Part II- Application

Sure-Seal® Reinforced Mechanically-Fastened Roofing System

August 2007

TABLE OF CONTENTS

Attachments

Installation Details

Sure-Seal® Reinforced Mechanically-Fastened Roofing System

August 2007

Part II - Application

FOR CARLISLE AUTHORIZED ROOFING APPLICATORS

THE INFORMATION CONTAINED HEREIN IS TO SERVE AS CRITERIA FOR CARLISLE AUTHORIZED ROOFING APPLICATORS REGARDING THE APPLICATION OF THIS ROOFING SYSTEM. CARLISLE AUTHORIZED ROOFING APPLICATORS ARE ADVISED TO FULLY FAMILIARIZE THEMSELVES WITH "DESIGN CRITERIA," PART I, PRIOR TO PERFORMING THE ROOFING INSTALLATION.

A. SUBMITTALS/WARRANTY PREREQUISITES

1. 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:

   a. Projects exceeding the roof heights identified in "Attachment I," Membrane Fastening Criteria.

   b. Projects specified with a fastener length exceeding 12".

   c. Air pressurized buildings, canopies and buildings with large openings where the total wall openings exceed 10% of the total wall area on which the openings are located (such as airport hangars, warehouses and large maintenance facilities).

   d. Cold storage buildings and freezer facilities.

   e. Projects where EPDM is expected to come in direct contact with petroleum-based products or other chemicals.

2. Projects where a wind speed coverage greater than 55 mph is specified or those with a 20-year Total System Warranty will require additional enhancements beyond those outlined in this section. Prior to installation, refer to "Attachments II and III" in Part I, Design Criteria of this specification.

3. **Along with project submittals** (shop drawings and Request for Warranty), the roofing contractor must include **pullout tests** when results are below requirements identified in Part I, Withdrawal Resistance Criteria, "Attachment I."

4. 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.
   Shop drawings must include:

   a. Outline of roof and size
   b. Deck type (for multiple deck types)
   c. Location and type of **all** penetrations
   d. Perimeter and penetration details
   e. Key plan (on multiple roof areas) with roof heights indicated
   f. Sheet widths and number of perimeter sheets

g. Sure-Seal Fastener type, length and maximum spacing (for membrane securement)

When field conditions necessitate modifications to the originally approved shop drawings, a copy of the shop drawing outlining all modifications must be submitted to Carlisle for revision and approval prior to inspection and warranty issuance.

5. **Notice of Completion** (Page 2 of the Carlisle Request for Warranty form)

After project completion, a Notice of Completion must be submitted to Carlisle to schedule the necessary inspection and acceptance of the project prior to issuance of the Carlisle Warranty.

6. **As-Built Projects** (roofing systems installed prior to project approval by Carlisle)

The Carlisle Authorized Applicator may supply Carlisle with an As-Built drawing for a project completed prior to Carlisle's approval. The As-Built drawings:

a. Must conform to Carlisle's most current published specifications and details applicable at the time of bid.

b. Must be submitted along with a completely executed Notice of Completion.

c. Must include the items identified in Paragraph A.4.

Note: As-Built projects are not recommended for those projects referenced in Paragraph A.1 in order to ensure Carlisle warranty requirements have been met.

B. GENERAL JOB SITE CONSIDERATIONS

Material Safety Data Sheets (MSDS) must be on location at all times during the transportation, storage and application of materials. The Applicator shall follow all safety regulations as recommended by OSHA and other agencies having jurisdiction.

1. Subject to project conditions, it is recommended to begin the application of this roofing system at the highest point of the project area and work to the lowest point to prevent water infiltration. This will include completion of all flashings, terminations and daily seals.

2. On phased roofing, temporary closures should be provided to prevent moisture infiltration.

3. When possible on multiple level roofs, begin the installation on the highest level to avoid or minimize construction traffic on completed roof sections.

4. On projects at high altitudes (6,000' and above), rapid flash off (drying) of Bonding Adhesive and Splicing Cement will occur due to low atmospheric pressure.

5. For existing standing seam, flat seam or corrugated metal roofs, this roofing system can be installed with the membrane secured to the structural purlins. For specific installation requirements, refer to the Metal Retrofit Roofing System Specifications, published separately.

C. JOB SITE MATERIAL STORAGE AND HANDLING

1. Deliver materials to the job site in the original, unopened containers.

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

3. Job site storage temperatures in excess of 90° F (32° C) may affect shelf life of curable materials (i.e., uncured flashing, adhesives, sealants, primers, SecurTAPE and Pressure-Sensitive Flashing/Accessories).

4. Cold temperatures will not restrict the installation of this roofing system. **When the temperature is expected to fall below 40° F (5° C)**, outside storage boxes should be provided on the roof for temporary storage of liquid adhesives, sealants, primers, SecurTAPE and Pressure-Sensitive Flashing/Accessories. Containers should be rotated to maintain

their temperature above 40°F (5°C).

Note: Prolonged exposure of Pressure-Sensitive Flashing and SecurTAPE to temperatures below 40°F (5°C) will cause the preapplied adhesive tape to lose tack and in extreme cases, not bond to the substrate. Refer to "Membrane Splicing with SecurTAPE" for application procedures in colder temperatures.

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

6. Insulation/underlayment must be stored so it is kept dry and protected from the elements. Store insulation on a skid and completely cover with a breathable material such as tarp or canvas. If the insulation is lightweight, it should be weighted to prevent possible wind damage.

D. SUBSTRATE PREPARATION

Defects in the substrate surface must be reported and documented to the specifier, general contractor and the building owner for assessment. The Carlisle Authorized Roofing Applicator shall not proceed with the installation unless defects are corrected.

1. **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 (+/- 1/4") with existing surface.

   a. **For existing PVC membranes**, if membrane is not removed, it must be cut into maximum 10' by 10' sections. All PVC flashings at perimeters, roof drains and roof penetrations must be removed.

   b. When installing this roofing system over **an existing gravel surfaced built-up roof, loose gravel must be removed**. Power brooming is recommended by Carlisle to remove the loose gravel that may trap moisture. Any uneven areas of the substrate must be leveled to prevent insulation from bridging.

   c. When installing this roofing system over an existing smooth surfaced modified bitumen, EPDM membrane shall be positioned with the length of sheets parallel to modified bitumen field splices. At end laps or other locations where EPDM splices intersect modified bitumen field seams, Pressure-Sensitive T-Joint Covers or 6" wide Pressure-Sensitive Uncured Elastoform Flashing must be applied over intersections.

2. **For all projects** (new or retrofit), the substrate must be relatively even without noticeable high spots or depressions, and accumulated water, ice or snow must be removed to prevent the absorption of moisture in the new roofing components and roofing system.

3. Prior to the placement of membrane underlayment, clear the substrate of debris and foreign material that may be harmful to the roofing system. Gaps greater than 1/4" must be filled with an appropriate material.

4. When the membrane is specified directly over or in conjunction with HP Protective Mat on a new or existing approved substrate as outlined in "Design Criteria," Part I, the surface must be free of debris, fins and loose and foreign material.

E. VAPOR RETARDER INSTALLATION

Follow the respective vapor retarder manufacturer's recommended installation procedures and the specifier's instructions for the installation of the product specified.

F. INSTALLATION OF WOOD NAILERS

1. Install wood nailers in those locations that have been designated by the specifier and as approved by Carlisle.

2. The wood nailer must be installed so the top of the wood nailer is relatively flush (+/- 1/4") with the top surface of the membrane underlayment and the width of the wood nailer exceeds the width of the metal flange (where applicable at edgings, scuppers, etc) as shown on the appropriate Carlisle detail.

3. Follow the specifier's guidelines for the securement of the wood nailers.

G. INSULATION PLACEMENT AND ATTACHMENT

To verify acceptability of an insulation/underlayment, refer to Part I, "Design Criteria."

1. Do not install more membrane underlayment/insulation than can be covered by membrane in the same day.

2. All insulation boards must be butted together with no gaps greater than 1/4". Gaps greater than 1/4" are not acceptable.

3. When multiple layers of insulation are specified, staggering of joints between layers is recommended.

4. **Sure-Seal HP Recovery Board, Dens-Deck and Polyisocyanurate Insulation** shall be mechanically fastened to the roof deck at the minimum rate of **1 per every 8 square feet** (refer to Detail MFS-27-A for fastening pattern).

CAUTION: **Sure-Seal Polyisocyanurate Insulation with a thickness less than 1.5" installed over an existing roofing membrane without a tearoff** must be mechanically fastened to the roof deck with a minimum of **1 fastener and plate for every 4 square feet** or less of insulation. Refer to Detail MFS-27-B for fastening pattern.

5. **Foamular® DuraPink®** or **DOW Recovermate extruded polystyrene** insulation (supplied by Carlisle) must be fastened at a minimum rate of **1 fastener and plate per 4 square feet**. Refer to Detail MFS-27-C.

6. Carlisle Rollout Membrane Underlayment (typically installed over smooth or gravel surfaced built-up roofs) shall be overlapped 2" and fastened every 15' at the lap to prevent movement.

7. Hunter Panels Polyisocyanurate Insulation, when specified on 5 or 10-year non-Total System Warranty projects, must be mechanically fastened to the roof deck in accordance with the insulation manufacturer's recommendations.

8. When **gypsum board** is specified as the **membrane underlayment,** it must be fastened at the minimum rate of **1 per every 8 square feet** in accordance with Carlisle's Sure-Seal insulation fastening pattern. Refer to Detail MFS-27-A for fastening pattern.

   Note: Care shall be exercised when installing Polymer Plates to ensure they are properly seated.

9. When specified for insulation securement, Sure-Seal Fasteners must be used in conjunction with Sure-Seal 2" diameter Fastening Plates or 3" diameter Insulation Fastening Plates. As an option, Sure-Seal FAST, OlyBond or VersiGrip Insulation Adhesive may be used to secure insulation.

10. Except for Total System Warranty projects, fasteners by others may be used **for insulation securement** (when recommended by the manufacturer) with a corresponding fastening plate promoted as a complete fastener assembly and accepted by Carlisle prior to installation.

11. For applicable Carlisle Fasteners and minimum deck penetration, refer to "Attachment I" at the end of this section.

H. MEMBRANE PLACEMENT AND SECUREMENT

1. **Ensure** water does not flow beneath any completed sections of the membrane system by completing all flashings, terminations and daily seals by the end of each workday.

2. **Sweep** all loose debris from the substrate.

3. **Perimeter Membrane Securement**

   The roof perimeter is defined as all edges of each roof section (i.e., parapets, building expansion joints at adjoining walls, penthouse walls, etc.).

   Notes: Expansion joints, control joints and fire walls in the field of the roof or roof ridges with slopes less than 3" to the horizontal foot are not considered as part of the roof perimeter.

   When multi-level roofs meet at a common wall, the adjacent edge of the upper roof is treated as a roof perimeter if the difference in height is greater than 3'. Perimeter sheets are not required at the base of the wall at the lower level.

The number of perimeter sheets and fastener spacing is dependent on the building height. Special perimeter securement requirements or other design enhancements are required at overhangs, canopies and large wall openings. Refer to "Attachment I," Membrane Fastening Criteria, at the end of this section for applicable requirements.

a. **Use of 4-1/2' wide perimeter sheets**

Position membrane along the perimeter of the roof over the acceptable insulation/underlayment. The perimeter membrane width from line of securement to line of securement must be a minimum of 3-1/2' wide to a maximum of 4-1/2' wide. Refer to Detail MFS-21-A.

b. **Use of RUSS (Reinforced Universal Securement Strip)**

1) When **field sheets are positioned parallel to the roof perimeter, 9" wide Pressure-Sensitive RUSS** shall be placed approximately down the center of the 8' or 10' wide field membrane sheets. When a RUSS divides a field sheet in half, two perimeter sheets are created.

2) When a 8' or 10' wide reinforced **EPDM membrane sheet extends perpendicular to the edge of the roof**, install **9" wide Pressure-Sensitive RUSS** beneath the EPDM membrane sheet a minimum of 3-1/2' to a maximum of 5' from the edge of the roof. When multiple perimeter sheets are required, additional RUSS shall be positioned 3-1/2' to 5' from the previous RUSS.

Note: When fastening 9" Pressure-Sensitive RUSS, position approved fastening plates along the center line to provide 4-1/2", ±1/2" on either side of the plates. **6" wide Pressure-Sensitive RUSS cannot be used to create** perimeter **sheets.**

3) Refer to Detail MFS-21-B and E for applicable requirements.

c. **To provide a continuation of deck membrane as wall flashing**

8' or 10' wide deck membrane is positioned with 3-1/2' to 5' of membrane extending onto the insulation/underlayment. The remainder of the 8' or 10' wide membrane sheet is to be used for wall flashing.

d. **Using fastening plates through the field membrane**

When field sheets extend to the edge of the roof, approved fastening plates can be installed through the reinforced membrane 3-1/2' to 5' from the roof edge which will be flashed with 6" wide Pressure-Sensitive Flashing. When multiple perimeter sheets are required, additional fastening plates shall be positioned 3-1/2' to 5' from the previously installed fastening plates. Refer to Details MFS-21-C and D.

Note: When field sheets are positioned parallel to the roof edge, fastening through the membrane along the centerline creates two perimeter sheets.

4. **Field Membrane Securement**

a. **Position** field membrane sheets adjacent to perimeter membrane to allow a minimum 6" overlap, 3" from the center of the plate or bar in front and back.

Note: For 20-year warranty projects with a roof slope less than 1/4" in 12" (minimum 1/8" slope required) or when splices buck water, an overlap of approximately 11" is required to accommodate 3" wide tape behind the seam plates and 6" wide tape in front of the seam plates. Refer to "Attachment III" in Part I, Design Section for specific requirements.

b. **Secure the field and perimeter membrane sheets** along the pre-printed blue line approximately 3" from the edge of the membrane sheet at the approved fastening density with the required **Sure-Seal Fastener** and **Seam Fastening Plates. HP Fasteners and HP Polymer Seam Plates or Sure-Tite Fasteners and ST Fastening Bars are required for steel decks**.

Correct fastener placement must conform to the following:

1) Fastening Plates or Bars must be located along the pre-printed blue line approximately 3" from the edge of

the membrane sheet.

2) The **minimum** distance between the bottom membrane edge and the nearest edge of the fastening plate or bar must be **2"**.

3) The **minimum** distance between the overlapping membrane edge and the nearest edge of the fastening plate or bar must be **2"**.

4) For 20-year warranty projects with a slope less than 1/4" in 12", additional enhancements are required. Refer to "Attachment III" in the Design Section of this specification.

c. Refer to the Fastener Criteria Chart in "Attachment I" at the end of this section for the required Sure-Seal Fastener and corresponding deck type.

Notes: When Dens-Deck gypsum board is specified as the membrane underlayment and the roof deck is standard, Grade C, 22 gauge steel, test trials with HP Fasteners and Polymer Plates will be necessary to determine if the plates will properly seat in the hard gypsum material. Carlisle can be contacted for suitable alternatives.

For projects specified directly over a smooth surface asphalt built-up roof or stable mineral surface cap sheet or in conjunction with HP Protective Mat, a test trial with the Sure-Seal Polymer Seam Plate should be conducted to ensure that the plate will properly seat into the substrate. If they do not properly seat, contact Carlisle for requirements.

On new construction projects, where direct application of the membrane is specified over lightweight insulating concrete, standard 2" diameter Seam Fastening Plates must be used since the Polymer Seam Plates will not properly seat. Sure-Tite Fastening Bars may also be utilized

d. **Position** adjoining field membrane sheets, 8' or 10' wide, to allow a minimum overlap of 6" at locations where Fastening Plates are located (along length of the membrane); at the same time overlap end roll sections (width of the membrane) a minimum of 3". Refer to applicable Splice Details for 20-year Warranty splice requirements.

5. Work shall progress across the roof with a minimum 6" overlap provided at the previously secured sheet edge. The opposite length of the sheet must be secured with approved Fastening Plates or bars and overlapped accordingly. Refer to Details MFS-2 and MFS-21.

I. MEMBRANE SPLICING WITH SecurTAPE

1. **General**

The following splice procedures are for use with Sure-Seal Pre-KLEENED Reinforced EPDM Membrane. If Pre-KLEENED membrane will not be utilized or the membrane is contaminated with field dirt, etc., refer to Part II, "Application" for the Design "A" Adhered Roofing System for required surface preparation procedures.

a. Tape splices where fastener plates or bars are located (along the length of the membrane) must utilize 6" wide SecurTAPE.

b. Tape splices at end roll sections (along the width of the membrane without fastening plates or bars) must be minimum 2-1/2" wide using 3" wide SecurTAPE.

Note: For projects where a 20-year System Warranty is specified, splice enhancements are required. Refer to "Attachment III" in Part I, Design Criteria Section of this specification.

c. SecurTAPE must extend 1/8" to 1/2" beyond the splice edge.

d. Field splices at roof drains must be located outside the drain sump.

e. **Prior to SecurTAPE application, the splice area must be primed with Sure-Seal HP-250 Primer.**

Note: **When LV-600 Primer is specified** (i.e., where volatile organic compound -VOC regulations are in effect), **Carlisle must be contacted** regarding proper installation procedures.

f. **Cold Weather Restriction - When Temperatures are below 40°F (5° C)**

1) Splice tape must be stored in a warm, dry area. Hot boxes must be provided for temporary storage to maintain the temperature of the tape above 40°F (5°C).

2) After HP-250 Primer has been applied and allowed to properly dry, **heat the primed area of the bottom membrane sheet** with a hot air gun as the tape is applied and pressed into place.

3) When temperatures will fall below 20° F (-7°C), use a steel roller to apply pressure to the tape prior to removing the release film.

4) Position the top sheet and remove the release film. Prior to rolling the splice with the 2" steel roller, apply heat to the top side of the splice area with a hot air gun. The heated surface should be very hot to the touch of bare skin (approximately the temperature of hot tap water). Take care not to burn or blister the membrane.

g. In warmer temperatures, it is recommended to keep SecurTAPE (especially 6" wide tape) in a shaded area out of direct sunlight.

2. Position membrane sheets to allow for the required minimum splice overlap. Mark the bottom sheet 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.

3. Sure-Seal HP-250 Primer is applied to the mating surfaces of the membrane with a 1/2" medium nap roller to achieve a thin even coat.

   The coverage rate of HP-250 Primer is approximately 250 square feet per gallon. This equates to approximately 185 linear feet per gallon for a completed 6 inch wide splice area and approximately 300 linear feet per gallon for a completed 3" wide splice area (primer applied on a 5" wide area on both membrane surfaces).

4. **Allow** Primer to dry until tacky but does not transfer to a dry finger touch.

   Note: Due to solvent flash-off, condensation may form on freshly applied HP-250 Primer when the ambient temperature is near the dew point. If condensation develops, the application of Primer and SecurTAPE must be discontinued since proper adhesion will not be achieved. Allow the primer surface to dry and apply a thin freshener coat of HP-250 Primer to the previously coated surface and apply SecurTAPE when conditions allow.

5. **Unroll** approximately 3' of SecurTAPE. Align release film with marked line and press tape down to bottom sheet using firm even hand pressure. Continue for the length of the splice. Tape roll ends must be overlapped 1".

   Lightly apply pressure with a steel roller to the tape (with release film still in place) along the entire length of the splice. Allow top sheet to rest on release film on backside of tape.

   a. Tape placement is critical to obtain a minimum splice width of 5-1/2" using 6" wide SecurTAPE along the length of the membrane where fastening plates or bars are located. At end lap sections, the minimum splice width shall be 2-1/2" using 3" wide SecurTAPE.

   b. A minimum of 1/8" to a maximum of 1/2" of tape must extend beyond the splice edge. A continuous piece of SecurTAPE must be used at all field splice intersections.

6. **Pull** release film from SecurTAPE beneath the top sheet and allow the top sheet to fall freely onto exposed tape.

7. **Press** the top sheet onto the tape using firm even hand pressure across the splice towards the splice edge.

8. **Immediately roll** the splice with a 2" wide steel roller, using positive pressure. Roll across the splice edge, not parallel to it. Carlisle's Seam Roller can be used to roll parallel to splice edge.

9. **Install** Carlisle's Pressure-Sensitive “T” Joint Covers or a 6" wide section (with rounded corners) of Sure-Seal Pressure-Sensitive Flashing over **all field splice intersections**. Refer to Detail MFS-2-C.

J. LAP SEALANT APPLICATION

1. **General**

   a. **The use of Lap Sealant with tape splices is optional except at cut edges of reinforced membrane** (where scrim reinforcement is exposed) **and at tape overlaps**. Lap Sealant must be utilized at these locations.

   b. **Lap Sealant is optional on Pressure-Sensitive Flashing and Pressure-Sensitive** accessories (pipes, corners, Pourable Sealer Pockets, etc.).

      Lap Sealant is required at the following locations:

      1) Splice tape overlaps.

      2) Splices between adjoining sections of Pressure-Sensitive Flashing.

      3) Intersections between Pressure-Sensitive Flashing and joints in metal edgings.

2. **Additional cleaning of the splice edge prior to applying Lap Sealant is not required unless PRE-KLEENED EPDM Membrane is contaminated** with dirt or other contaminants. If necessary, clean the dry splice edge, extending at least 1" onto top and bottom membranes, using Sure-Seal HP Splice Wipes or clean cloth dampened with Weathered Membrane Cleaner.

3. Apply a **5/16" (minimum 1/4") diameter bead** of Sure-Seal Lap Sealant. When a 5/16" diameter bead of Lap Sealant is applied, approximately 22 linear feet of coverage per tube can be achieved.

4. **Feather** the Lap Sealant with the specially preformed tool or nozzle (included in the Lap Sealant cartons) so the high point or crown of the Lap Sealant is located over edge of splice.

   Clean the feathering tool occasionally for consistent crowning of Lap Sealant.

5. **APPLICATION OF LAP SEALANT SHOULD BE COMPLETED BY THE END OF THE DAY.** Delayed Lap Sealant application (not within the same day) will require scrubbing of accumulated dirt and dust along the splice edge, rinsing with clean water and cleaning with Weathered Membrane Cleaner or Primer.

K. ADDITIONAL MEMBRANE SECUREMENT

Securement must be provided at the perimeter of each roof level, roof section, expansion joint, curb flashing, skylight, interior wall, penthouse, etc., at any inside angle change where slope exceeds 2" in one horizontal foot, **and at other penetrations** in accordance with Carlisle's details and securement options as listed below.

Securement may be achieved as follows:

1. **Pressure-Sensitive RUSS™ (Reinforced Universal Securement Strip)**

   a. Loose lay the 6" wide Pressure-Sensitive RUSS along parapet walls and fasten with Polymer Seam Plates, ST Fastening Bars or Seam Fastening Plates and the appropriate Carlisle fastener to the roof deck or vertically into the parapet wall. Spacing of the Seam Fastening Plates shall be a maximum of 12" on center.

      1) For horizontal attachment, the reinforced strip must be positioned a minimum of 1/8" to a maximum of 6" away from the angle change. Refer to Detail PS-12-C.

      2) For vertical attachment, the reinforced strip must be attached to the vertical wall and must extend a minimum of 3" onto the horizontal substrate/insulation. Refer to Detail PS-12-D.

   b. Adjoining sections of the reinforced strip need not be overlapped; however, gaps between adjoining sections must

not exceed 1".

CAUTION: When the RUSS is used for membrane securement along metal edgings, refer to the appropriate detail for applicable installation criteria. For some metal edge details, adjoining sections of the reinforced strip must be overlapped and spliced (refer to MFS-1-G).

c. **Clean the underside of the field membrane with Sure-Seal HP-250 Primer and** allow to properly dry prior to removing release film from the Pressure-Sensitive RUSS and assembling the splice.

2. **Seam Fastening Plates**

Where the use of RUSS is not feasible (at smaller curbs or skylights), Sure-Seal 2" diameter Polymer Seam Plates (required for steel decks) or Seam Fastening Plates may be used.

a. Fastening Plates may be installed horizontally into the structural deck or vertically into walls or curbs.

b. Securement of EPDM membrane with approved Carlisle Fasteners and Plates must be a maximum of 12" on center starting 6" minimum to 9" maximum from inside and outside corners.

c. If horizontal wood nailers are provided, secure Fastening Plates to wood nailers with Sure-Seal HP Fasteners.

d. After securing the Fastening Plates, flash in accordance with the appropriate detail.

As an option to the use of fastening plates, ST Fastening Bars in conjunction with Sure-Tite Fasteners, can be used for membrane securement. Refer to "Attachment I" for applicable requirements.

3. Refer to the "Fastener Criteria" chart in "Attachment I" at the end of this section for the required Sure-Seal Fastener criteria and corresponding deck type.

L. FLASHING

1. **General Flashing Considerations**

a. All existing **loose** flashing must be removed prior to the application of new membrane. New membrane flashing must extend above all existing intact flashing but must not conceal weep holes or cover existing throughwall counterflashing.

b. Install surface mounted reglets and compression bar terminations directly to the wall surface.

c. All vertical field splices at the base of a wall or curb must be overlaid with Pressure-Sensitive "T" Joint Cover or a 6" by 6" section (with rounded corners) of Sure-Seal Pressure-Sensitive Uncured Elastoform Flashing centered over the field splice.

d. **Pressure-Sensitive Uncured Elastoform Flashing** must be limited to the overlayment of vertical seams (as required at angle changes), or to flash inside/outside corners, vent pipes, scuppers and other unusually shaped penetrations where the use of Pre-Molded Pipe Seals, Cured EPDM membrane or Pressure-Sensitive Cured Cover Strip or Overlayment Strip is not practical.

Note: Even when working in elevated temperatures, in most cases a heat gun will be required to elevate the temperature of Pressure-Sensitive Uncured Flashing between 105°F and 110° F (40 and 43°C) to permit proper forming of the uncured flashing.

e. When using **Pressure-Sensitive Cured Cover Strip or Overlayment Strip** to overlay Fastening Plates or metal edging flanges, etc., **Sure-Seal Primer** must be used to clean the membrane and metal flanges.

Note: When using Pressure-Sensitive products in colder temperatures, use a heat gun to warm the product. Apply heat to EPDM flashing side of the product. Do not apply heat directly to the pre-applied tape adhesive. Pressure-Sensitive Flashing must be applied immediately after the Primer flashes off. Refer to "Membrane Splicing with SecurTAPE" for application procedures in colder temperatures.

f. In areas where metal counterflashing or surface mounted reglets are used as the vertical termination, the counterflashing must be sealed with a rubber grade caulking to prevent moisture migration behind the new wall flashing.

g. On Total System Warranty projects, Carlisle's Termination Bar (with Water Cut-Off Mastic) must be installed under all metal counterflashings and surface mounted reglets used for vertical wall terminations.

2. **Walls, Parapets, Curbs, Skylights, etc.**

a. Use continuous deck membrane with RUSS or Seam Fastening Plates along the base of the wall.

1) When using Pressure-Sensitive RUSS, refer to "Additional Membrane Securement" for attachment criteria.

2) When Seam Fastening Plates are used to secure continuous deck membrane, use 6" wide Pressure-Sensitive Cured Cover Strip or Overlayment Strip to overlay fasteners and plates.

b. When the use of continuous deck membrane for wall flashing is not feasible, a separate piece of cured EPDM membrane may be used.

The membrane and flashing (Cured EPDM) must be **cleaned with Sure-Seal Primer prior to applying SecurTAPE**. Refer to "Membrane Splicing With SecurTAPE" for splicing procedures.

c. Adhere flashing to the wall and terminate in accordance to the applicable U-9 Termination Details.

d. Use a Pressure-Sensitive "T" Joint Cover or a 6" by 6" Pressure-Sensitive uncured Elastoform Flashing (with rounded corners) to overlay vertical splices as shown on the applicable U-12 Detail.

e. Refer to U-15 Details for various corner flashing options.

3. **Roof Drains (MFS-6 and U-6 Details)**

a. The EPDM deck membrane may extend into the drain sump when slope of the sump is less than 3" to one horizontal foot. When the drain sump is greater than 3" in one horizontal foot, a separate piece of cured non-reinforced membrane must extend into the drain sump as shown on the applicable detail.

b. Provide a smooth transition from the roof surface to the drain clamping ring. Prepare the substrate around each drain to avoid membrane bridging in excess of 2" at the sump area and possible distortion at drain clamping ring.

c. The mating surfaces between the clamping ring and drain base must be clean and have a smooth finish.

d. Field splices at roof drains must be located at least 6" outside the drain sump.

e. Cut the membrane so it extends approximately 2" beyond the attachment points of the clamping ring. The hole in the membrane must not restrict water flow or be smaller than the drain pipe.

f. Remove all existing flashing, cement and lead in preparation for the membrane seal (application of Water Cut-Off Mastic).

g. All bolts and/or clamps must be in place to provide compression on the Water Cut-Off Mastic.

h. Use drain strainers, which have been approved by the specifier in accordance with applicable codes.

4. **Other Penetrations**

All penetrations, regardless of size, require mechanical securement. Seam Fastening Plates must be installed within 12" of the penetration, fastened a maximum of 12" on center around the penetration, and flashed in accordance

with the applicable Carlisle Detail.

a. Flash pipes and round supports with Molded Pipe Seals or Pressure-Sensitive Pipe Seals, when feasible, in accordance with the applicable detail.

b. Form Field Fabricated Pipe Seals using Pressure-Sensitive Uncured Elastoform Flashing around pipes, round supports and structural steel tubing with corner radius greater than 1/4" in accordance with U-14 Details.

c. When flashing seamless metal posts, maximum 4" by 4", with a corner radius less than 1/4", apply a field fabricated pipe flashing with a double vertical wrapping.

d. Flexible penetrations (braided cables, conduits, wires, etc.) must be enclosed in a stable gooseneck and flashed in accordance with the applicable U-14 Detail.

e. Hot pipes which exceed 180° F (82° C), must be insulated with metal collars and rain hoods and flashed in accordance with the applicable U-14 Details.

f. For pipe clusters or unusually shaped penetrations, a pourable sealer pocket must be utilized. Refer to applicable U-16 Details.

M. ROOF WALKWAYS

Install walkways in locations designated by the specifier in accordance with "Design Criteria," Part I.

Carlisle Pressure-Sensitive Molded Walkway Pads (with SecurTAPE Factory-Applied) or Walkway Rolls

If a 30' long walkway roll is to be used, the Splice Tape must be applied to the side of the walkway, which faces upward after unrolling to prevent curling. Allow a 1" wide break between maximum 10' lengths of walkway roll. Round all corners of the walkway roll prior to application.

Discontinue walkways over all field splices to provide a minimum 1" gap over the seam edge.

1. **Attachment With SecurTAPE/Primer**

   a. If necessary, **scrub** the membrane with Weathered Membrane Cleaner to remove contaminants. Rinse with clean water and allow to dry.

   b. When using Pressure-Sensitive Walkway Pads, prime the membrane surface with Sure-Seal HP-250 Primer and allow to properly dry. When using walkway rolls, prime the mating surfaces of the membrane and underside of the walkway roll with Sure-Seal HP-250 Primer and allow to dry.

   c. If walkway rolls are used, the SecurTAPE positioning (along the width or length of the pad) will vary depending on direction of roof slope; however, the maximum distance between parallel rows of tape shall not exceed 15" or 24" with 3" or 6" SecurTAPE respectively.

   d. **Remove** release film from SecurTAPE and place walkway pad/roll over the Sure-Seal HP-250 Primer applied to the EPDM membrane.

   e. **Walk** the pad/roll into place to ensure proper adhesion.

      Note: On Sure-White Roofing Systems, when aesthetics are of importance, care should be exercised when applying Primer to membrane surface to avoid discoloration outside walkway area.

2. **Concrete Paver Blocks**

   Install a **slip sheet of cured membrane or two layers of HP Protective Mat** under all smooth pavers for protection of the deck membrane. The protective layer must extend a minimum of 2" on each side of the concrete paver.

3. **Sure-Seal Interlocking™ Rubber Pavers** can be loose laid directly over the membrane. Installation instruction sheets are available from Carlisle.

4. Pavers are not recommended for walkways when slopes exceed 2" in 12".

N. DAILY SEAL

1. On phased roofing, when the completion of flashings and terminations is not completed by the end of each workday, provisions must be provided to temporarily close the membrane to prevent water infiltration.

2. Temporarily seal any loose membrane edge down slope using Sure-Seal Pourable Sealer (two-component) or "closed cell" urethane foam spray so the membrane edge will not buck water. Caution must be exercised to ensure the membrane is not temporarily sealed near drains in such a way as to promote water migration below the membrane.

3. Sure-Seal Pourable Sealer, when utilized, shall be applied as follows:

   a. On existing built-up roofs, remove the gravel. The surface must be clean and dry.

   b. The two Pourable Sealer components must be mixed in accordance with the instructions on the container labels.

   c. Apply the Pourable Sealer along the loose edge of the EPDM membrane. If necessary, use a trowel to spread Pourable Sealer to achieve complete coverage.

   d. After embedding the membrane in Pourable Sealer, CHECK FOR CONTINUOUS CONTACT. Provide continuous pressure over the length of the temporary seal with 15' lengths of 2-1/2" diameter Sure-Seal Lay Flat Tubing filled with dry sand.

      Note: Wood nailers will not provide constant compression due to warping and an uneven substrate.

   e. When work is resumed, pull the membrane free; trim and remove where the Pourable Sealer was applied.

4. When using urethane foam as a daily seal, follow manufacturer's installation requirements. Trim and remove membrane where urethane foam was applied.

O. OPTIONAL COLOR COATING

If Sure-Seal X-Tenda Coat Coating is specified to color the membrane surface, refer to the Carlisle X-Tenda Coat Coating Specification for installation requirements. If Sure-Seal EM-8 Hypalon Coating is to be used, refer to the applicable Technical Data Bulletin for installation criteria.

This specification represents the applicable information available at the time of its publication. Owners, specifiers and Carlisle authorized roofing applicators should consult Carlisle or their Carlisle Manufacturer's Representative for any information that has subsequently been made available.

Review the appropriate Carlisle warranty for specific warranty coverage, terms, conditions and limitations.

Sure-Seal® Reinforced Mechanically-Fastened Roofing Systems

"Attachment I"

Membrane Fastening Criteria

August 2007

A. Carlisle Fastening Criteria

Deck/Parapet Type and Minimum Pullout Per Fastener	Carlisle Fastener and Membrane Fastening Plates	Minimum Penetration	Pilot Hole Depth	Pilot Hole Diameter
Steel, 22 gauge (.75 mm) or heavier	HP Fasteners with Polymer Plates or Sure-Tite Fasteners with ST Fastening Bars	3/4 inch	N/A	N/A
Lightweight Insulating Concrete over Steel	HP Fasteners with Polymer Plates or Sure-Tite Fasteners with ST Fastening Bars	3/4 inch (into steel)	N/A	N/A
Structural Concrete, rated 3,000 psi (211 kg/cm^2)	CD-10 Fasteners with Polymer Plates or Seam Fastening Plates	1 inch	(1)	7/32 inch
	HD 14-10 Fasteners with Polymer Plates or Seam Fastening Plates	1 inch	(1)	3/16 inch or 7/32 inch (4)
Wood Planks, min. 15/32" (12 mm) thick Plywood	HP Fasteners with Polymer Plates or Seam Fastening Plates Sure-Tite Fasteners with ST Fastening Bars	Min. 1 inch (6)	N/A	N/A
Minimum 7/16" (11 mm) thick OSB (Oriented Strand Board)	HP Fasteners with Polymer Plates or Sure-Tite Fasteners with Sure-Tite Fastening Bars	1 inch	N/A	N/A
Cementitious Wood Fiber and Gypsum	HP-NTB Fasteners/Plates (2)	1-1/2 inches	(1) (3)	1/2 inch or 9/16 inch (4)
Masonry (block, brick or concrete)	HP Term Bar Nailin (5)	3/4 inch	1 inch	1/4 inch

Notes:

(1) The pilot hole must be predrilled to a sufficient depth to prevent contact between the fastener point and any accumulated dust in the predrilled hole. This will help prevent bottoming out of the fastener during installation.

(2) The HP NTB Fastener and 2" or 3" diameter fastening plate may be used for attachment of insulation. The 2" diameter fastening plate must be used for membrane/RUSS securement.

(3) Most cementitious wood fiber decks do not require predrilling.

(4) Pilot hole size may be varied to maximize pullout resistance.

(5) Used for the securement of compression bar terminations or Seam Fastening Plates (used for additional membrane securement into vertical masonry surfaces). **Do not use for insulation securement.**

(6) For wood planks only, maximum fastener penetration shall not exceed 1-1/2".

N/A = Not Applicable

B. The following charts indicate the required number of perimeter membrane sheets, width of field membrane sheets and required fastening density. The chart for field sheet widths and fastening density is categorized by deck type and includes four different wind zones, which are identified on the "Basic Wind Speed Map" at the end of this section.

Upon selection of the required number of perimeter sheets (Chart 1), the specifier must refer to Chart 2 or 3 for required fastening of perimeter and field sheets.

1. **Chart 1 - Perimeter Sheet Selection**

Identify the wind zone from the Basic Wind Speed Map and determine the number of perimeter sheets based on the building height.

The roof perimeter is defined as all edges of each roof section (i.e., parapets, building expansion joints at adjoining walls, penthouse walls, etc.).

Notes: Expansion joints, control joints and fire walls in the field of the roof or roof ridges with slopes less than 3" to the horizontal foot are not considered as part of the roof perimeter.

When multi-level roofs meet at a common wall, the adjacent edge of the upper roof is treated as a roof perimeter if the difference in height is greater than 3'. Perimeter sheets are not required at the base of the wall at the lower level.

2. The use of 9" wide Pressure-Sensitive RUSS along the center of a 8' or 10' wide field sheet is acceptable in lieu of separate 4-1/2' wide perimeter sheets. A field sheet with Pressure-Sensitive RUSS positioned along the center line qualifies as 2 perimeter sheets. In areas where the field sheets run perpendicular to the roof edge, Pressure-Sensitive RUSS positioned 3-1/2' to 4-1/2' from the edge is equivalent to 1 perimeter sheet.

Wind Zone	Building Height	# of Perimeter Sheets Required
Less than 120 mph (Zones 1 & 2)	Up to 50 feet	1 (See Note)
	51 to 75 feet	2 (See Note)
120 mph or Greater (Zone 3 & 4)	Up to 75 feet	2 (See Note)
Note: Projects over cementitious or gypsum decks requiring a 15-year Total System Warranty require a minimum of 3 perimeter sheets. Maximum building height shall not exceed 40'.		

If a Factory Mutual (FM) rating is required, refer to Carlisle's EPDM Code Approval Guide for additional perimeter securement requirements and fastening density.

C. **Fastening Density Requirements**

1. To determine appropriate securement requirements, identify project wind zone from the map and select the chart based on project deck type. The building height is then used to determine membrane securement requirements for the project.

Chart 2: Membrane Securement Using Fastening Plates or Polymer Batten Bars

Wind Zone	Deck Type (1)	Building Height	Field Membrane Width	Fastening Density (Field & Perimeter Sheets)
Zone 1 Up to 100 MPH	All approved decks except Gypsum and Cementitious Wood Fiber	Max. 75'	10'	12" O.C.
	Gypsum and Cementitious Wood Fiber	Max. 75'	10'	9" O.C.
			8'	12" O.C.
Zone 2 100 – 119 MPH	Steel, Lightweight Insulating Concrete Over Steel and Wood	Max. 50'	10'	12" O.C.
	Structural Concrete	Max. 75'	10'	12" O.C.
	Gypsum and Cementitious Wood Fiber	Max. 50'	10'	9" O.C.
			8'	12" O.C.
Zone 3 120-129 MPH (3)	Recover Projects Only Steel or Wood Plank	Max. 40'	10'	12" O.C.
	Steel or Lightweight Insulating Concrete over Steel	Max. 50'	10'	9" O.C.
			8'	12" O.C.
	Structural Concrete	50’	10’	12" O.C.
	Plywood, Wood Planks (2) Oriented Strand Board, Gypsum and Cementitious Wood Fiber	Max. 75'	8'	9" O.C.
Zone 4 130 MPH or Greater	Steel or Lightweight Insulating Concrete over Steel	Max. 75'	10'	6" O.C.
			8'	9" O.C.
	Structural Concrete	Max. 50'	8'	12" O.C.
	Plywood, Wood Planks (2), Oriented Strand Board, Gypsum or Cementitious Wood Fiber	N O T A C C E P T A B L E		

Notes:

(1) Refer to “Attachment I,” Withdrawal Resistance Criteria, in Part I Design Criteria for roof deck/pullout requirements and the required Carlisle Fastener.

(2) On plywood or wood plank decks, if pullout tests exceed 425 pounds (192 kg) per fastener, the membrane securement requirements for steel decks may be followed providing the pullout tests are submitted to Carlisle for approval.

(3) Those areas located between wind zone contours of 120-129 MPH (144 - 160 km/h) that are within 20 miles (32 km) of the coastline shall be considered as a Zone 4 Wind Zone.

As an option to the use of Fastening Plates, Sure-Tite Fasteners and ST Fastening Bars can be used for membrane securement as follows:

Chart 3: Membrane Securement Using ST Fastening Bars and Sure-Tite Fasteners (Steel and Wood Decks only)

Wind Zone	Deck Type (1)	Building Height	Field Membrane Width	Fastening Density (Field & Perimeter Sheets)
Zone 1 Up to 100 MPH	Steel (minimum 22 gauge) Plywood (minimum 15/32" thick) Wood Plank (minimum 3/4" thick)	Max. 75'	10'	12" O.C.
Zone 2 100-119 MPH	Steel (minimum 22 gauge) Plywood (minimum 15/32" thick) Wood Plank (minimum 3/4" thick)	Max. 75'	10'	12" O.C.
Zone 3 120 – 129 MPH (3)	Steel (minimum 22 gauge) Plywood (minimum 15/32" thick) Wood Plank (minimum 3/4" thick)	Max. 50'	10'	12" O.C.
Zone 4 130 MPH or Greater	Recover Projects Only Steel (minimum 22 gauge) Plywood (minimum 15/32" thick) Wood Plank (minimum 3/4" thick)	Max. 40'	10'	12" O.C.
	Steel and Wood Plank Plywood (minimum 15/32" thick)	Max. 75'	8'	12" O.C.

D. The fastening criteria shown above does not necessarily reflect Factory Mutual approvals. For specific requirements when a Factory Mutual rating is required, refer to the Carlisle EPDM Code Approval Guide.

1. **Special Building Conditions**

Air pressurized buildings, canopies and buildings with large openings where the total wall openings exceed 10% of the total wall area on which the openings are located (such as airport hangars, warehouses and large maintenance facilities) will typically require additional perimeter membrane securement, an increased fastening density or other enhancement.

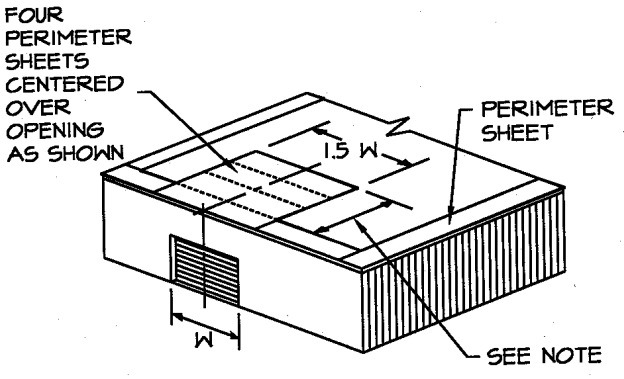
The following information is general criteria pertaining to special building conditions that must be considered by the specifier; however, projects with such conditions must be submitted to Carlisle for review and final approval to determine whether the project can be eligible for a Carlisle warranty.

2. **Buildings with large openings**

When any wall contains major openings with a combined area which exceeds 10% of the total wall area on which the openings are located, either four 4-1/2' wide or two 10' wide reinforced EPDM membrane sheets (centered over the opening) must be specified as shown.

a. 9" wide Pressure-Sensitive RUSS (Reinforced Universal Securement Strip) shall be specified in conjunction with the 10' wide membrane sheets.

b. The 9" wide Pressure-Sensitive RUSS is to be positioned beneath the 10' wide membrane sheet along the centerline and shall be secured with Polymer Seam Plates (required for steel decks) or Seam Fastening Plates. All fasteners and plates shall be spaced at the rate required at the roof perimeter as shown on the membrane securement charts on the previous pages.



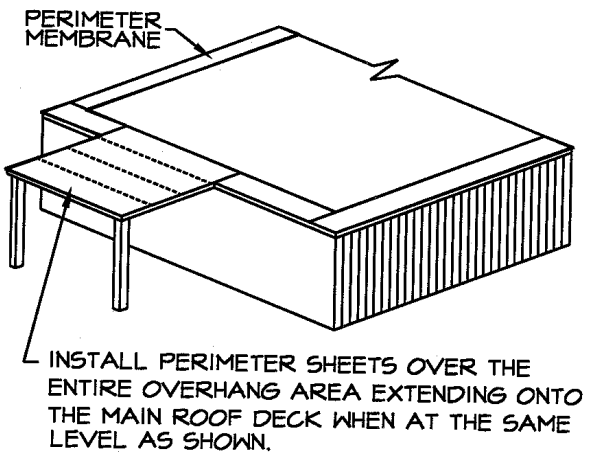
c. As an option to the above perimeter securement, an adhered membrane section may be used in lieu of the mechanically fastened membrane at large openings in accordance with the Carlisle Specification for the Sure-Seal/Sure-White Adhered Roofing System.
System.

3. **Buildings with overhangs**

The membrane must be specified with securement 3-1/2' to 4-1/2' over the entire overhang area extending onto the main roof deck a minimum of 3-1/2' when at the same level.

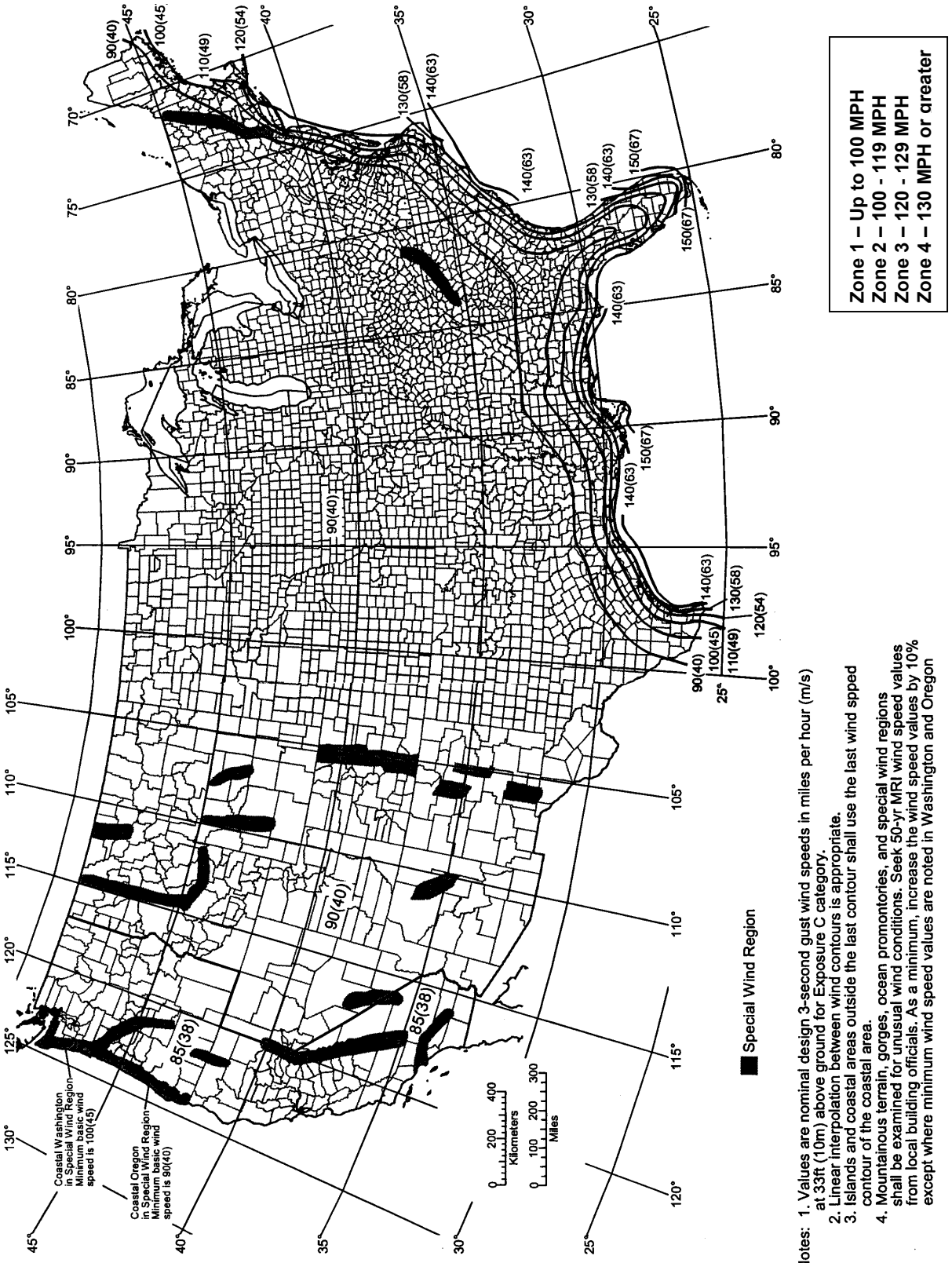
a. This can be achieved utilizing individual 4-1/2' perimeter membrane sheets or 10' wide membrane sheets in conjunction with 9" wide Pressure-Sensitive RUSS as described above.

b. As an option, an adhered membrane section may be used in lieu of the mechanically fastened membrane at building overhangs in accordance with the Carlisle Specification for the Sure-Seal/Sure-White Adhered Roofing System.

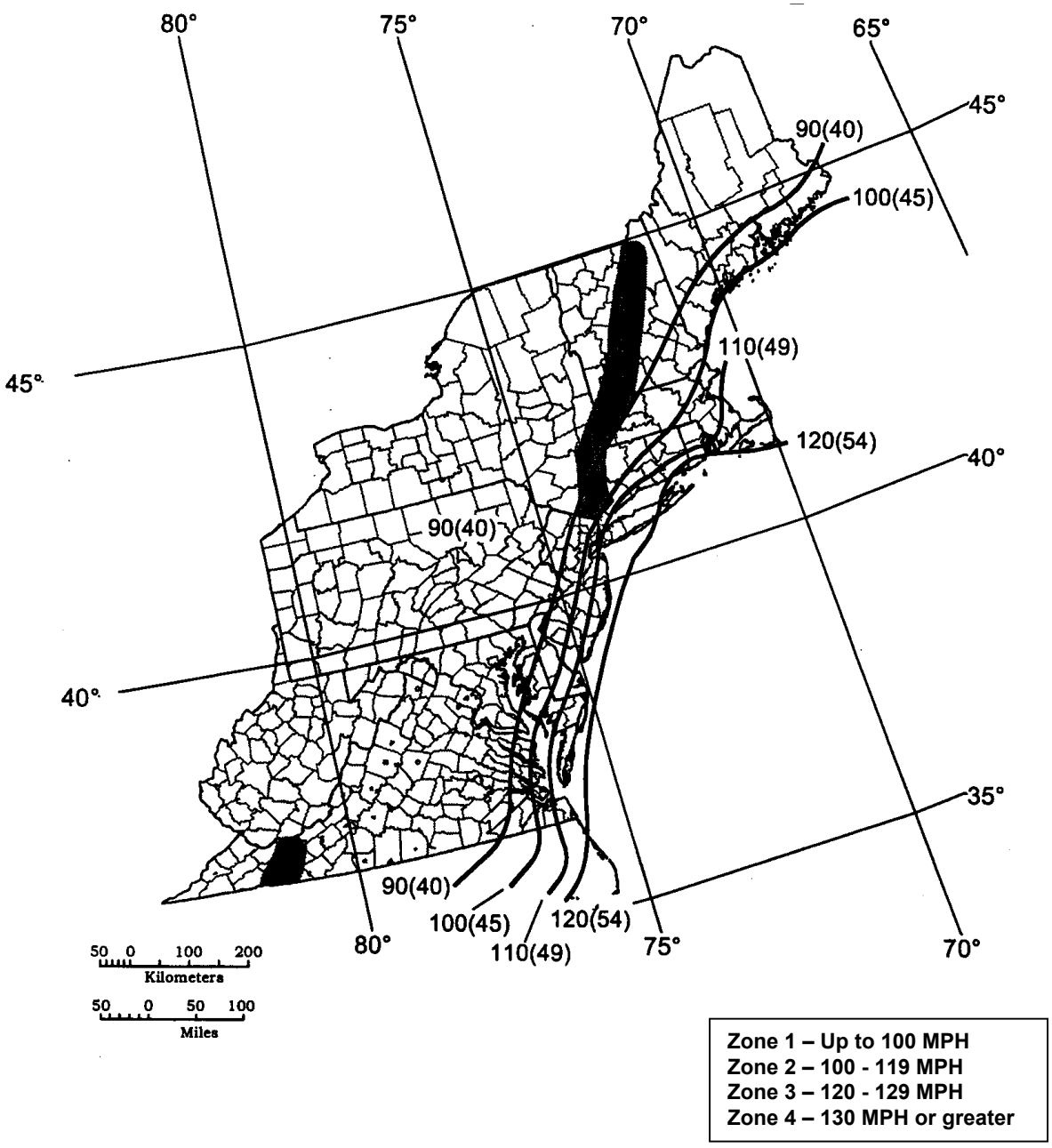


Basic Wind Speed Map

(Based on ASCE 7-02)

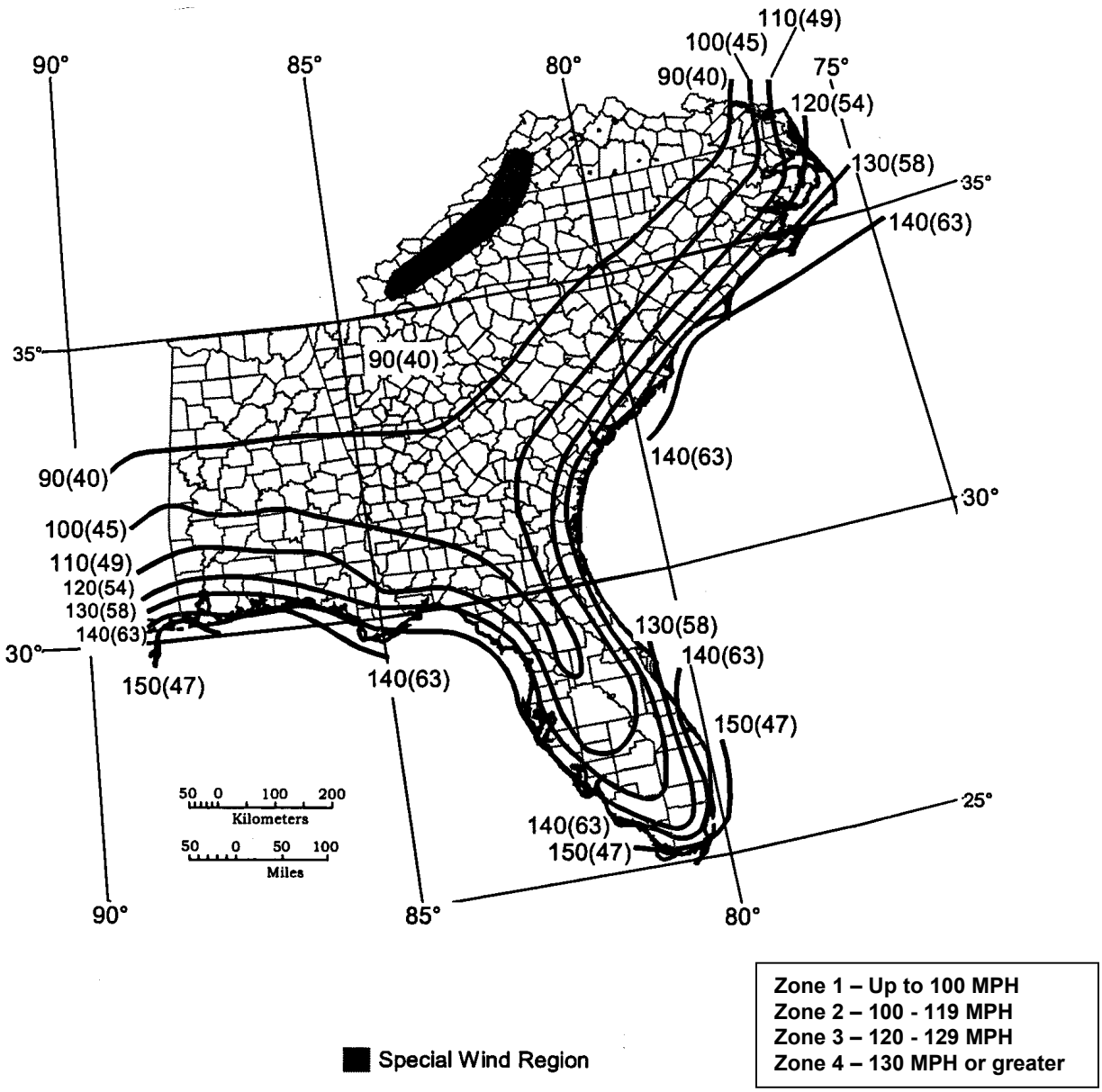


Notes:
1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33ft (10m) above ground for Exposure C category.
2. Linear interpolation between wind contours is appropriate.
3. Islands and coastal areas outside the last contour shall use the last wind spped contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions. Seek 50-yr MRI wind speed values from local building officials. As a minimum, increase the wind speed values by 10% except where minimum wind speed values are noted in Washington and Oregon



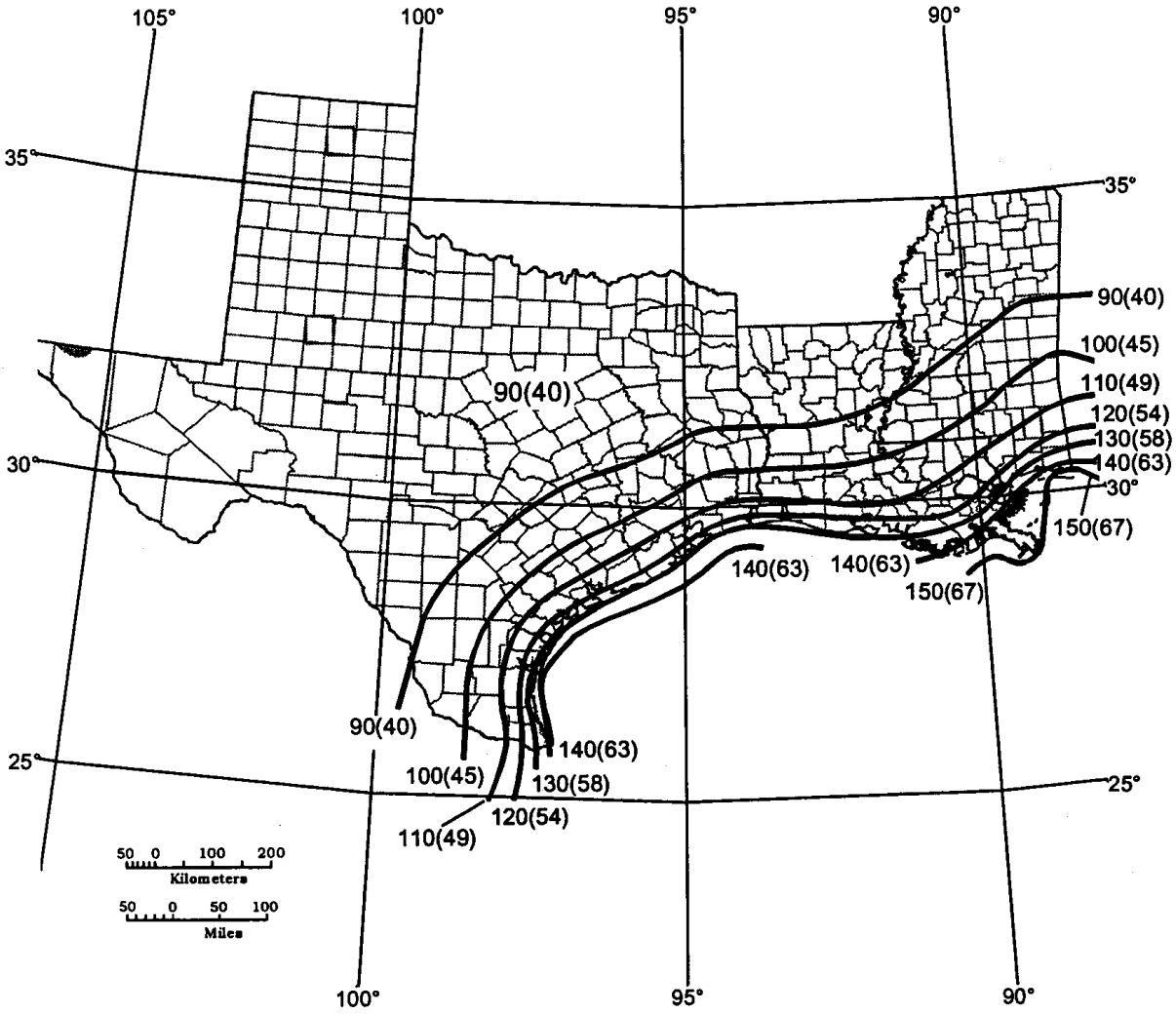
Notes:

1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33' above Ground for Exposure C category.
2. Linear interpolation between wind contours is appropriate.
3. Islands and coastal areas outside the last contour shall use the wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions, Seek 50 year MRI wind speed values from local building officials. As a minimum, increase the wind speed values by 10%.



Notes:

1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33' above Ground for Exposure C category.
2. Linear interpolation between wind contours is appropriate.
3. Islands and coastal areas outside the last contour shall use the wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions, Seek 50 year MRI wind speed values from local building officials. As a minimum, increase the wind speed values by 10%.

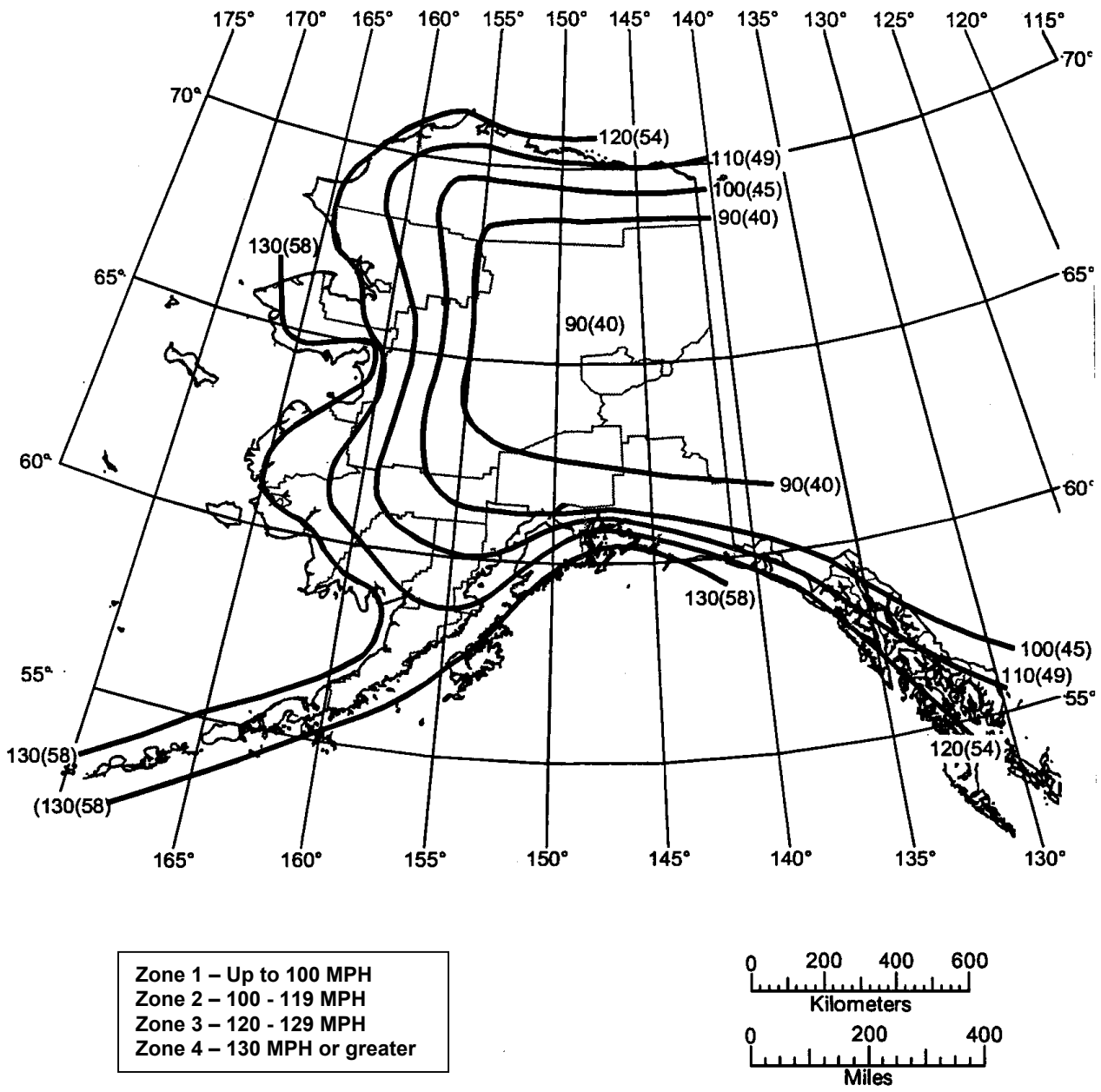


Special Wind Region

Zone 1 – Up to 100 MPH
Zone 2 – 100 - 119 MPH
Zone 3 – 120 - 129 MPH
Zone 4 – 130 MPH or greater

Notes:

1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33' above Ground for Exposure C category.
2. Linear interpolation between wind contours is appropriate.
3. Islands and coastal areas outside the last contour shall use the wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions, Seek 50 year MRI wind speed values from local building officials. As a minimum, increase the wind speed values by 10%.



Notes:

1. Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33' above Ground for Exposure C category.
2. Linear interpolation between wind contours is appropriate.
3. Islands and coastal areas outside the last contour shall use the wind speed contour of the coastal area.
4. Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions, Seek 50 year MRI wind speed values from local building officials. As a minimum, increase the wind speed values by 10%.

Sure-Seal® Reinforced Mechanically-Fastened Roofing System

Attachment "II"

Membrane and Splice Repairs

August 2007

A. GENERAL

1. Prior to initiating repairs, the membrane must be cleaned to remove field dirt and other contaminants. Using a scrub brush, scrub the splice areas with warm water and a low-sudsing soap (Spic and Span, Tide, Lestoil). Rinse with clean water and allow to dry prior to applying Weathered Membrane Cleaner or Primer as required.

2. Saturate a clean HP Splice Wipe or natural fiber rag (cotton) with Weathered Membrane Cleaner and scrub the area in a circular motion. Continue cleaning until the surface is a consistent matte black color without streaking.

   Note: Extreme conditions of accumulated dirt may require detergent and water cleaning as referenced above.

B. REPAIRS OF CUTS AND TEARS (Surface Splice)

Repairs to cuts and tears in the membrane must be accomplished by splicing a membrane section over the affected area.

1. Select a repair membrane, which is the same material as that to be repaired. Follow standard splicing procedures as outlined in the "Application" section.

2. When using Pressure-Sensitive Flashing or SecurTAPE for repairs, after thoroughly cleaning the membrane to remove field dirt, etc., apply HP-250 Primer to the splice areas. Apply Pressure-Sensitive Cured Cover Strip or cured membrane/SecurTAPE, roll the splice areas and apply Pressure-Sensitive "T" Joint Covers at splice intersections. Apply Lap Sealant at flashings and tape overlaps in accordance with standard procedures.

3. Extend the repair membrane section at least 3" in every direction from the cut or tear. Round the corners of the repair membrane prior to splicing.

C. SPLICE REPAIRS

Repair of Improperly Installed Splices

1. **Improperly installed tape splices which require overlayment with 6" wide Pressure-Sensitive Cured Cover Strip or Overlayment Strip include the following:**

   a. Seam Fastening Plates positioned too far toward the outer edge of the splice (less than 1-1/2" between the outer edge of the Seam Fastening Plate and the splice edge).

   b. Tape splices where tape does not extend beyond the splice edge the required 1/8" to 1/2" dimension.

   c. Fishmouths at field splices.

   d. **Repair Procedure:**

      1) Pull any loose edges of the splice apart, reapply primer and SecurTAPE and mate the two surfaces together.

      2) Clean the splice area with HP-250 Primer on both sides extending past the width of the flashing to be applied.

Note: Prior to cleaning, when the membrane has been exposed to the elements for prolonged periods, remove field dirt by scrubbing the splice area with a scrub brush, warm water and low sudsing soap; rinse with clean water and allow to dry.

3) If fishmouths are present in the field splice, the fishmouth must be cut by removing the layer of membrane prior to overlaying the splice with Sure-Seal Pressure-Sensitive Cured Cover Strip. The flashing overlay must be supported by the bottom layer of cured membrane.

2. **Improperly installed splices, which require additional securement and overlayment**

a. Seam Fastening Plates positioned less than 1-1/2" from the edge of the bottom membrane sheet.

b. Distance between Seam Fastening Plates greater than specified.

c. Lack of or improper use of Primer.

d. Improper tape placement where Splice Tape extends beyond the splice edge greater than 1/2".

f. **Repair Procedure:**

1) A new row of Polymer (required for steel decks) or Seam Fastening Plates must be installed along the same line of securement and positioned a maximum of 12" on center between existing Seam Fastening Plates.

2) 9" wide Pressure-Sensitive Cured Cover Strip or Overlayment Strip must be used to flash the Fastening Plates in accordance with standard splicing procedures. The flashing width should achieve a 2" wide splice beyond the edge of the defective splice and beyond the edge of the Fastening Plates.

SURE-SEAL® REINFORCED MECHANICALLY-FASTENED ROOFING SYSTEM

INSTALLATION DETAILS

TABLE OF CONTENTS

August 2007