

C. Clear the substrate of debris and foreign material. Fresh bitumen based roof cement must be removed or concealed.

3.04 INSTALLATION

Refer to the applicable Material Safety Data Sheets and Technical Data Bulletins for cautions and warnings.

A. **Insulation Attachment**

1. Carlisle FAST Adhesive may be specified for insulation securement in full spray or beads with spacing as outlined in the Carlisle Technical Manual.

2. Carlisle Fasteners may be used, when specified, to secure Carlisle Insulation at the specified density outlined in the Carlisle Technical Manual.

B. **Membrane Installation and Heat Welding**

1. Sweep loose debris from the substrate.
2. Position Sure-Flex Membrane over acceptable substrate and fold membrane back so half the underside is exposed.
3. Apply Sure-Flex Bonding Adhesive or Aqua Base 120 Bonding Adhesive to the exposed underside of the membrane and the corresponding substrate area with a plastic core medium nap paint roller at the appropriate coverage rate.
4. Allow adhesive to dry and roll coated membrane into coated substrate. Avoid wrinkling.
5. Brush down the bonded section of membrane immediately with a soft bristle push broom.
6. Fold back the unbonded half of the sheet and repeat the bonding procedure.
7. Install adjoining membrane sheets in the same manner, overlapping edges a minimum of 2 inches to provide for a minimum 1-1/2" hot air weld. It is recommended that all splices be shingled to avoid bucking of water.
8. Heat weld the membrane sheets a minimum of 1-1/2" with an Automatic Heat Welding Machine.

C. **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" per horizontal foot and at all other penetrations in accordance with Carlisle's published details.

D. **Membrane Flashing**

Flash all walls and curbs with Sure-Flex 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. Terminate the flashing in accordance with an appropriate Carlisle Termination Detail.

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Physical properties of Sure-Flex Membrane can be referenced in Part II, "Products" of the Thermoplastic Specification.
Attach copies of the applicable Carlisle Details that pertain to the individual project to complete a bid package submittal.