Sure-Seal®/Sure-White®/Sure-Tough™ Adhered Form-Spec

July 2026

Note to the User: Some text has been colored and underlined so the specifier can customize a specification for a specific project. Other text (colored and underlined in parentheses) are notes to the specifier ONLY and should be deleted prior to completing specification. This information must be edited by the specifier to create a final draft of the project specification.

PART 1 GENERAL

1.01 DESCRIPTION

A. The Project Name is located at Address in City and State. Name of Project Manager, Project Manager/Coordinator, is the Owner's Representative and may be contacted regarding any questions or for a pre-bid job site inspection, phone Phone Number.

B. The project consists of installing Carlisle's Sure-Seal (black or cool gray) or Sure-White (white) Adhered Roofing System as outlined below:

(choose the appropriate paragraph and delete remainder)

Apply the Adhered EPDM Roofing System in conjunction with Insulation Type over the new Deck Type roof deck.

OR

Apply the Fully Adhered EPDM Roofing System in conjunction with Insulation Type over the existing Material Type roof.

OR

Apply the Fully Adhered EPDM Roofing System in conjunction with Insulation Type after tear off of the existing Material Type roof to expose the Deck Type for verification of suitable substrate as specified in this specification. [Tear off materials may be recycled, contact Nationwide Foam, Inc. (888) 820-2760 for details.]

1.02 EXTENT OF WORK

A. Provide all labor, material, tools, equipment, and supervision necessary to complete the installation of a Sure-Seal 60-mil or 90-mil thick or Sure-Seal Cool Gray 60-mil or Sure-White 60-mil or 90-mil thick or Sure-Tough 45-mil, 60-mil or 75-mil thick EPDM membrane Fully Adhered Roofing System including flashings and insulation as specified herein and as indicated on the drawings in accordance with the manufacturer's most current specifications and details.

B. The roofing contractor shall be fully knowledgeable of all requirements of the contract documents and shall make themselves aware of all job site conditions that will affect their work.

C. The roofing contractor shall confirm all given information and advise the building owner, prior to bid, of any conflicts that will affect their cost proposal.

D. Any contractor who intends to submit a bid using a roofing system other than the approved manufacturer must submit for pre-qualification in writing fourteen (14) days prior to the bid date. Any contractor who fails to submit all information as requested will be subject to rejection. Bids stating "as per plans and specs" will be unacceptable.

1.03 SUBMITTALS

A. Prior to starting work, the roofing contractor must submit the following:

1. Shop drawings showing layout, details of construction and identification of materials.

2. Sample of the manufacturer's Total Systems Warranty covering all components of the roofing system.

3. Submit a letter of certification from the manufacturer which certifies the roofing contractor is authorized to install the manufacturer's roofing system and lists foremen who have received training from the manufacturer along with the dates training was received.

4. Certification of the manufacturer's warranty reserve.

B. Upon completion of the installed work, submit copies of the manufacturer's final inspection report to the specifier prior to the issuance of the manufacturer's warranty.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the job site in the manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name and installation instructions intact and legible. Deliver in sufficient quantity to permit work to continue without interruption.

B. Comply with the manufacturer's written instructions for proper material storage.

1. Store materials between 60°F and 80°F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60°F minimum temperature before using.

2. Store materials containing solvents in dry, well ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expiration of their shelf life.

3. Insulation/underlayment must be stored so that it is kept dry and is protected from the elements. Store bundles flat and upright with the bottom of the bundles elevated (2" or more) above the finished surface.

4. Slit the insulation bundle packaging vertically down the center of the two short sides to prevent moisture accumulation within the package. Completely cover the bundle with a waterproof tarp and secure to prevent wind damage and / or displacement.

C. Any materials which are found to be damaged shall be removed and replaced at the applicator's expense.

1.05 WORK SEQUENCE

A. Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection for the interior of the building and to ensure water does not flow beneath any completed sections of the membrane system.

B. Do not disrupt activities in occupied spaces.

1.06 USE OF THE PREMISES

A. Before beginning work, the roofing contractor must secure approval from the building owner's representative for the following:

1. Areas permitted for personnel parking.

2. Access to the site.

3. Areas permitted for storage of materials and debris.

4. Areas permitted for the location of cranes, hoists and chutes for loading and unloading materials to and from the roof.

B. Interior stairs or elevators may not be used for removing debris or delivering materials, except as authorized by the building superintendent.

1.07 EXISTING CONDITIONS

If discrepancies are discovered between the existing conditions and those noted on the drawings, immediately notify the owner's representative by phone and solicit the manufacturer's approval prior to commencing with the work. Necessary steps shall be taken to make the building watertight until the discrepancies are resolved.

1.08 PRE-CONSTRUCTION CONFERENCE

A. A pre-bid meeting will be held at the job site on Date at Time. Contact the owner's representative, Name and Title, at Phone Number if there are any questions.

B. Prior to bid submittal, the roofing contractor should schedule a job site inspection to observe actual conditions and verify all dimensions on the roof. The job site inspection may occur on the day of the pre-bid meeting or prior to such a meeting. Should access to the roof be necessary before or after the pre-bid meeting, the contractor must contact the owner's representative, Name and Title, at Phone Number to coordinate an appropriate time.

C. Bids must be forwarded to the following address no later than Time on Date:

Name and Address

D. Any conditions which are not shown on the shop drawings should be indicated on a copy of the shop drawing and included with bid submittal if necessary to clarify any conditions not shown.

1.09 TEMPORARY FACILITIES AND CONTROLS

A. Temporary Utilities:

1. Water, power for construction purposes and lighting are/are not available at the site and will/will not be made available to the roofing contractor.

2. Provide all hoses, valves and connections for water from source designated by the owner when made available.

3. When available, electrical power should be extended as required from the source. Provide all trailers, connections and fused disconnects.

B. Temporary Sanitary Facilities

Sanitary facilities will not be available at the job site. The roofing contractor shall be responsible for the

provision and maintenance of portable toilets or their equal.

C. Building Site:

1. The roofing contractor shall use reasonable care and responsibility to protect the building and site against damages. The contractor shall be responsible for the correction of any damage incurred as a result of the performance of the contract.

2. The roofing contractor shall remove all construction debris from the job site in a timely and legally acceptable manner so as to not detract from the aesthetics or the functions of the building. [Tear off materials may be recycled, contact Nationwide Foam, Inc. (888) 820-2760 for details.]

D. Security:

Obey the owner's requirements for personnel identification, inspection and other security measures.

1.10 JOB SITE PROTECTION

A. The roofing contractor shall adequately protect building, paved areas, service drives, lawn, shrubs, trees, etc. from damage while performing the required work. Provide canvas, boards and sheet metal (properly secured) as necessary for protection and remove protection material at completion. The contractor shall repair or be responsible for costs to repair all property damaged during the roofing application.

B. During the roofing contractor's performance of the work, the building owner will continue to occupy the existing building. The contractor shall take precautions to prevent the spread of dust and debris, particularly where such material may sift into the building. The roofing contractor shall provide labor and materials to construct, maintain and remove necessary temporary enclosures to prevent dust or debris in the construction area(s) from entering the remainder of the building.

C. Do not overload any portion of the building, either by use of or placement of equipment, storage of debris, or storage of materials.

D. Protect against fire and flame spread. Maintain proper and adequate fire extinguishers.

E. Take precautions to prevent drains from clogging during the roofing application. Remove debris at the completion of each day's work and clean drains, if required. At completion, test drains to ensure the system is free running and drains are watertight. Remove strainers and plug drains in areas **where work is in progress**. Install flags or other telltales on plugs. Remove plugs each night and screen drain.

F. Store moisture susceptible materials above ground and protect with waterproof coverings.

G. Remove all traces of piled bulk materials and return the job site to its original condition upon completion of the work.

1.11 SAFETY

The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state and federal requirements that are safety related. **Safety shall be the responsibility of the roofing contractor.** All related personnel shall be instructed daily to be mindful of the full time requirement to maintain a safe environment for the facility's occupants including staff, visitors, customers and the occurrence of the general public on or near the site.

1.12 WORKMANSHIP

A. Applicators installing new roof, flashing and related work shall be factory trained and approved by the manufacturer they are representing.

B. All work shall be of highest quality and in strict accordance with the manufacturer's published specifications

and to the building owner's satisfaction.

C. There shall be a supervisor on the job site at all times while work is in progress.

D. All field seams and flashing details are to be completed according to manufacturer's specifications and details by the end of each work day.

1.13 QUALITY ASSURANCE

A. The Sure-Seal/Sure-White/Sure-Tough Roofing System must achieve a UL Class A, B or C.

B. (choose the appropriate paragraph and delete remainder)

The specified roofing assembly must have been successfully tested by a qualified testing agency to resist the design uplift pressures calculated according to

International Building Code (IBC) and American Society of Civil Engineers (ASCE 7)
DORA (Directory of Roof Assemblies)
ANSI/SPRI WD-1 "Wind Design Standard Practice for Roofing Assemblies"

and after multiplying the results with a safety factor of (determined by designing professional).

(For projects insured by Factory Mutual, use the section below)

The specified roofing assembly must be rated by Factory Mutual Global (FMG) to meet or exceed the factored uplift pressures outlined in FMG Property Loss Prevention Data Sheet 1-28, and complies with FMG Property Loss Prevention Data Sheet 1-29 for enhancements at the perimeter and corners.

C. The membrane must be manufactured by the material supplier. Manufacturer's supplying membrane made by others are not acceptable.

D. The manufacturer must have a minimum of 30 years experience in the manufacturing of vulcanized, white or black, thermoset sheeting.

OR

The manufacturer shall have domestic manufacturing experience commensurate with the term of warranty coverage of the products supplied.

E. Unless otherwise noted in this specification, the roofing contractor must strictly comply with the manufacturer's current specifications and details.

F. The roofing system must be installed by an applicator authorized and trained by the manufacturer in compliance with shop drawings as approved by the manufacturer. The roofing applicator shall be thoroughly experienced and upon request be able to provide evidence of having at least five (5) years successful experience installing single-ply EPDM roofing systems and having installed at least one (1) EPDM roofing application or several similar systems of equal or greater size within one year.

AND

The applicator shall, upon request, be able to document three (3) installations completed more than two years prior to issuance of the contract documents, utilizing components of the proposed manufacturer, that are comparable to those required for the work and similar in scope and complexity. Provide complete contact information, warranty history for previous installations and demonstrate in-service performance.

G. Provide adequate number of experienced workmen regularly engaged in this type of work who are skilled in the application techniques of the materials specified. Provide at least one thoroughly trained and experienced superintendent on the job at all times roofing work is in progress.

H. There shall be no deviations made from this specification or the approved shop drawings without the prior written approval of the specifier. Any deviation from the manufacturer's installation procedures must be supported by a written certification on the manufacturer's letterhead and presented for the specifier's consideration.

I. Upon completion of the installation, the applicator shall arrange for an inspection to be made by a non-sales technical representative of the membrane manufacturer in order to identify any needed corrective repairs that will be required for warranty issuance. Notify the building owner seventy-two (72) hours prior to the manufacturer's final inspection.

J. Inspector shall be employed and trained by the manufacturer and have received product-specific training from the manufacturer of the products.

K. The Sure-White EPDM membrane meets the CRRC (Cool Roof Rating Council) requirements for reflectance and emittance. When tested in accordance with ASTM C1549, the Sure-White material has an initial solar reflectance of .76 and a 3-year aged reflectance of .64. The material has also been tested for emittance in accordance with ASTM C1371; an initial emittance of .90 and a 3-year aged emittance of .87 were achieved.

L. The Sure-White EPDM membrane meets the emittance requirements set forth by the USGBC (U. S. Green Building Council) for their LEED (Leadership in Energy and Environmental Design) Program. The Sure-White material has an emittance of .91 (when tested in accordance with ASTM E408) and an SRI (solar reflectance index) of 105 (calculated using ASTM E 1980).

M. The Sure-Seal EPDM Membrane exceeds 41,580 kJ/m^2 under Xenon-Arc UV Light testing used for testing "Resistance to Outdoor (Ultraviolet) Weathering." (ASTM D 4637 Specification requires a 7560 kJ/m^2 minimum total radiant exposure at 70 W/m^2 irradiance at 176°F black panel temperature to pass.)The membrane shows no visible signs of cracking or crazing.

N. The Sure-White EPDM Membrane exceeds 25,200 kJ/m^2 under Xenon-Arc UV Light testing used for testing "Resistance to Outdoor (Ultraviolet) Weathering." (ASTM D 4637 Specification requires a 7560 kJ/m^2 minimum total radiant exposure at 70 W/m^2 irradiance at 176°F black panel temperature to pass.)The membrane shows no visible signs of cracking or crazing.

O. The Sure-Tough EPDM Membrane exceeds 35,320 kJ/m^2 under Xenon-Arc UV Light testing used for testing "Resistance to Outdoor (Ultraviolet) Weathering." (ASTM D 4637 Specification requires a 7560 kJ/m^2 minimum total radiant exposure at 70 W/m^2 irradiance at 176°F black panel temperature to pass.)The membrane shows no visible signs of cracking or crazing.

P. Sure-Seal, Sure-White, or Sure-Tough EPDM Membranes achieves a zero (no growth) rating in the ASTM G21 test for fungi growth.

1.14 JOB CONDITIONS, CAUTIONS AND WARNINGS

Refer to Carlisle's EPDM Roofing System specification for General Job Site Considerations.

A. Safety Data Sheets (SDS) must be on location at all times during the transportation, storage and application of materials.

B. When positioning membrane sheets, exercise care to locate all field splices away from low spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.

C. When loading materials onto the roof, the Carlisle Authorized Roofing Applicator must comply with the requirements of the building owner to prevent overloading and possible disturbance to the building structure.

D. Proceed with roofing work only when weather conditions are in compliance with the manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.

E. Proceed with work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected and inspected upon completion for possible damage.

F. Provide protection, such as 3/4 inch thick plywood, for all roof areas exposed to traffic during construction. Plywood must be smooth and free of fasteners and splinters.

G. The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.

H. New roofing shall be complete and weathertight at the end of the work day.

I. Contaminants such as grease, fats and oils shall not be permitted to come in direct contact with the roofing membrane. An overlay of Epichlrohydrin membrane must be adhered around units which have the potential to emit solvents, grease or oil.

1.15 WARRANTY

A. Provide manufacturer's 10 year, 15 year, 20 year, 25 year or 30 year Total System Warranty covering both labor and all materials with no dollar limitation. The maximum wind speed coverage shall be peak gusts of 55, 72, 80, 90, 100, 110, or 120 mph measured at 10 meters above ground level. Certification is required with bid submittal indicating the manufacturer has reviewed and agreed to such wind coverage.

Note: For projects specified with warranties greater than 20 year and/or wind coverage specified greater than 72 mph, additional design enhancements are required. Refer to Carlisle published Sure-Seal / Sure-White Specifications

Note:

Warranty Length	Minimum Membrane Thickness
10 or 15 year	60-mil Sure-Seal or Sure-White or 45-mil Sure-Tough
20 year	60-mil Sure-Seal or Sure-White or Sure-Tough
25 year	60-mil Sure-Seal or Sure-White or 75-mil Sure-Tough
30 year	90-mil Sure-Seal or Sure-White or 75-mil Sure-Tough

(After selecting a warranty duration from the above table delete all condtions below which do not apply)

B. Warranty shall also cover leaks caused by accidental punctures: 32 man-hours per year for 90-mil Sure-Seal or Sure-White OR 75-mil Sure-Tough membranes.

C. Warranty shall also cover leaks caused by accidental punctures: 16 man-hours per year for 60-mil Sure-Tough reinforced membranes.

D. Warranty shall also cover leaks caused by accidental punctures: 8 man-hours per year for 45-mil Sure-Tough reinforced membranes.

E. Carlisle's Accidental Puncture Warranty covers labor hours and material used during the repair. Maximum labor and material hours are dependent upon system design. Refer to the Warranty Availability Quick Reference Guide for coverage.

F. Warranty shall also cover leaks caused by hail:

1. Hail up to 1" or 2" diameter when 90-mil Sure-Seal or Sure-White OR 75-mil Sure-Tough is installed over Carlisle SecurShield HD, DensDeck Prime, DensDeck StormX Prime, DensDeck ProFast Prime, Securock, Securock Weather Defense or DEXcell adhered with Flexible FAST adhesive (For Adhered Systems Only).
2. Hail up to 1" diameter when 60-mil Sure-Seal or Sure-White OR 60-mil Sure-Tough is installed over Carlisle SecurShield HD, DensDeck Prime, DensDeck StormX Prime, DensDeck ProFast Prime, Securock, Securock Weather Defense or DEXcell adhered with Flexible FAST adhesive (For Adhered Systems Only).

G. Pro-rated System Warranties shall not be accepted.
H. Provide a 40 year non-pro-rated membrane material warranty for Sure-Seal 90-mil membrane.

PART 2 PRODUCTS

2.01 GENERAL

A. All components of the specified roofing system shall be products of Carlisle SynTec or accepted by Carlisle SynTec as compatible.

B. Unless otherwise approved by the specifier and accepted by the membrane manufacturer, all products (including insulation, fasteners, fastening plates and edgings) must be **manufactured and supplied** by the roofing system manufacturer and covered by the warranty.

AND

Manufacturer of roof membrane shall also manufacture all polymeric components for the roofing system, including, but limited to, membrane, adhesives, primers, flashings, caulks and tapes.

2.02 MEMBRANE

Furnish Sure-Seal 45-mil, 60-mil or 90-mil thick or Sure-White 60-mil or 90-mil thick or Sure-Tough 45-mil, 60-mil or 75-mil thick EPDM (Ethylene, Propylene, Diene Terpolymer) in the largest sheet possible with 3" or 6" Factory-Applied Tape (FAT). (Splice tape shall be a butyl/EPDM based polymer with a minimum thickness of 25-mil.) The membrane shall conform to the minimum physical properties of ASTM D4637. When a 10 foot wide membrane is to be used, the membrane shall be manufactured in a single panel with no factory splices to reduce splice intersections. Sure-White EPDM shall be ENERGY STAR® - qualified.

2.03 INSULATION/UNDERLAYMENT

A. When applicable, insulation shall be installed in multiple layers. The first and second layer of insulation shall be mechanically fastened or adhered to the substrate in accordance with the manufacturer's published specifications.

B. Insulation shall be Type of Insulation as supplied by Carlisle SynTec. Minimum R-value required is Note R-Value. (Note: The insulation must meet ASHRAE 90.1 minimums per IBC-International Building Code.)

(choose the appropriate paragraph and delete remainder)

1. **Carlisle Insulbase Polyiscyanurate** – A foam core insulation board covered on both sides with a medium weight fiber-reinforced felt facer meeting ASTM C 1289-06, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4' x 8' standard size with a thickness from 1 to 4 inches. 4' x 4' tapered panels are also available.

2. **Carlisle InsulBase Eco** – A bio-based (5%), polyisocyanurate insulation, InsulBase ECO is a rigid, foam core, insulation board composed of a closed-cell polyisocyanurate foam core covered on both sides with glass-reinforced felt (GRF) facers, meeting ASTM C 1289, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4' x 8' standard size with a thickness from 1 to 4 inches. 4' x 4' tapered panels are also available.

3. **Carlisle SecurShield Polyisocyanurate–** A foam core insulation board covered on both sides with a coated glass fiber mat facer meeting ASTM C 1289-06, Type II, Class 2, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4' x 8' standard size with a thickness from 1 to 4 inches. 4' x 4' tapered panels are also available.

4. **Carlisle SecurShield Eco** – A bio-based (5%), rigid roof insulation panel composed of a closed-

cell polyisocyanurate foam core bonded to high performance, coated glass facers (CGF). Achieves a UL Class A fire rating direct to combustible deck. ASTM C 1289, Type II, Class 2, Grade 2 (20 psi) or Grade 3 (25 psi), available in 4' x 8' standard size with a thickness from 1 to 4 inches. 4' x 4' tapered panels are also available.

5. **Carlisle InsulBase NH Polyisocyanurate –** A foam core insulation board covered on both sides with a medium weight fiber-reinforced felt facer meeting ASTM C 1289-06, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4' x 8' standard size with a thickness from 1 to 4 inches. 4' x 4' tapered panels are also available. This product contains zero halogenated flame retardants and is Living Building Challenge (LBC) "Red List Free".

6. **Carlisle SecurShield HD Composite** – Composite insulation panel comprised of ½-inch high-density Polyiso cover board (109 psi max) laminated during the manufacturing process to SecurShield rigid Polyiso roof insulation meeting ASTM C1289 Type II, Class2, Grade 2 (20 psi) or Grade 3 (25 psi). Available in 4' x 8' boards with thickness from 2" to 4.5". 4' x 4' panels are also available.

7. **Carlisle SecurShield NH** – A rigid roof insulation panel composed of a closed-cell polyisocyanurate foam core bonded on each side to premium performance coated glass facers (CGF). SecurShield NH contains zero halogenated flame retardants. Available in 4' x 4' and 4' x 8' boards with thicknesses of 1/2" to 4".

8. **Carlisle ThermaThin 7 GRF Polyisocyanurate** – A foam core insulation board covered on both sides with a medium weight fiber-reinforced felt facer meeting ASTM C 1289, Type II, Class 1, Grade 2 (20 psi). The product is available in 4' x 4' and 4' x 8' standard size with a thickness from 1.45 to 2.5 inches. ThermaThin 7™ GRF Polyisocyanurate formulation has approximately 30 percent higher R-Value per inch than standard Polyisocyanurate.

9. **Carlisle ThermaThin 7 CGF Polyisocyanurate** – A foam core insulation board covered on both sides with a coated glass fiber mat facer meeting ASTM C 1289, Type II, Class 2, Grade 2 (20 psi). The product is available in 4' x 4' and 4' x 8' standard size with a thickness from 1.45 to 2.5 inches. These flat board products feature a dark-colored coated-glass facer (CGF) on one side of the insulation board and a light-colored CGF on the other, labeled Ready Flash. Ready Flash Technology allows applicators to manage adhesive flash-off times by choosing between two different-colored facers on every board. ThermaThin 7™ CGF Polyisocyanurate formulation has approximately 30 percent higher R-Value per inch than standard Polyisocyanurate.We

10. **Carlisle Stormbase Polyiso Composite (OSB)** – Polyiso insulation bonded on the bottom side with a medium weight fiber-reinforced felt facer and laminated with a top surface of 7/16" or 5/8" thick Oriented Strand Board (OSB) meeting ASTM C1289, Type V, Class1 Grade 2 (20 psi) or Grade 3 (25 psi). Available in 4' x 8' boards with thickness from 1-1/2" to 4".

11. **Carlisle SecurShield HD Cover Board** – a rigid insulation panel composed of a high-density, closed-cell polyisocyanurate foam core laminated to coated-glass fiber-mat facer for use as a cover board or recover board meeting ASTM 1289-06, Type II, Class 2 (109 psi max). Available 1/2" thick 4' x 8' panel weight 11 lbs with an R-value of 2.5.

12. **Carlisle SecurShield HD Eco –** A bio-based (5%), rigid roof insulation panel composed of ½" high-density (109 psi max), closed-cell polyisocyanurate foam core bonded to a coated glass facer (CGF), meeting ASTM C1289, Type II, Class 4, Grade 1. Specifically designed for use as a cover board. Achieves a UL Class A fire rating direct to combustible deck. Available in 1/2" thick, 4' x 4' (5.5 lbs) and 4' x 8' (11 lbs) panels with an R-value of 2.5.

13. **Carlisle SecurShield HD Plus** - a rigid insulation panel composed of a high-density (109 psi max), closed-cell polyisocyanurate foam core laminated to premium-performance coated-glass fiber-mat facer for use as a cover board or recover board. Available 1/2" thick 4' x 8' panel weight 11 lbs with an R-value of 2.5. Meets an FM 1-90 using only 8 fasteners per 4' x 8' board.

14. **Carlisle Insulbase HD** – a closed-cell polyisocyanurate foam core insulation board covered on

both sides with glass-reinforced felt (GRF) facer meeting ASTM C 1289, Type II, Class 1, Grade 3. The product is available in 4’ x 4’ and 4’ x 8’ standard sizes with a thickness of one half inch.

15. **Carlisle InsulBase HD Eco** – A bio-based (5%), polyisocyanurate insulation product, InsulBase HD Eco is a high-density (80 psi), rigid roof insulation cover board composed of a high-density closed-cell polyisocyanurate foam core bonded to glass-reinforced felt (GRF) facers, meeting ASTM C1289, Type II, Class 1, Grade 3. UL and FM approved for direct application over steel decks. Available in 1/2” thick, 4’ x 4’ and 4’ x 8’ panels with an R-value of 2.5.

16. **InsulFoam I (EPS: Expanded Polystyrene) –** A closed-cell lightweight expanded polystyrene (EPS) that meets ASTM C578, Type I. Nominal density of 1.0 lbs/cubic ft (pcf) available in 4’ x 4’ or 4’ x 8’ sizes with thickness from ¼” to 40”. Custom lengths, widths and tapered boards are available. Specified beneath Sure-Seal HP Recovery Board, DensDeck Prime, DensDeck ProFast Prime, Securock, Securock Weather Defense or DEXcell.

17. **InsulFoam VIII (EPS: Expanded Polystyrene) –** A closed-cell lightweight expanded polystyrene (EPS) that meets ASTM C578, Type VIII. Nominal density of 1.25 lbs/cubic ft (pcf) available in 4’ x 4’ or 4’ x 8’ sizes with thickness from ¼” to 40”. Custom lengths, widths and tapered boards are available. Specified beneath Sure-Seal HP Recovery Board, DensDeck Prime, DensDeck ProFast Prime, Securock, Securock Weather Defense or DEXcell.

18. **InsulFoam II (EPS: Expanded Polystyrene) –** A closed-cell lightweight expanded polystyrene (EPS) that meets ASTM C578, Type II. Nominal density of 1.5 lbs/cubic ft (pcf) available in 4’ x 4’ or 4’ x 8’ sizes with thickness from ¼” to 40”. Custom lengths, widths and tapered boards are available. Specified beneath Sure-Seal HP Recovery Board, DensDeck Prime, DensDeck ProFast Prime, Securock, Securock Weather Defense or DEXcell.

19. **InsulFoam IX (EPS: Expanded Polystyrene) –** A closed-cell lightweight expanded polystyrene (EPS) that meets ASTM C578, Type IX. Nominal density of 2.0 lbs/cubic ft (pcf) available in 4’ x 4’ or 4’ x 8’ sizes with thickness from ¼” to 40”. Custom lengths, widths and tapered boards are available. Specified beneath Sure-Seal HP Recovery Board, DensDeck Prime, DensDeck ProFast Prime, Securock, Securock Weather Defense or DEXcell.

20. **Carlisle EPS (Flute-Filler):** A custom-made, high performance insulation consisting of a superior closed-cell, lightweight expanded polystyrene (EPS) that meets the requirements of ASTM C578. The product offers a long-term, stable R-Value and has excellent dimensional stability, compressive strength and water resistant properties. It is custom-manufactured for each specific application, and is readily available in a variety of lengths, widths and shapes to meet virtually any job condition.

21. **InsulFoam HD Composite –** InsulFoam expanded polystyrene (EPS) insulation laminated with a top surface of 1/2” thick SecurShield HD. Available in 4’ x 8’ boards with thickness from 1-1/2” to 7”.

22. **InsulLam –** InsulFoam expanded polystyrene (EPS) insulation laminated with a top surface of 1/2” DensDeck Prime, 1/2” Securock, or 1/2" HP Recovery Board. Available in 4’ x 8’ boards with thickness from 1-1/2” to 7”.

23. **XPS: Extruded Polystyrene –** Dimensionally stable with high thermal and low water absorption performance capability. XPS is available in varying compressive strengths thicknesses and sizes. Refer to specific product data sheets for physical properties and additional technical information. Specified beneath Sure-Seal HP Recovery Board, DensDeck Prime, DensDeck ProFast Prime, Securock or Securock Weather Defense.

    a. Thermapink 18 or 25 Extruded Polystyrene

    b. Foamular 400 or Durapink Extruded Polystyrene

    c. Dow Recovermate, Dow Styrofoam Deckmate, or Dow Styrofoam Deckmate Plus Extruded Polystyrene

24. **Securock Cover Board –** A uniform composition of fiber-reinforced with no facer for use as a cover board or a thermal barrier. Available in ¼" to 5/8" thick and 4' x 4' or 4' x 8' size boards. Long uninterrupted runs (>200') may require slight gapping due to thermal expansion.

25. **Securock Roof Board –** A uniform composition of fiber-reinforced gypsum, without a facer, for use as a cover board or a thermal barrier in mechanically fastened and fully adhered roofing systems. Meets ASTM E84 for flame spread and smoke development; Class A fire performance per UL 790. Available in 1/4" to 5/8" thick and 4' x 4' or 4' x 8' size boards. 5/8" meets requirements of Type X per ASTM C1177. Long uninterrupted runs (>200') may require slight gapping due to thermal expansion.

26. **Securock UltraLight Glass-Mat Roof Board –** A fire-resistant, moisture and mold-resistant roof board used in mechanically fastened, low-slope roofing systems, featuring a specially treated lightweight core and high-performance glass-mat facer. Meets ASTM E84 for flame spread and smoke development; Class A fire performance per UL 790. Available in 4' x 8' size boards; 1/4", 1/2" and 5/8" thicknesses available. 5/8" meets requirements of Type X per ASTM C1177.

27. **Securock UltraLight Coated Glass-Mat Roof Board -** A fire-resistant, moisture and mold-resistant roof board used in fully adhered, low-slope roofing systems, featuring a specially treated lightweight core. The special coating on the high-performance glass-mat facer provides an exceptional adhesive bond and reduces facer delamination. Meets ASTM E84 for flame spread and smoke development; Class A fire performance per UL 790. Available in 1/4", 1/2" and 5/8" Type X and 4' x 8' size boards. 5/8" meets requirements of Type X per ASTM C1177.

28. **Securock® Weather Defense™ Roof Board** - A reinforced gypsum cover board with an enhanced, moisture-resistant core and high-performance, coated glass mat facers (CGF) on the top and bottom side. The top surface is pre-primed and provides excellent bond strength for adhered membrane for use as a cover board. Securock® Weather Defense™ Roof Board is extremely durable and is approved for use in assemblies meeting FM's Very Severe Hail (VSH) Classification. Available in 5/8" thickness and 4' x 4' or 4' x 8' size boards. Meets requirements of Type X per ASTM C1177. Meets ASTM E84 for flame spread and smoke development; Class A fire performance per UL 790; FM Approvals Class 1.

29. **DensDeck Prime** – gypsum core that incorporates glass-mat facings on the top and bottom side. Available in ¼" to 5/8" and 4' x 4' or 4' x 8' size boards.

30. **DensDeck StormX Prime** – a reinforced gypsum cover board with an enhanced, moisture-resistant core and coated glass mat facers on the top and bottom side. The top surface is pre-primed and provides excellent bond strength for adhered membrane for use as a cover board. DensDeck StormX Prime is extremely durable and is approved for use in assemblies meeting FM's Very Severe Hail (VSH) Classification. Available in 5/8" thickness and 4' x 4' or 4' x 8' size boards.

31. **DensDeck® ProFast™ Prime Roof Board** - A fire-resistant, moisture and mold-resistant roof board used in fully adhered or mechanically fastened, low-slope roofing systems, featuring a specially treated lightweight core. (20% lighter than 1/2" gypsum boards). The special coating on the high-performance glass-mat facer provides an exceptional adhesive bond and reduces facer delamination. Non-combustible per ASTM E108 and meets ASTM E84 for flame spread and smoke development; Class A fire performance per UL 790. Available in 3/8" thickness and 4' x 8' size boards.

32. **EcoStorm VSH Cover Board** – an engineered composite building material made from a proprietary blend of plastic and cellulose fiber sourced from post-industrial and post-consumer waste streams. EcoStorm VSH is a durable, extremely moisture and mold resistant building material with a core that does not disintegrate or delaminate in the presence of water. Available in 1/2" thick and 4' x 8' size board.

33. **R-Tech FanFold Recover Board –** Closed-cell lightweight expanded polystyrene (EPS) with polymeric laminated faces which meets ASTM C 578 for use as a recover board. Metallic side

compatible with EPDM mechanically fastened system. Available in thicknesses of 3/8" to ¾" with coverage 4' x 50' (2 squares). 4' x 8' units are also available.

34. **DEXcell** – A mold & mildew resistant, gypsum substrate board with coated fiberglass facers, used for thermal protection and acoustical enhancement of roof systems. May be used as a substrate for a vapor retarder and /or the continuous substrate for the application of commercial roofing applications. Available in 1/4", 1/2" and 5/8" thicknesses in 4' x 8' boards.

35. **DEXcell FA** – A mold & mildew resistant, gypsum substrate board with heavy duty, coated fiberglass facers, used for thermal protection and acoustical enhancement of roof systems. May be used as a substrate for a vapor retarder and /or the continuous substrate for the application of commercial roofing applications. The precoated, fiberglass facers are designed to increase adhesive coverage and enhance performance of the bond strength of the system. Available in 1/4", 1/2" and 5/8" thicknesses in 4' x 4' and 4' x 8' boards.

36. **DEXcell Cement Roof Board** – A mold & mildew resistant, Portland Cement, lightweight aggregate roof board with heavy-duty fiberglass mesh facers used as a substrate board, thermal barrier and cover board for commercial roofing applications. Available in 7/16" and 5/8" thicknesses in 4' x 4' and 4' x 8' boards.

37. **DEXcell FA VSH** – A reinforced gypsum panel with enhanced moisture resistant gypsum core and heavy duty coated glass facers used as a substrate board, thermal barrier and cover board for commercial roofing applications, approved for use in single-ply and multi-ply assemblies meeting FM Very Severe Hail rating. Available in 5/8" thickness in 4' x 4' and 4' x 8' boards.

2.04 FASTENING COMPONENTS

To be used for mechanical attachment of insulation and to provide additional membrane securement:

(Delete the Fastener/Insulation Plate OR Adhesives which will not be used)

A. **Fasteners, Plates and Bars**

1. **HP- Fasteners**: a threaded, #14 fastener with a #3 phillips drive used with steel and wood roof decks.

2. **HP-X Fasteners**: A heavy duty #15 threaded fastener with a #3 phillips drive used for insulation securement into steel, wood plank or minimum 15/32 inch thick plywood when increased pullout resistance is desired.

3. **Pre-Assembled ASAP Fasteners:** A pre-assembled 3" diameter Plastic Plate and # 12 threaded fastener with a #3 drive used for insulation attachment into steel or wood decks. Installed using OMG Fastening Tools.

4. **InsulFast Fasteners:** A threaded #12 fastener with #3 phillips drive used for insulation attachment into steel or wood decks.

5. **HP 14-10 Fasteners:** A #14 threaded fastener with a #3 phillips drive used for minimum 3,000 psi concrete decks.

6. **Polymer Gyptec Fasteners**: A non-penetrating, plastic fastener and corresponding 3" diameter plate used with lightweight deck substrates such as cementitious wood fiber, gypsum, and lightweight insulating concrete.

7. **Lite-Deck Fastener:** an oversized diameter metal fastener and associated 3" diameter Lite-Deck metal plate for used to attach insulation to dense gypsum decks.

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8. **HP Term Bar Nail-Ins**: A 1-1/4" long expansion anchor with a zinc plated steel drive pin used for fastening the Carlisle Termination Bar or Seam Fastening Plates to concrete, brick, or block walls.

9. **Seam Fastening Plate**: a 2" diameter metal fastening plate used in conjunction with RUSS or EPDM membrane for additional membrane securement.

10. **Polymer Seam Plate**: a 2" diameter plastic fastening plate incorporating barbs on the underside of the plate. This plate is required for membrane and RUSS attachment installed in conjunction with steel roof decks. May also be used for insulation attachment.

11. **Insulation Fastening Plates**: a nominal 3 inch diameter plastic or metal plate used for insulation attachment.

12. **Sure-Seal Pressure-Sensitive RUSS™** (Reinforced Universal Securement Strip): a 6" wide, nominal 45-mil thick clean, cured black reinforced EPDM membrane with 3" wide SecurTAPE laminated along one edge. The 6" wide Pressure-Sensitive RUSS is used horizontally or vertically at the base of walls, curbs, etc., in conjunction with 2" diameter securement plates or bars below the EPDM deck membrane for additional membrane securement.

B. **Insulation Adhesives**

(choose the appropriate paragraph and delete remainder)

1. **Flexible FAST Adhesive:** An elongating impact resistant two component insulating urethane adhesive used to attach insulation. Packaging formats include 50 and 15 gallon drums as well as Dual Tanks, Dual Cartridges and 5 gallon Jug formats.

   a. Adhesive to provide 150% elongation in conjunction with fleece backed membrane – ASTM D412

   b. MDI content of Part A material less than 25%

2.05 ADHESIVES, CLEANERS AND SEALANTS

All products shall be furnished by Carlisle and specifically formulated for the intended purpose.

(Delete the Adhesive, Primer or Cleaner which will not be used)

A. **90-8-30A Bonding Adhesive:** A high-strength, yellow colored, synthetic rubber adhesive used for bonding Sure-Seal/Sure-White EPDM membranes to various surfaces. Available in 5 gallon pails.

B. **EPDM x-23 Low-VOC Bonding Adhesive**: A Low-VOC (volatile organic compound) bonding adhesive (less than 250 grams/liter) used for bonding Sure-Seal/Sure-White EPDM membranes to various surfaces. Adhesive is available in 5 gallon pails.

C. **Low VOC Bonding Adhesive**: A low VOC (volatile organic compound) bonding adhesive (less than 250 grams/liter) used for bonding Sure-Seal/Sure-White EPDM membranes to various surfaces. This product meets the <250 gpl VOC (volatile organic compound) content requirements of the OTC Model Rule for Single Ply Roofing Adhesives. Available in 5 gallon pails.

D. **Low VOC Bonding Adhesive 1168:** A low VOC (volatile organic compound) bonding adhesive that has < 250 gpl and is designed to comply with the regulations of the South Coast Air Quality Management District's Rule 1168. See Carlisle's Product Data Sheet for a listing of the counties involved.The high strength, solvent-based contact adhesive the allows bonding of EPDM membrane to various porous and non-porous substrates. Apply at a rate of 60 ft2 per gallon finished surface. Available in 5-gallon cans.

E. **Aqua Base 120 Bonding Adhesive**: (for use in areas where volatile organic compound, VOC, regulations are in effect): A two (2) sided application, water based contact adhesive for bonding Sure-Seal/Sure-White EPDM membrane to various surfaces. Complies with the South Coast Air Quality Management District Rule 1168.

F. **Carlisle Weathered Membrane Cleaner:** A clear, solvent-based cleaner used to loosen and remove dirt and other contaminants from the surface of exposed EPDM membrane (for repairs, etc.) prior to applying EPDM Primer. Weathered Membrane Cleaner can also be used when applying Splicing Cement. Available in 1 and 5-gallon pails.

G. **Sure-Seal/Sure-White Pressure-Sensitive SecurTAPE™ (Factory Applied):** A 3" or 6" wide by 100' long splice tape used for splicing adjoining sections of EPDM membrane. Complies with the South Coast Air Quality Management District Rule 1168.

H. **HP-250 EPDM Primer:** A solvent-based primer used to prepare the surface of EPDM membrane for application of Splice Tape or Pressure-Sensitive products. Available in 1 or 3 gallon pails and as CAV-PRIME Pressurized Cylinders.

I. **Low-VOC EPDM Primer -** A low VOC (volatile organic compound) primer (less than 250 grams/liter) for use with SecurTape or Pressure-Sensitive products. Available in 1 or 3 gallon pails and as CAV-PRIME Pressurized Cylinders.

J. **Lap Sealant:** A heavy-bodied material used to seal the exposed edges of a membrane splice. Available in tubes.

1. Sure-Seal Lap Sealant is a black sealant for use with Sure-Seal (black) Roofing Systems.

2. Sure-White Lap Sealant is a white sealant for use with Sure-White (white-on-black) Roofing Systems.

K. **Water Cut-Off Mastic:** A one-component, low viscosity, self wetting, Butyl blend mastic used to achieve a compression seal between the EPDM membrane or Elastoform Flashing and applicable substrates. Available in tubes.

L. **Pourable Sealer**: A black, two-component, solvent-free, polyurethane based product used for tie-ins and as a sealant around hard-to-flash membrane penetrating objects such as clusters of pipes and for a daily seal when the completion of flashings and terminations cannot be completed by the end of each work day.

M. **One-Part Pourable Sealer:** Available in black or white, a one-component, moisture curing, elastomeric polyether sealant used for attaching lightning rod bases and ground cable clips to the membrane surface and as a sealant around hard-to-flash penetrations such as clusters of pipes.

N. **Universal Single-Ply Sealant** A one-part polyether, non-sagging sealant designed for sealing expansion joints, control joints and counterflashings. Available in white only.

(choose the appropriate Primer and delete remainder)

O. CCW 702 Primer and 702LV Primer (Low VOC): A single component, solvent based, high-tack primer used to provide maximum adhesion between Carlisle VApAir Seal 725TR Air and Vapor Barrier and an approved substrate. Applied by spray or long nap roller with a coverage rating ranging from approximately 300 to 350 square feet per gallon on smooth finishes (i.e., concrete) to 75 square feet per gallon on porous surfaces (i.e., DensDeck Prime gypsum board). Available in 5-gallon containers. CCW 702LV Primer contains less than 250g/L VOCs and meets South Coast Air Quality Management District (SCAQMD) and Leadership in Energy and Environmental Design (LEED) Requirements for Volatile Organic Compounds.

P. **CCW 702 WB:** a high-tack, water-based contact adhesive for promoting adhesion of Carlisle air/vapor barrier membranes and an approved substrate (i.e., concrete, DensDeck Prime, Securock and DEXcell). Applied by roller, brush or spray with an application rate of approximately 200 sq. ft. per gallon. Available in 5-gallon containers. CCW 702 WB Primer contains 57g/L VOCs and meets South Coast Air Quality Management District (SCAQMD) and Leadership in Energy and Environmental Design (LEED) Requirements for Volatile Organic Compounds.

Q. **CAV-GRIP III Low-VOC Aerosol Contact Adhesive/Primer:** a low-VOC, methylene chloride-free adhesive that can be used for a variety of applications including: enhancing the bond between Carlisle's VapAir Seal 725TR and various substrates, priming unexposed asphalt prior to applying Flexible FAST Adhesive, adhering Sure-Seal EPDM, horizontally, for the field of the roof and for adhering Sure-Seal FleeceBACK and Sure-Seal EPDM membrane to vertical walls. Coverage rate is approximately 2,000-2,500 sq. ft. per #40 cylinder and 4,000-5,000 sq. ft. per #85 cylinder as a primer, in a single-sided application and 750 sq. ft. per #40 cylinder and 1,500 sq. ft. per #85 cylinder as an adhesive for vertical walls, in a double-sided application.

2.06 METAL EDGING AND MEMBRANE TERMINATIONS

(Choose the appropriate type of metal edging or membrane termination and delete the types which will not be used)

A. **General:** All metal edgings shall be tested and meet ANSI/SPRI ES-1 standards and comply with International Building Code. All metal work is to be supplied and warranted by the manufacturer.

(The products below have been grouped by suppliers and performance priority, as well as their code ratings. Make your selection and delete remainder.)

B. **(Drexel Metal Supplied -Remove name after selection)**

1. **SecurEdge 400:** a coping or fascia, snap-on edge system consisting of a 22 gauge galvanized metal water dam and .040" thick aluminum, Kynar 500 finish or 24 gauge steel, Kynar 500 finish. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified.

2. **SecurEdge 4000:** a metal fascia system with a 20 gauge steel retainer bar and .040" thick aluminum, Kynar 500 or 24 gauge steel, Kynar 500 finish fascia. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified.

C. **(OMG Supplied -Remove name after selection)**

1. **SecurEdge 300:** a coping or fascia, snap-on edge system consisting of a 24 gauge galvanized metal water dam and .050" or .063" thick Kynar 500, clear and colored anodized finish or 24 gauge steel, Kynar 500 finish. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified. Coping FM Approved 1-90 with 20 ga. Cleat, 1-180 with 16 ga. Cleat. Fascia FM Approved 1-225.

2. **SecurEdge 3000:** a metal fascia system with a 20 gauge steel retainer bar and .032", .040" or .050" thick aluminum or 24 gauge galvanized steel fascia. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified. 3000 Coping FM Approved 1-465 with .050 aluminum retainer, 1-180 with 20 ga. Steel retainer. 3000 XT Coping FM Approved 1-315.

D. **(Metal Era Supplied – Remove name after selection)**

1. **SecurEdge 200:** a coping or fascia, snap-on edge system consisting of a 24 gauge galvanized metal water dam and .040", .050" or .063" thick Kynar 500, clear and colored anodized finish or 24 gauge steel, Kynar 500 finish. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified. Coping FM Approved 1-90. Fascia FM Approved 1-195.

2. **SecurEdge 2000**: a metal fascia system with an extruded aluminum anchor bar and .040" thick aluminum or 24 gauge galvanized steel fascia. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified. 2000 Fascia FM Approved 1-645. 2000 Extended Fascia FM Approved 1-270. 2000 Canted Fascia FM Approved 1-270.

E. **(Metal Era Supplied – Remove name after selction)(NO FM Rating Available)**

1. **SecurEdge One Fascia:** A snap-on edge system consisting of a 20 gauge retainer bar, corrosion resistant fasteners and a 24 gauge or 0.040 aluminum Kynar finished fascia cover. A spring clip holds the fascia cover in place. Available in sizes up to 8" fascia height 12' long. Metal fascia color shall be designated by the Owner's Representative. ANSI/SPRI ES-1 Certified.

2. **SecurEdge One Coping:** A snap-on coping edge system consisting of a 24 gauge retainer bar (face side only), corrosion resistant fasteners and a 24 gauge or 0.040 aluminum Kynar finished coping cover. The coping cover is secured by clipping on the retainer bar and fastened on the backside with corrosion resistant fasteners (with rubber washer). Available for wall thicknesses up to 30". Metal coping cap color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified.

F. **Drip Edge**: a metal fascia/edge system with a 22 or 24 gauge continuous anchor cleat and .032 inch thick

aluminum or 24 gauge steel fascia. Metal fascia color shall be as designated by the Owner's Representative.

G. **SecurEdge Coping**: incorporates a 20 gauge anchor cleat with 4 pre-slotted holes, a concealed joint cover and 10 foot continuous sections of coping cap; can accommodate minimum 5 " wide parapet walls. Metal coping cap color shall be as designated by the Owner's Representative.

H. **Termination Bar**: a 1" wide and .098" thick extruded aluminum bar pre-punched 6" on center; incorporates a sealant ledge to support Lap Sealant and provide increased stability for membrane terminations.

I. **SecurEdge Term Bar Fascia:** A 1.75" wide formed aluminum termination bar with pre-slotted fastening holes for ease of locating and installing. The decorative cover is available in 0.040" aluminum or 24-gauge galvanized steel. SecurEdge Term Bar Fascia is manufactured in 12' lengths for fewer joints/seams, fewer sections to handle and faster installation.

2.07 WALKWAYS

Protective surfacing for roof traffic shall be Sure-Seal (black or cool gray) or Sure-White (white) Pressure-Sensitive Walkway Pads (with Factory-Applied Tape on the underside of the walkway) adhered to the membrane surface in conjunction with Sure-Seal Primer.

2.08 OTHER MATERIALS

A. **Carlisle VapAir Seal 725TR Air & Vapor Barrier / Temporary Roof:** 725TR is a 40-mil composite consisting of 35-mils of self-adhering rubberized asphalt factory laminated to a 5-mil polyethylene film with an adhesion textured surface. 725TR roll dimensions are 39" x 100' and the product is applied after priming an acceptable substrate with CCW 702, 702-LV or Cav-Grip III primer.

B. **Carlisle VapAir Seal MD Air and Vapor Barrier:** a reinforced composite aluminum foil with self-adhesive SBS backing and removable poly release film. Used for direct application over metal decks. Available in rolls 42.5" wide by 131.23" long (460 square feet).

C. (Metal Flashing, if required, and miscellaneous items needed to fulfill the project requirements)

PART 3 EXECUTION

3.01 GENERAL

A. Comply with the manufacturer's published instructions for the installation of the membrane roofing system including proper substrate preparation, jobsite considerations and weather restrictions.

B. Position sheets to accommodate contours of the roof deck and shingle splices to avoid bucking water.

3.02 VAPOR RETARDERS

A. **General:**

The use of a vapor retarder to protect insulation and reduce moisture accumulation within an insulated roofing assembly should be investigated, especially on projects with high interior humidity, such as, swimming pools, breweries, pulp mills, etc.

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.

C. On cold storage/freezer facilities, the perimeter details must be selected to provide an air seal and prevent outside air from infiltrating and condensing within the roofing assembly.

D. Consult the latest publications by ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.) and NRCA (National Roofing Contractors Association) for specific information.

E. If insulation is to be adhered to the vapor retarder with Flexible FAST Adhesive, the 725TR vapor retarder must be compatible and shall be fully adhered to the substrate. Available products include Carlisle supplied "peel and stick" rubberized asphalt membrane with compatible film coating (Carlisle VapAir Seal 725TR Air and Vapor Barrier), and spray or roller applied butyl coatings. Installation requirements for Carlisle's VapAir Seal 725TR Air and Vapor Barrier are identified in Carlisle published specification.

F. **VapAir Seal 725TR Installation:**

1. **Surface Preparation**: Concrete shall be in place for 7 days minimum and the substrate must be dry. The surface shall have a smooth finish and be free of voids, spalled areas, sharp protrusions, loose aggregate, latence and form release agents. In the event of rain, concrete must be allowed to dry before primer is applied.

2. **Primer**: Surfaces to receive Carlisle VapAir Seal 725TR Air and Vapor Barrier must be clean and dry. Prime with CCW 702 or 702LV or Cav-Grip III Primer. Apply Primer by spray, brush or with a long nap roller at the applicable coverage rate noted above. At 75° F allow primer to dry 1 hour minimum. Primer has a satisfactory cure when it will not transfer when touched. Prime only areas to be waterproofed the same day. Re-prime if area becomes dirty.

3. **Application**: Apply Carlisle VapAir Seal 725TR Air and Vapor Barrier from low to high point, in a shingle fashion, so that laps will shed water. Overlap all edges at lease 2-1/2". End laps shall be staggered. Place membrane carefully so as to avoid wrinkles and fishmouths. Immediately after installation, roll with a 30" wide 150 pound weighted segmented steel roller.

4. **Insulation Installation:** Ensure surface of Carlisle VapAir Seal 725TR Air and Vapor Barrier is dry prior to installing insulation. Place insulation over the surface and mechanically fasten to the roof deck or adhere to the vapor barrier with Flexible FAST Adhesive in accordance with this Carlisle Specification.

G. For metal decks, VapAir Seal MD Air and Vapor Barrier is specifically designed for direct application to fluted steel decks. It may also be used in conjunction with either Carlisle's CAV-GRIP III on vertical wall surfaces, such as structural concrete, gypsum, Securock, Securock Weather Defense, DensDeck Prime, DensDeck StormX Prime, DensDeck ProFast Prime, DEXcell and plywood substrates.

H. **VapAir Seal MD Installation:**

1. **Surface Preparation**: The surface shall have a smooth finish and be free of voids, spalled areas, sharp protrusions, loose aggregate, laitance and form release agents. In the event of rain, concrete must be allowed to dry before primer is applied.

2. **Primer**: Surfaces to receive VapAir Seal MD Air and Vapor Barrier must be clean and dry. Prime with CCW 702 or 702LV or Cav-Grip III Primer. Apply Primer by spray, brush or with a long nap roller at the applicable coverage rate noted above. At 75° F allow primer to dry 1 hour minimum. Primer has a satisfactory cure when it will not transfer when touched. Prime only areas to be waterproofed the same day. Re-prime if area becomes dirty.

3. **Application**: Apply VapAir Seal MD Air and Vapor Barrier to the metal deck from low to high point, in a shingle fashion, so that laps will shed water. Overlap all edges at lease 2-1/2". End laps shall be staggered. Place either a 6" wide section of 24 gauge sheet metal or a 6" wide section of VapAir Seal MD directly on the metal under each end lap, perpendicular to the end lap, to ensure a solid surface to roll the end lap together. Seams and end laps must be rolled with a 2" seam roller or stand-up seam roller. Place membrane carefully so as to avoid wrinkles and fish mouths. Immediately after installation, broom the sheet to ensure proper contact to the metal.

4. **Insulation Installation:** Ensure surface of VapAir Seal MD Air and Vapor Barrier is dry prior to installing insulation. Place insulation over the surface and mechanically fasten to the roof deck accordance with this Carlisle Specification.

3.03 INSULATION PLACEMENT

A. Install insulation or membrane underlayment over the substrate with boards butted tightly together with no joints or gaps greater than 1/4 inch. Stagger joints both horizontally and vertically if multiple layers are provided.

B. Secure insulation to the substrate with the required mechanical fasteners or insulation adhesive Carlisle Flexible FAST Adhesive in accordance with the manufacturer's specifications.

3.04 MEMBRANE PLACEMENT AND BONDING

A. Unroll and position membrane without stretching. Allow the membrane to relax for approximately 1/2 hour before bonding. Fold the sheet back onto itself so half the underside of the membrane is exposed.

B. Apply the Bonding Adhesive in accordance with the manufacturer's published instructions and coverage rates, to both the underside of the membrane and the substrate. Allow the adhesive to dry until it is tacky but will not string or stick to a dry finger touch.

1. Roll the coated membrane into the coated substrate while avoiding wrinkles. Brush down the bonded half of the membrane sheet with a soft bristle push broom to achieve maximum contact.

2. Fold back the unbonded half of the membrane sheet and repeat the bonding procedure.

C. Install adjoining membrane sheets in the same manner, overlapping edges approximately 4 inches. Do not apply bonding adhesive to the splice area.

3.05 MEMBRANE SPLICING

A. Position membrane sheet to allow for required splice overlap. Mark the bottom sheets with an indelible marker approximately 1/4" to 1/2" from the top sheet edge. The pre-marked line on the membrane edge can also be used as a guide for positioning splice tape.

B. When the membrane is contaminated with dirt, fold the top sheet back and clean the dry splice area (minimum 3" wide) of both membrane sheets by scrubbing with clean natural fiber rags saturated with Sure-Seal Weathered Membrane Cleaner. When using Sure-Seal (black) PRE-KLEENED membrane, cleaning the splice area is not required unless contaminated with field dirt or other residue.

C. Apply EPDM Primer or Low VOC EPDM Primer to splice area and permit to flash off. Primer must be applied to both the top membrane layer and the bottom membrane layer.

D. When adhering Factory Applied Tape (FAT), pull the poly backing from FAT beneath the top sheet and allow the top sheet to fall freely onto the exposed primed surface. Press top sheet on to the bottom sheet using firm even hand pressure across the splice towards the splice edge

E. For end laps, apply 3" or 6" SecurTAPE to the primed membrane surface in accordance with the manufacturer's specifications. Remove the poly backing and roll the top sheet onto the mating surface.

F. Tape splices must be a minimum of 2-1/2" wide using 3" wide (Butyl/EPDM) SecurTAPE that is a minimum 25-mil thick. SecurTAPE must extend 1/8" minimum to 1/2" maximum beyond the splice edge. Field splices at roof drains must be located outside the drain sump.

Note: For projects where a 90-mil membrane OR 20-year or longer System Warranty is specified, splice

enhancements are required. Refer to Carlisle Sure-Seal/Sure-White Roofing System Specificaiton.

G. Immediately roll the splice using positive pressure when using a 2" wide steel roller. Roll across the splice edge, not parallel to it. When FAT is used, Carlisle's Stand-Up Seam Roller can be used to roll parallel to the splice edge.

H. **At all field splice intersections**, apply Lap Sealant along the edge of the membrane splice to cover the exposed SecurTAPE 2" in each direction from the splice intersection. Install Carlisle's Pressure-Sensitive "T" Joint Covers or a 6" wide section (with rounded corners) of Sure-Seal Pressure-Sensitive Elastoform Flashing over the field splice intersection.

3.06 FLASHING

A. Wall and curb flashing shall be cured EPDM membrane. Continue the deck membrane as wall flashing where practicable. Use Pressure-Sensitive Curb Wrap when possible to flash curb units.

B. Follow manufacturer's typical flashing procedures for all wall, curb, and penetration flashing including metal edging/coping and roof drain applications.

3.07 WALKWAYS

A. Install walkways at all traffic concentration points (such as roof hatches, access doors, rooftop ladders, etc.) and all locations as identified on the specifier's drawing.

B. Adhere walkway pads or rubber pavers to the EPDM membrane in accordance with the manufacturer's specifications.

Note: Pavers are not recommended when the roof slope exceeds 2" in 12"

3.08 DAILY SEAL

A. On phased roofing, when the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed.

Note: A temporary seal should be performed at the conclusion of daily work and use of the appropriate method will vary based on project and project conditions. Contact Carlisle for various methods that may be utilized.

3.09 CLEAN UP

A. Perform daily clean-up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.

B. Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

END OF SPECIFICATION