STEVENS ROOFING SYSTEMS
STEVENS EV™-FLEECE ADHERED

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CSI Division 7 Guide Specifications

STEVENS EV™-FLEECE ADHERED ROOFING SYSTEM

PART 1 - GENERAL

1.01 Description

A. Furnish and install a fully adhered Stevens EV™-Fleece roofing system in accordance with drawings and specifications approved by Stevens Roofing Systems (Stevens).

Special Conditions

1. This specification is intended for building roofs that have deck structures meeting guidelines herein and have no abnormally severe or unknown environmental exposures, e.g. coastal winds or certain chemicals except as specifically authorized herein.
2. Applications that involve severe exposures, (ASCE Ground Roughness Category D) require review by Stevens Roofing Systems Technical Review Dept. before any specification is valid *(Reference Table 2, ASCE Exposure Classification Chart)*.

WARNING: Buildings operating with interior positive pressure at the deck require review by Stevens Technical Review Dept. before any specification is valid.

B. Related work: Metal work other than Stevens Edge Metal Systems is not covered by Stevens for Warranty. Metal work must be secured in a manner approved by Stevens and/or in accordance with SMACNA guidelines to prevent damage from buckling or wind exposure. All metal work that is part of the waterproofing envelope must be sealed, structurally sound, and appropriately anchored to prevent leakage.

1.02 Quality assurance

A. Apply roofing system using a roofing contractor authorized by Stevens.

B. Stevens EV-Fleece is classified by Underwriters Laboratories as a Class A sheathing material for use in construction of Class A roofing assemblies. See UL's *Roofing Materials and Systems Directory* for specific assemblies. Fully adhered system testing has met all test requirements for Factory Mutual Global (FMG) Class 1A Fire and wind resistance as outlined in FMG Standard 4470 (see current edition of *FMG Approval Guide*).

C. Inspection: Upon completion of the installation, an inspection will be performed by a representative of Stevens to ascertain that the roofing membrane system has been installed according to Stevens-approved specifications and details. Upon approval of the project, a Warranty shall be written.

D. Changes: Should there be deviations or changes from this specification without written approval of Stevens, the project is not authorized for installation and is not eligible for warranty.

E. Stevens EV .045-in. and .060-in. membrane is manufactured in an ISO-9001:2000 facility.

1.03 Submittals

A. Minimum job file submittal information for warranty coverage consideration shall be an accurately completed Request for Warranty form (www.StevensRFW.com) and the information discussed in paragraph B, following.

B. Samples and data sheets of all materials not supplied or approved by Stevens shall be submitted to Stevens for written approval prior to the start of installation. Authorized Applicators must submit a roof drawing indicating which details will be employed in the project. These drawings shall be approved by Stevens prior to the start of work. These must include: outline and size of the roof, location and type of penetrations, perimeter and penetration flashing detail references, and a copy of any non-SR details to be used. Details which do not conform to Stevens standard SR Detail Drawings, must be shown as to their anticipated construction.

C. For a Limited Membrane Material Only Warranty, the Request for Membrane Warranty form is the only submittal required.

1.04 Delivery and storage

A. All materials provided by Stevens shall be delivered with appropriate packaging labels indicating warnings, storage conditions, lot

numbers, and usage instructions.

B. Materials shall be stored in original undamaged packaging and storage conditions shall be maintained in accordance with manufacturers' requirements.

1.05 Precautions

A. Adhesives, solvents, and caulks as indicated are extremely flammable and/or toxic. Follow precautions indicated on container or packaging labels.

B. Surfaces to be bonded shall be dry, clean and free of debris. Suitable surfaces are usually considered to be smooth: solid masonry, wood, and metal, plus insulation boards fastened per the specific manufacturer's recommendations for receiving adhered roofing membranes and accepted by Stevens for adhered applications of Stevens EV membrane.

C. All fasteners should be installed with a depth-sensing screw gun to prevent overdriving or under driving. The ASAP and PIF adapter tools are recommended for installing Stevens ASAP and Stevens PIF Fasteners.

D. Block off or shut down positive pressure building ventilation systems during application to prevent sheet from billowing during application.

E. Consideration should be given in the project design to potential safety problems that can precipitate from the smooth surface characteristic of the Stevens EV sheet. The membrane surface becomes slippery when wet. If access to roof is required, walkway surfaces are highly recommended. In northern climates, sliding snow could create a hazard below and adjacent to the perimeter if a retarding system is not installed on roofs with slopes greater than 2-in. per foot.

F. Job specification and retrofit preparation should always include provisions to ensure positive drainage in all areas. Good roofing practice does not permit uncontrolled, uncollected drainage over the edge of a roof.

G. All rooftop mechanical units are to have their condensation lines piped to drains, or off the roof.

H. Grease shall not be allowed to accumulate on the roof. If rooftop grease units do not receive continual maintenance they are to have an approved grease containment system specified.

I. At the discretion of Stevens, excessive patching as a result of damage to the Stevens EV-Fleece membrane or caused by faulty installation may require total recover in those areas.

J. For buildings with canopies or large wall openings, e.g. hangar doors and truck entrances or docks, which are subject to positive pressurization from wind or from air handling systems, consult Stevens for suitability of application and possible design enhancement requirements.

K. Shut down rooftop fresh-air intakes and secure ventilation systems that recycle air through open cavities between ceilings and roof deck. Operation of HVAC equipment shall be coordinated with building owner to ensure fresh air intake vents do not operate in the vicinity of the adhesive application to prevent vapors from entering the building.

L. Asphalt, coal tar base, oil base or plastic roof cements, and resaturated roof products shall not be used in direct contact with Stevens EV-Fleece roof membrane.

M. Stevens standard details SR-502 and SR-503 are not applicable for Stevens EV systems. Contact Stevens Technical Review Dept. for acceptable tie-in details.

1.06 Warranty

A. A Stevens representative shall inspect the installation for compliance with applicable Stevens specifications upon completion of the roofing system.

B. Upon acceptance of the roofing system installation, a Stevens standard or Total System Warranty will be issued for a five (5), ten (10) or fifteen (15) year period covering wind damage up to 60 mph for systems where Stevens EV-Fleece is adhered directly to deck, systems with mechanically attached insulation and for systems with insulation secured using Stevens-supplied insulation adhesive. Warranty wind coverage for systems using other insulation adhesives will be limited to gale force wind coverage.

C. See General Warranty section of the Stevens Technical Manual CD-Rom for more information.

PART 2 - PRODUCTS

2.01 General

A. All material shall be furnished, specified or approved in writing by Stevens. Samples of all materials used on the project that are not supplied by Stevens shall be furnished to Stevens for written approval prior to the start of work.

Table 1 - Physical Properties - Stevens EV

Physical Property	Test Method	Typical Values 45 mil* (1.14 mm)	Typical Values 60 mil* (1.52 mm)
Thickness over Scrim	ASTM D-751 Optical Method	0.017 in. (0.43 mm)	0.020 in. (.508 mm)
Breaking Strength	ASTM D-751, Grab Method A	275 lbf. (1.2 kN)	300 lbf. (1.3 kN)
Elongation @ Break min %	ASTM D-751 Method A	30	30
Seam Strength min % of Break	ASTM D-751 Grab Method A	90	90
Heat Aging min. % of Original	ASTM D-3045 (176°F/80°C for 56 days ASTM D-751 Grab Method A	90	90
Tear Strength min.	ASTM D-751 Tongue Tear Method B	65 lbf. (2.9 kN)	60 lbf. (2.7 kN)
Low Temp. Bend	ASTM D-2136 -40°F/-40°C	Pass	Pass
Accelerated Weathering Test	ASTM 4434 G-155 6300 kJ/m² (5000 hrs. kJ/m²)	No cracks, no craze (7X magnification)	No cracks, no craze (7X magnification)
Linear Dimensional change % max.	ASTM D-1204 6 hrs. 176°F /80°C	±0.3	±0.3
Static Puncture Resistance	ASTM D-5602 33 lbf. (15 kg) 73°F/23°C	Pass	Pass
Dynamic Puncture Resistance	ASTM D-5635 20J	Pass	Pass
Hemispherical Spectral Reflectance	ASTM E-903 Energy Star min. 65%	Pass	Pass

*Thickness (nominal) per ASTM D-751 test method.

2.02 Membrane

A. Membrane for roof cover shall be .045-in., .060-in. nominal thickness overall, scrim-reinforced, Elvaloy®-based sheet 76.5- in. wide by appropriate length conforming to the minimum physical properties in Table 1, *Physical Properties Chart*, laminated to a non-woven polyester fleece-backing conforming to the minimum physical properties in *Table 3, Physical Properties Chart*. Stevens EV-Fleece membrane has a 3.5-in (nominal) selvage edge of non-fleeced area of membrane the length of the sheeting to allow for hot-air welding seam overlaps. Stevens EV membranes meet the ASTM D-4434-96 specification for PVC-based roofing membranes. Stevens EV-Fleece is available in White and Light Gray colors. Packaging to bear the UL label.

2.03 Related materials

A. Insulation/underlayment/recover board: Stevens supplies a wide range of insulations, underlayments and coverboards to satisfy a broad spectrum of design conditions. Only Stevens brand insulation products will be eligible for Total System Warranty coverage: products other than Stevens will incur a premium warranty fee. (*Reference Appendix FA-B, Fully Adhered Stevens Approved insulation List and Fastening Rates).*

1. **Stevens ISO 2000:** Closed-cell HCFC FREE "Green" polyisocyanurate foam core manufactured using (HCFC) (ACUltra Hydrocarbon) blowing agent and integrally laminated to heavy non-asphaltic fiber-reinforced felt facers; compressive strength - (20 psi) (25 psi). Available in flat stock and tapered panels. (*Reference Stevens Product Specification Data Sheets for additional information*).
2. **Stevens ISO 3000:** Closed-cell HCFC FREE "Green" polyisocyanurate foam core manufactured using (HCFC) (ACUltra Hydrocarbon) blowing agent and integrally laminated to heavy coated-glass facers; compressive strength - (20 psi) (25 psi). (*Reference Stevens Product Specification Data Sheets for additional information*).
3. **Stevens ISO Recover Board:** Closed-cell HCFC FREE "Green" polyisocyanurate foam core manufactured using (HCFC) (ACUltra Hydrocarbond) blowing agent and integrally laminated to heavy coated-glass facers; compressive strength - (20 psi) (*Reference Stevens Product Specification Data Sheets for additional information*).
4. **Stevens Extruded Polystyrene (XPS):** Extruded polystyrene closed-cell foam panel with continuous skin on face and back surface that meets ASTM C-578, Standard Specification for Rigid Cellular Polystyrene Thermal Insulation. (*Reference Stevens Product Specification Data Sheets for additional information*).
5. **Stevens Expanded Polystyrene (EPS):** ASTM C578-04a expanded polystyrene thermal rigid board insulation with a minimum density of 1.25 lbs./cu.ft.(ft3). (*Reference Stevens Product Specification Data Sheets for additional information*).

6. **DensDeck® Roof Boards:** (*Reference Stevens Product Specification Data Sheets for additional information*).
   - **a.** G-P Gypsum Corporation 1/4-in. DensDeck Roof Board, 1/2-in DensDeck Roof Board and 5/8-in.Type X Roof Board. Nonstructural, glass mat faced gypsum panel with water-resistant core available in 4-ft.x8-ft. sizes and 4-ft.x4-ft.sizes
   - **b**. G-P Gypsum Corporation 1/4-in. DensDeck Prime Roof Board, 1/2-in. DensDeck Prime Roof Board and 5/8-in. DensDeck Prime Roof Board (Type X). Glass mat faced gypsum with non-asphaltic, highly filled proprietary heat-cured coating on one side available in 4-ft.x8-ft. and 4-ft.x4-ft. sizes.
   - **c.** G-P Gypsum Corporation 1/4-in. DensDeck DuraGuard, 1/2-in. Densdeck Duraguard and 5/8-in. DensDeck Duraguard. Glass mat faced gypsum panel with blue low-perm, durable, integrated-coating on one side and coated glass mat on the back available in 4-ft.x8-ft. and 4-ft.x4-ft. sizes.

B. Flashing: Flashing shall be .045-in. thick, non-fleece backed membrane for walls and curbs regardless of roof cover sheet thickness. Unreinforced .055-in.-thick, Stevens EV membrane shall be supplied for field-fabricated vent stacks, pipes, drains and corners. Stevens EV-clad Metal may be used for gravel stops and drip edges.

C. Adhesives, primers, caulks, and sealants:

1. **Stevens Fleece Water-based Bonding Adhesive:**

   Stevens Fleece Water-based Bonding Adhesive is designed for bonding all Stevens EV-Fleece membrane in horizontal applications to wood, concrete and approved roof insulation board surfaces. Use only in temperatures above 50ºF/10ºC and do not store in temperatures below 40ºF/4.4ºC.

2. **Stevens EV Bonding Adhesive:** Stevens EV Bonding Adhesive is designed for bonding all Stevens EV membrane flashings to wood, metal, masonry and approved roof insulation board surfaces. Stevens EV Bonding Adhesive **is not** approved for use with Stevens EV-Fleece or other roofing membrane types.

3. **Stevens All-Purpose Sealant:** Stevens All-Purpose Sealant is designed to be used as a water cutoff mastic, sealant to top off pitch boxes, and an exterior grade caulk for metal work.

4. **Stevens Insulation Adhesives:** Stevens offers multiple insulation adhesive options.
   - **a.** Stevens Insulation Adhesive is a VOC-free, one-part, rising, moisture-cure foam that is poured from 1 or 2.5 gallon cans on the substrate.
   - **b.** Stevens-Olybond 500 is a two part, polyurethane low rise foam that is applied in ribbons with appropriate dispensing equipment.
   - **c.** Stevens-Olybond Classic is a two part, polyurethane low rise foam that is spray applied to fully cover the substrate.

Stevens Insulation Adhesives are designed for bonding most insulation and recover boards to a wide range of substrates and other insulation boards. Please consult the appropriate Product Specification Data Sheet for detailed information.

5. **Stevens EV Cut-Edge Sealant:** Stevens EV Cut-Edge Sealant is a solvent-based caulk developed to seal exposed cut edges of reinforced membrane.

D. Perimeter sheets:

1. Stevens published fastening rates and perimeter enhancement requirements are not necessarily consistent with the requirements of local building codes, FMG or similar agencies. Refer to those agencies for their specific requirements or contact the Stevens Technical Review Dept.
2. Perimeter Sheet specification is defined as Stevens EV membrane with a width of 38.25-in.
3. **For buildings less than 70-ft. high in wind zones within ASCE Ground Roughness Categories A, B and C (*see Table 2, ASCE Exposure Category*),** no perimeter sheets are required. For buildings greater than 70-ft. high, buildings in an ASCE Exposure category D or subject to special conditions, refer to section 3.03 B, C and D.

E. Mechanical fasteners: Shall be supplied by Stevens.

1. **Membrane:**
   - **a.** Refer to Appendix A, *Stevens Fastener*

Selection guide to select appropriate fastener/plate combination. Also, Stevens Product Datasheets can be found on the Stevens Technical Manual CD-Rom.

b. For gypsum, cementitious woodfiber decks ("Tectum") and light-gauge metal panel roofs, fastener pull tests must be submitted to Stevens Technical Review Dept. with the project Request For Warranty form (RFW).

2. Insulation:

a. Refer to Appendix A, *Stevens Fastener Selection Guide* and Appendix FA-B, *Fully Adhered Approved Insulation List and Fastening Rates* to select appropriate fastener/plate combination and approved fastening rates. Also, Stevens Product Datasheets can be found on the Stevens Technical Manual CD-Rom.

b. For gypsum, cementitious woodfiber decks ("Tectum") and light-gauge metal panel roofs, fastener pull tests must be submitted to Stevens Technical Review Dept. with the project Request for Warranty form (RFW).

F. Termination bar: Stevens Termination Bar fastened 6-in. o.c. is the only authorized product.

G. Stevens Edge Metal Systems: Stevens Edge Metal must be installed per standard SR Detail Drawings.

H. Roof walkways: When roof traffic is indicated (for example to service rooftop units), a walkway over the membrane shall be made. Stevens EV Walkway Roll heat welded to the membrane is recommended.

I. Prefabricated Stevens EV Pipe Boots: Are provided as an alternative to .055-in. unsupported flashing for vent stacks and pipes 1-in. to 6-in. diameter.

J. Prefabricated Stevens EV Corners: Are provided as an alternative to .055- in. unsupported flashing for use at outside and inside corners.

K. Stevens Flashing Tape: 6-in. wide x 70 mils thick, packaged 100-ft. rolls. This product is made with unsupported membrane with a butyl tape backing (with a release paper) and is the preferred method for stripping-in non-Stevens gravel stop and drip edge metal (not for use on Stevens Clad Metal). Flashing Tape eliminates the need for Stevens EV Bonding Adhesive and Stevens All-Purpose Sealant when completing edge flashings. Surfaces must be prepared with Stevens Tape Primer prior to Flashing Tape application.

PART 3 - EXECUTION

3.01 Substrate preparation

A. The applicator is responsible for ensuring the suitability of the substrate surface to accept the Stevens EV-Fleece membrane. In reroofing, test cuts shall be made by the roofing applicator to determine existing condition and deck suitability. All noticeably damp, wet or deteriorated materials must be removed and replaced. In all cases, prior to the start of work, the substrate shall be smooth and free of debris, sharp edges, and other surface irregularities that will be detrimental to the installation. Any unevenness or joint gaps greater than 1/4-in. in the membrane substrate can cause inconsistent membrane welds and must be avoided. When such conditions occur, fill with appropriate and properly secured insulation or material approved by Stevens Technical Review Dept.

B. Steel deck, wood plank and light-weight cementitious decks: Shall be covered with an approved insulation mechanically fastened or adhered to the deck with Stevens approved fasteners (*Reference Appendix FA-B, Stevens Fully Adhered Insulation List & Fastening Rates*)

C. Concrete, plywood, or flat sheet-metal surface: Stevens EV-Fleece membrane may be directly adhered to concrete and plywood when pre-approved by Stevens. Surface shall be dry, flat, clean, smooth, free of sharp edges, and suitable for acceptance of Stevens EV-Fleece membrane. Membrane may be directly adhered to concrete and plywood when pre-approved by Stevens. Plywood must be exterior grade with an A or B finish side up, with no joints gapped greater than 1/4- in. Consideration should be given to installing slip plates at all gapped or uneven joints where membrane seams will cross to minimize welding inconsistency. Thickness, structural grade, fastening and fire resistant requirements should meet the requirements and recommendations of applicable building codes and the APA and are the responsibility of the owner and the installer. Concrete must be dry, fully cured and prepared smooth with dust removed. The membrane shall have a fastened expansion joint detail (as per SR Detail Drawings) where deck joints exceed 1/4-in. or when crossing a building expansion joint.

D. Reroofing over existing roof: Stevens EV-Fleece Membrane may be directly adhered using hot asphalt (ASTM D 312 type III or IV) to an existing smooth surfaced asphalt built-up roof system (type III or IV asphalt), modified bitumen, and mineral surfaced cap sheet that has been power washed removing all loose granules.

NOTE: **Do not adhere Stevens EV-Fleece directly to low melting point asphalt. Softening point of the asphalt must not fall below 185°F (85°C).**

In all cases, the specifier and/or applicator shall determine the condition of the existing roof. In all cases, the existing roof system must be properly secured to the roof deck. Significantly deteriorated decking must be repaired or replaced, as appropriate. Wet materials (containing free moisture that would evaporate if exposed to atmosphere) must be found and replaced. Existing surface shall be dry, reasonably smooth and even, blisters cut, and loose aggregate removed prior to installation of roofing system. Stevens fasteners shall be used in conjunction with 2 7/8-in. Stevens insulation plates or Stevens PIF (Preassembled Insulation Fastener) to anchor insulation board through the existing roof and into the deck. An alternative is to use Stevens NC Adhesive or a Stevens approved adhesive system for the specific application. Stevens 2-in. or 2 3/8-in. Barbed Metal Seam Plates and appropriate fastener shall be used to anchor the membrane to the deck at perimeters and penetrations.

E. Vapor retarder: Is not required for protection of Stevens Roofing System Membrane. As a guideline, the National Roofing Contractors Association states, "...vapor retarders should be considered for use when both of two conditions are anticipated: (1) the outside mean, average January temperature is below 40°F (4.4°C), and (2) the expected winter, interior relative humidity is 45 percent or greater."

NOTE: **In all high humidity situations consult Stevens Technical Review Dept. and the insulation manufacturer for specific application requirements.**

F. Nailers: Pressure preservative treated, wooden nailers shall be installed at gravel stops or drip edges.

1. **Reroofing:** Use #2 or better wood treated for rot resistance. Creosote and asphaltic preservatives are not acceptable.
2. **New roofing:** A pressure preservative treated wood nailer is required to achieve effective perimeter attachment per approved details and/or as specified by architect/designer..
3. **All construction:** Nailer should be anchored with a suitable fastener for the application having a minimum withdrawal resistance of 100-lbs. staggered 6-in. o.c. within 8-ft. of an outside corner, and 12-in. o.c. along other perimeter areas.
4. **All construction:** Nailer thickness shall be chosen to match the top surface of adjacent construction ±1/4-in. This permissible variation shall not contribute to ponding.
5. **Nailers:** Nailers around skylights, curbs, expansion joints, etc., are not required. Use of Stevens fasteners and plates anchored to deck 12-in. o.c. (except for tall building applications see 3.03.C) through membrane and insulation is acceptable.

G. Existing flashings: Must be removed and completely cleaned off wherever new Stevens Roofing System terminations and water stops are to be installed. Existing flashings may be left in place up to Stevens termination areas when in good structural condition and solidly attached to substrate.

H. New construction or reroof with complete tearoffs of flashings: The applicator is responsible for determining the suitability of the substrate for the Stevens EV-Fleece membrane. The substrate shall be smooth and free of sharp edges and other surface irregularities that prevent the flashing membrane from being 100% adhered.

I. Smooth surface built up roof systems (BUR) that have been resaturated or coated require a Stevens approved insulation board prior to the application of the Stevens EV-Fleece membrane.

3.02 Application procedures

NOTE: **For insulation application and suitability refer to Appendix FA-B, *Stevens Approved Insulation List & Fastening Rates for Fully Adhered Systems*.**

A. Insulation or protection board Installation:

1. **Minimum thickness:** Shall be approved in writing by Stevens. Since the insulation requirement for thermal value will vary for each project, the thickness of the insulation must be calculated for the desired results.

2. **Compatibility:** Certain insulation types such as polystyrene are not compatible with coal tar pitch. Contact insulation manufacturer for recommendations. Certain polystyrene insulation boards are not suitable for use directly under certain colors of Stevens EV-Fleece membrane and require an overlayment *(Reference Appendix FA-B, Stevens Approved Insulation List and Fastening Rates for Fully Adhered Systems).*
3. **Manufacturer's instructions:** In regard to attachment, compatibility and spanning metal flutes, the manufacturer's instructions or specifications shall determine the suitability for an application, subject to acceptance by Stevens.
4. **Precautions:** Be careful when handling insulation boards, as well as in their mechanical attachment, so as to avoid damage or rupture to the facer and/or surface. All damaged areas must be cut out and replaced with structurally sound insulation, and properly secured in place.
5. **Attachment:** Insulation boards must be secured sufficiently to conform to the substrate surface geometry.
   a. **Mechanical attachment:** All boards must be attached with FMG and Stevens-approved insulation plates and appropriate fasteners. For Total System Warranty applications, insulation plates and fasteners must be supplied by Stevens. (*Reference Appendix A, Stevens Fastener Selection Guide* and *Appendix FA-B, Stevens Approved Insulation List and Fastening Rates for Fully Adhered Systems).*
   b. **Adhered insulation with approved adhesive:** As an alternative to mechanical attachment, Stevens permits adhering insulation with a Stevens-supplied insulation adhesive. Stevens Insulation Adhesives are the only products eligible for Stevens warranty coverage. Insulation boards must be secured sufficiently to conform to the substrate surface geometry. Installation requirements of the adhesive and/or insulation manufacturer must be followed. Insulation boards must be secured sufficiently to conform to the substrate surface geometry.
   c. **Adhered insulation with asphalt:** As an alternative to mechanical attachment, Stevens permits adhering insulation with hot steep asphalt (ASTM D-312 Type III or IV). The specific application must be approved in writing from the insulation board manufacturer and be approved by Stevens Technical Review Dept. All temperature requirements and application procedures must be followed. Insulation boards must be secured sufficiently to conform to the substrate surface geometry.
6. **Approved insulation** shall be laid with its end joints staggered. Boards shall be butted as closely as possible with no gaps over 1/4-in. and attached as specified in 3.02.A.5.
7. **Tapered insulation:** Most tapered insulation systems taper down to a minimum 1/2-in. thickness only. Therefore, a tapered edge strip of high density fiber board must be used to provide a smooth transition to the flat areas.

B. Membrane installation procedures:

1. For roofs with interior drainage, start with first sheet centered on drain valley. Fold sheet so that the bottom side half of the full length of sheet is exposed.
2. Apply a 100% continuous coat of Stevens EV-Fleece Water-based Bonding Adhesive to the area of substrate exposed by folding membrane back. Work evenly across the area to ensure membrane will be rolled into wet adhesive. Reapply adhesive to any areas that have dried or skinned over.

NOTE: **Adhesive must be spread out by roller as necessary to achieve 100% coverage on the substrate. Adhesive should never be broomed or mopped. Adhesive must not be cut or extended. Outside ambient air temperature must be a minimum 50°F and rising. Adhesive should not be stored below 40°F.**

3. Carefully unroll the folded section of Stevens EV-Fleece membrane and lower it onto the glued substrate surface while adhesive is wet, avoiding any wrinkles or air pockets. Immediately broom the adhered area applying pressure to promote full contact.

NOTE: **Summer ambient conditions may dictate adhering smaller areas of membrane at a time to prevent over drying of adhesive.**

4. Repeat the procedure for the other half of the sheet.

5. For roofs with edge drainage, start at the low edge with the first sheet and follow the procedure described in the preceding paragraph *(Reference paragraph 3.02.B.7 following)*.

NOTE: **Adhesive coverage should be 100 square feet per gallon for coating substrate only. This will consume about 5 to 6 gallons of adhesive per standard (76.5-in. x 100 ft.) roll of membrane if applied without excessive waste. Cold weather, inconsistent spreading, and rough or porous substrate (i.e. Dens-Deck® or concrete) will consume more adhesive. Membrane must have 100% adhesion to the approved substrate.**

6. Layout the second sheet with a 2-in. overlap on the edge of the first sheet. Perform lap splice per Section 3.02.C. After splice has cooled, completely expose the bottom side of the second sheet by folding back along the splice. Apply adhesive evenly to substrate surface only, carefully turn membrane back onto glued substrate surface while adhesive is still wet, avoiding any wrinkles or air pockets. Apply only enough adhesive to an area of the substrate to ensure membrane will be rolled into wet adhesive. Broom surface applying pressure to promote full contract. Repeat procedure for each sheet proceeding across roof.

CAUTION: **Starting membrane application at high points may be neccessary if the substrate type prevents effective tie offs or if it is not possible to complete roof area to the high point (ridge) by the end of the day.**

WARNING: **If adhesive has been contaminated by blowing dust, moisture, walking in it, etc. it should be allowed to completely dry (no longer tacky) and new adhesive applied.**

7. At perimeters that are to receive a gravel stop or metal edging, the Stevens EV-Fleece membrane must be brought over the outside edge and terminated 12-in. o.c. unless otherwise stated in the appropriate detail.

8. Membrane must be mechanically attached 12-in. o.c. at all perimeters and at any penetration that has a dimension of 24-in. or greater with Stevens Fasteners and Plates.

C. Lap splice: Membrane shall be overlapped and hot-air welded without any contaminants (adhesive, dirt, debris, etc.) prevalent in the seam. For areas of Stevens EV-Fleece membrane that do not have a selvage edge, weld a coverstrip of standard 6-in. wide reinforced Stevens EV (non fleece) membrane (Reference Section 2.03.A) over butted joint.

1. **Hot-air welding:** An automatic hot-air welder and hand-held welder which are functionally in top condition are a necessity for Stevens applications. Small work and repairs can be completed efficiently with the hand-held welders, however, hand-held welders are not a recommended means of field seaming.

2. **The entire lap edge must be probed** with approved seam probing tool (i.e. Sears cotter pin extractor) after it has cooled completely to verify seam consistency. Probing before the seam area has cooled will damage the membrane. In addition there should be destructive tests performed daily on a 3-in. wide area of seam weld to verify sufficient peel strength. A properly welded seam will have membrane delamination from scrim prior to weld failure. Destructive tests on welds should be done for the first seam of the day, first seam after the robot welder has been allowed to cool down, and after any extreme changes in weather conditions. Cut edges shall be caulked by applying Stevens EV Cut-Edge Sealant from a squeeze bottle.

3. **T-Seams**
   - **a.** Definition: The point where two perpendicular lap seams intersect is called a “T-seam” and if T-seams are not properly welded, a seam void may result.
   - **b.** For .045-in. and .060-in. membrane, T-seams should be properly creased in at the step-off area, using a hand roller. For T-seam locations that have not been welded properly, a patch is required. Patches shall be a minimum of 4-in. in diameter and can be either .045-in. reinforced Stevens EV non fleece membrane or .055-in. unsupported membrane.

4. **Stevens EV-Fleece membrane, as with any material after exposure, will require cleaning prior to seaming.** The approved method for removing contaminants from the Stevens EV-Fleece membrane prior to welding is as follows:
   - **a.** Remove any visible dirt and debris with a clean rag and water. For heavily contaminated surfaces, scrubbing with a detergent cleaner (i.e. Fantastik® or 409®) followed by a water rinse may be necessary.

b. With a clean scrub pad saturated with Acetone, aggressively agitate the seaming area. With a clean white rag, follow with a final one swipe pass over the seaming area, without redepositing any contaminants.

c. Allow acetone to completely flash off (i.e. membrane should be completely dry).

d. Follow the standard hot-air welding procedures with an approximate 20% reduction in speed.

D. Perimeter fastening: Wood nailers are required for perimeter gravel stops or drip edges. Membrane may be fastened at other transitions e.g. walls and curbs, by using Stevens Fasteners and Seam Plates.

1. **Wooden nailers:** Reference Section 3.01.F.
2. **Base of parapet or curb:** Membrane shall be mechanically fastened 12-in. o.c. through insulation (and existing roof in reroofing) into deck. Fastening shall occur at parapet wall, curbs, skylights, expansion joints and any other roof penetrations that exceed 24-inches in any dimension. *(Reference specific standard SR Detail Drawings for fastener location.)*

CAUTION: **Deck membrane must be adhered up to and past these fastening points regardless of whether or not adhesive is shown in any detail that may be referenced.**

E. Flashing: Perimeters, curbs, vents, expansion joints, drains, and other details shall be flashed as shown in standard SR Detail Drawings. Under no condition shall flashings cover weep holes or any form of through-wall drainage.

1. Apply Stevens EV Bonding Adhesive to both underside of flashing membrane and surface to which it is to be bonded, at a rate of approximately one gallon per 60 square feet when applied to two surfaces.

NOTE: **Stevens EV Bonding Adhesive shall not be applied to that portion of the flashing that overlaps onto itself. Hot-air welding shall be used throughout the system where Stevens EV membrane overlaps itself.**

2. Stevens EV Bonding Adhesive shall be allowed to dry until tacky to finger touch and until it does not string or stick to a dry finger. Roll the flashing into the dry adhesive. Care must be taken to assure that the flashing does not bridge where there is any elevation or directional change. Completely roll the flashing membrane against the substrate using a hand roller, J-roller or similar device applying firm pressure to the entire surface area to promote full contact.
3. All flashing shall be terminated as shown in standard SR Detail Drawings.
4. Stevens Metal flashing at perimeter shall be made and installed as per standard SR Detail Drawings.
5. Pipe flashings shall be installed in accordance with standard SR Detail Drawings. Remove existing flashings and sleeves. Do not flash to lead.
6. Expansion joints shall be installed in accordance with standard SR Detail Drawings.
7. Roof drains shall be installed in accordance with standard SR Details. In reroofing, old drains must be cleaned or replaced as needed for clamping detail. All bolts must be properly secured to supply 100% continuous compression of the clamping ring. Remove old leads and packings. Field seams shall not be run through drains. Drain sleeves are not covered under warranty. However, a premanufactured sleeve insert with clamping ring and backflow seal are acceptable.

F. Metal work: Metal work other than Stevens Edge Metal Systems is not covered by Stevens Warranty.

1. Metal work shall be installed in a manner that prevents damage from buckling or wind.
2. All metal work must be sealed and waterproofed in an acceptable manner.

G. Overnight seal/temporary water stop: Shall be made by a sealant method approved by Stevens to protect the insulation from inclement weather at the end of a day's work. The membrane is extended beyond the insulation and set into the approved overnight seal material. Roofing applicators shall coordinate installation to ensure the system is made watertight at the end of each work day.

H. Roof walkways: When regular roof traffic is indicated (for example, to service rooftop units), Stevens EV Walkway Roll is recommended to be installed over the membrane.

Installation:

For dirty and/or weathered membrane, start with #1 below. For clean fresh membrane, start with #2 below.

1. Stevens EV-Fleece membrane must be clean and dry. Remove any visible dirt and debris with a clean rag and water. For heavily contaminated surface, scrubbing with a detergent cleaner (i.e. Fantastik® or 409®) followed by a water rinse may be necessary.
2. Position Walkway Roll and cut to desired length. In circumstances where drainage around the walkway pad is a concern, shorter walkway pad lengths spaced with a 2-in. gap may be desired.

   Whenever possible, walkway shall not cover seams. When installed adjacent to a seam, the walkway should be kept a minimum of 2-in. from the edge of the seam on the bottom sheet of the completed lap and a minimum of 6-in. from the edge of the seam when located on the top sheet of a completed lap.

   When covering seams is unavoidable, the lap seam should be completed per Stevens Specifications and thoroughly probed with any deficiencies repaired prior to pad installation.
3. Weld perimeter of walkway pad to the membrane following standard welding procedures. Periodic "weep" breaks in the weld of 1- to 2-in. are required on the low slope edge of the pad to prevent the accumulation of water under the pad.

3.03 Fastening requirements

The following fastening patterns apply to membrane with widths of 76.5-in. or less. Fastening patterns are for minimum 3/4-in. plank/plywood, 22 gauge steel or heavier and minimum 2500 psi compressive strength structural concrete decks on buildings located within ASCE Ground Roughness Categories A, B and *C. (Reference Table 2, ASCE Exposure Classification Chart)*. For fastening rates and approved fastener and plate combinations for other deck types refer to Appendix A, *Fastener Selection Guide*.

A. Buildings up to 70- ft. high

1. No additional requirement to those listed above for perimeters and penetrations.

B. Buildings over 70- ft. up to 150- ft. high

1. One full-width perimeter sheet (76.5-in.) shall be laid out in a picture frame around the perimeter and fully adhered (unless perimeter is bordered by a 3-ft. or higher parapet wall).
2. The outer side of the perimeter sheet shall be fastened per the approved perimeter detail. The field side seam shall be fastened at 9-in. o.c.
3. For mechanically attached insulation the fastening rate (per board) should be increased from the field fastening approval rate by 50% in the perimeter area* and 75% in the corner area* (corner area is defined as the intersection of the two perimeter area bands).

* Perimeter enhanced area shall be defined as the smaller of:

0.1 times the building lesser plan dimension.

0.4 times the eaves height.

C. Buildings over 150-ft. high

1. Requires prior approval by Stevens and special specifications. Contact Stevens Technical Review Dept.

D. Special Conditions: Restriction for coastal and abnormal wind uplift applications:

Typical considerations:

1. ASCE Exposure D.
2. Buildings over 350-ft.
3. Buildings with positive pressure.
4. Canopy construction.
5. Hangar facility or buildings with wall openings greater than 10% of side wall area.

General design recommendation:

Any one of the above factors is a valid reason to consider increased perimeter and field fastening. Stevens may require enhanced system design in the absence of significant compensating factors. Stevens should be consulted before committing to a design and/or cost.

Table 2 - ASCE Exposure Classification

ASCE Exposure Classifications Defined

ASCE (American Society of Civil Engineers) has defined the roughness of the terrain into four "ground roughness" categories, or "exposures".

Exposure A	This classification applies to large city centers with at least 50 percent of the buildings having a height in excess of 70 feet (21.3 m). Use of this exposure category shall be limited to those areas for which representative terrain prevails in the upwind direction for a distance of at least one-half mile (0.8 km) or 10 times the height of the building or structure, whichever is greater. Possible channeling effects or increased velocity pressures due to the building or structure being located in the wake of adjacent buildings shall be taken into account.
Exposure B	Urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of a single-family dwelling or larger. Use of this exposure category shall be limited to those areas for which representative terrain prevails in the upwind direction for a distance of at least 1,500 feet (460 m) or 10 times the height of the building or structure, whichever is greater.
Exposure C	Open terrain with scattered obstructions having heights generally less than 30 feet (9.1 m). This category includes flat, open country and grasslands.
Exposure D	Flat, unobstructed areas exposed to wind flowing over open water for a distance of at least one mile (1.61 km). This exposure shall apply only to those buildings and other structures exposed to the wind coming from over the water. Exposure D extends inland from the shoreline a distance of 1,500 feet (460 m) or 10 times the height of the building or structure, whichever is greater.

Table 3 - Physical Properties - Stevens EV-Fleece

Physical Property	Test Method	Typical Values 45 mil* (1.14 mm)	Typical Values 60 mil* (1.52 mm)
Overall Thickness	ASTM D-751	45 mil (1.14 mm)nom. membrane plus fleece	60 mil (1.52 mm) nominal plus fleece
Thickness over Scrim	ASTM D-751 Optical Method	0.017-in (0.43 mm)	0.018-in. (0.46 mm)
Breaking Strength minimum	ASTM D-751, Grab Method A	275 lbf. (1.2 kN)	310 lbf. (1.3 kN)
Elongation @ Break min. %	ASTM D-751 Method A	20	20
Seam Strength min %	ASTM D-751 Grab Method A	90	90
Heat Aging min. % of Original	ASTM D-3045 (176°F/80°C for 56 days ASTM D-751 Grab Method A	90	90
Tear Strength min.	ASTM D-751 Tongue Tear Method B	65 lbf. (2.9 kN)	60 lbf. (2.7 kN)
Low Temp. Bend	ASTM D-2136 -40°F/-40°C	Pass	Pass
Accelerated Weathering Test	ASTM G-26 5000 hrs @ 145oF/63oC	No cracks, no craze (7X magnification)	No cracks, no craze (7X magnification)
Linear Dimensional change %, max.	ASTM D-1204 6 hrs. 176°F /80°C	0.3	0.3
Static Puncture Resistance	ASTM D-5602 33 lbf. (15 kg) 73°F/23°C	Pass	Pass
Dynamic Puncture Resistance	ASTM D-5635 20J	Pass	Pass
Hemispherical Spectral Reflectance	ASTM E-903 Energy Star min. 65%	Pass	Pass
Total Emittance	ASTM E-408-71 Method A	Pass	Pass

*Thickness (nominal) per ASTM D-751 test method.

STEVENS ROOFING SYSTEMS FASTENER SELECTION GUIDE

APPENDIX A

PRODUCT DESCRIPTION:

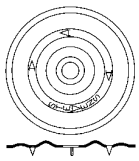
Stevens #14 All-Purpose Fastener

All-purpose fastener for membrane and insulation attachment. Use with 2-inch (50-mm) BMSP or Hex Insulation Plate.

SIZE AVAILABLE:
1¼, 2, 3, 4, 5-8-inch (30, 50, 75, 100, 125 - 200 - mm) in 1-inch (25-mm) increments and 10 and 12-inch (250 and 300-mm).

DECK TYPE:
Structural concrete (pre-drilling required), wood and 18 to 26 (1.3 - .55-mm) gauge steel.

PACKAGING:
1¼ - 6-inch (30 - 150-mm): 1000/bucket
7, 8, 10, 12-inch (175, 200, 250, 300-mm): 500/bucket



PRODUCT DESCRIPTION:

Stevens 2-in. (50 mm) Barbed Metal Seam Plates (for membrane attachment)

2-inch (50-mm) Galvalume® coated steel barbed seam plate for use with Stevens #14-10 fasteners or Stevens CD-10 concrete fasteners.

SIZE AVAILABLE:
2-inch (50-mm) round barbed

DECK TYPE:
NA

PACKAGING:
1,000/bucket

PRODUCT DESCRIPTION:

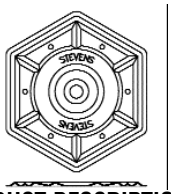
Stevens #12 Insulation Fastener

General purpose fastener for insulation attachment. Use with Hex Insulation Plate.

SIZE AVAILABLE:
$1^{5/8}$, 2¼, $2^{7/8}$, 3¼, 3¾, 4½, (41, 57, 73, 85, 95, 114-mm) 5 - 8-inch (125 - 200-mm) in 1-inch (25-mm) increments

DECK TYPE:
Wood and 18 to 26 (1.3 - .55-mm) gauge steel

PACKAGING
$1^{5/8}$ - 6-inch (41 - 150-mm): 1000/bucket
7 and 8-inch (175 and 200-mm): 500/bucket



PRODUCT DESCRIPTION:

Stevens Hex Insulation

$2^{7/8}$-inch (73-mm) Hex-shaped Galvalume coated steel insulation plate for use with Stevens #12, #14 or Stevens CD-10 concrete fasteners.

SIZE AVAILABLE:
$2^{7/8}$-inch (73-mm) diameter

DECK TYPE:
NA

PACKAGING
1000/box

PRODUCT DESCRIPTION:

Stevens Maxfast Fasteners

A large diameter head fastener for membrane attachment. Use with Maxfast Plate only.

SIZE AVAILABLE:
2 - 8-inch(50 - 200-mm) in 1-inch (25-mm) increments

DECK TYPE:
FM approved minimum 22 gauge steel* [*Test drill to check for installability on 18 and 20 (1.3 - 2.5-mm) gauge steel decks prior to committing to a project].

PACKAGING:
2 and 3-inch (50 and 75-mm): 1000/bucket
4 - 6-inch (100 - 150-mm): 500/bucket
7 and 8-inch (175 and 200-mm): 250/bucket

PRODUCT DESCRIPTION:

Stevens Maxfast Plate

A 3-inch (76-mm) diameter plate for use only with the Stevens Maxfast Fastener for membrane attachment.

SIZE AVAILABLE:
3-inch (76-mm) diameter

DECK TYPE:
NA

PACKAGING:
500/bucket

PRODUCT DESCRIPTION:

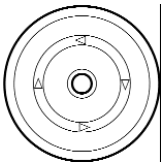
Stevens Purlin Fasteners

A roofing fastener for membrane attachment to structural steel purlins in standing seam metal roof retrofit applications.

SIZE AVAILABLE:
Overall Length: 3¾, 4¾, 5¾, 7 and 8-inch (95, 120, 146 , 178 and 200-mm)
Note: Usable length is ¾-inch (19-mm) less than overall length to allow the screw to quickly drill thru the purlin before the threads engage.

DECK TYPE:
18-12 (1.3 - 2.5-mm) gauge steel

PACKAGING:
500/box



PRODUCT DESCRIPTION:

Stevens 2" Purlin Plate

A 2-inch (50-mm)diameter barbed metal seam plate designed to accommodate the head of the Stevens Purlin fastener. Use of other Stevens Plates may be necessary depending on project requirements.**

SIZE AVAILABLE:
2-inches (50-mm)

DECK TYPE:
NA

PACKAGING:
1000/box

PRODUCT DESCRIPTION:

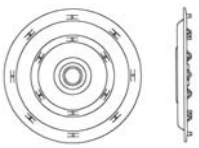
Stevens DeckGrip Fastener

#15 fastener for membrane and insulation attachment. Used for Stevens EP and EV membrane

SIZE AVAILABLE:
1¼,, 2, -8, 10, 12, 14 and 16-inch (30, 50 - 200, 250, 300, 355 and 406-mm)

DECK TYPE:
Structural concrete (pre-drilling required), wood and 18 to 26 (1.3 - .55-mm) gauge steel.

PACKAGING:
1¼ (30-mm) 2, -5 -inch (50 -125-mm): 1000/box
6, 7, 8 , 10, 12, 14-inch (150, 175, 200 250, 300, 355-mm): 500/box
and 16-inch (406-mm)250/box



PRODUCT DESCRIPTION:

Stevens DeckGrip Plate

Galvalume steel seam plate featuring a unique patented "Eye Hook" design.

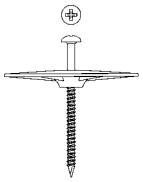
Stevens DeckGrip Reel-Fast Collated Seam Plates for easy installation. Spaced 6-in.(150 mm) or 12-in. (300 mm) o.c. (see separate datasheet)

SIZE AVAILABLE:
2 3/8-inch (60-mm)

DECK TYPE:
NA

PACKAGING:
1000/bucket

APPENDIX A



PRODUCT DESCRIPTION:

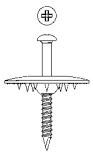
Stevens PIF (Preassembled insulation plate & fastener)

Preassembled #12 (black) fastener with 3-inch (75-mm) (blue) locking plate for insulation attachment.

SIZE AVAILABLE:
2¼, 2 7/8, 4½, 5 - 8-inch (57, 73, 114, 127 - 200-mm) in 1-inch (25-mm) increments plus 10 and 12-inch (250 and 300 -mm). Other lengths available on special order.

DECK TYPE:
Wood and 18 to 26 (1.3 -.55 - mm) gauge steel.

PACKAGING
2¼ - 8-inch (57 - 200-mm): 250/box
10-inch (250-mm) and longer: 200/box



PRODUCT DESCRIPTION:

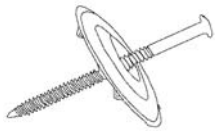
Stevens ASAP (Preassembled membrane seam plate & fastener)

All-purpose #14 fastener preassembled with 2-inch (50-mm) (gray) nylon locking plate for membrane attachment.

SIZE AVAILABLE:
2 - 8-inch (50 - 200-mm) in 1-inch (25 -mm) increments plus 10, 12, and 14-inch (250, 300, 355-mm) and other lengths available on special order.

DECK TYPE:
Structural concrete (pre-drilling required), wood and 18 to 26 gauge (1.3 - .55-mm) steel.

PACKAGING:
2 and 3-inch (50 and 75-mm): 500/per box; 4-inch (100-mm): 450/box; 5-inch (125-mm) 400/box;
6-inch (150-mm): 350/box;
7 and 8-inch (175 and 200-mm): 300/box;
10 - 12-inch (250 and 300-mm): 200/box;
14-inch (355-mm): 150/box



PRODUCT DESCRIPTION:

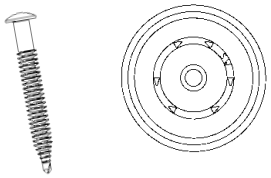
Stevens Preassembled DeckGrip

Preassembled membrane seam plate & fastener

SIZE AVAILABLE:
2 - 8, 10, and 12-inch (50 - 200, 250 and 300-mm)

DECK TYPE:
Structural concrete (pre-drilling required), wood and 18 to 26 gauge (1.3 - .55-mm) steel.

PACKAGING:
2 and 3-inch (50 and 75-mm): 500/box
4 - 8-inch (100 - 200-mm) 250/box
10,12-inch (250, 300-mm) 125/box



PRODUCT DESCRIPTION:

Stevens SW Fastener and Plate Kits

A "Superior Withdrawal" fastener for membrane attachment with 2 3/8-inch (60-mm) SW Barbed Metal Seam Plate.

SIZE AVAILABLE:
2 - 8-inch(50 - 200-mm) in 1-inch (25-mm) increments

DECK TYPE:
FM Approved minimum 22 (.85-mm) gauge steel* (*Test drill to check for installability on 20 (1.0-mm) gauge steel decks prior to committing to a project).

PACKAGING:
2 - 8-inch (50 - 200-mm) 250 fasteners and plates/bucket

PRODUCT DESCRIPTION:

Stevens CD-10 Concrete Fastener

Non-threaded hammer-in (spike type) fastener for membrane and insulation attachment.

SIZE AVAILABLE:
2 - 4-inch (50 - 100-mm) in ½-inch (13-mm) increments,
4 - 10-inch (100-250-mm) in 1-inch (25-mm) increments, and 12-inch (300 -mm)

DECK TYPE:
Structural concrete

PACKAGING:
2 - 8-inch (50 - 200-mm): 500/box
9-inch (228-mm) and longer: 250/box

PRODUCT DESCRIPTION:

Stevens Masonry Anchor

Hammer-in-type fastener for securing termination bar.

SIZE AVAILABLE:
1/4-inch (6-mm) diameter x 1¼-inch (30-mm) length

FOR USE IN:
Concrete and masonry

PACKAGING:
1,000/box

PRODUCT DESCRIPTION:

Stevens Termination Bar

Aluminum bar for use in membrane termination.
Refer to specific SR details.

SIZE AVAILABLE:
1-inch (25-mm) wide, 10-ft. (3-m) long
6-inch (150-mm)o/c slotted, punched

DECK TYPE:
N/A

PACKAGING:
500-ft. (152-m)/tube
50 pcs,10-ft. (3-m) long

STEVENS ROOFING SYSTEMS

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Appendix FA-B

STEVENS Approved Insulation List and Fastening Rates (Chart 5)

for Adhered Roofing Systems

Introduction

This is a listing of insulation and cover board products acceptable for use with Stevens Adhered Roofing Systems. Each listing shows specific manufacturer and product names, indicates which products are approved for retrofit applications and which are eligible for Stevens "Total System" Warranty coverage. In addition, fastening recommendations for each product type are shown.

Note: It is not within the scope of this chart to provide information relating to building code compliance, or specific Factory Mutual Global or Underwriters Laboratories, Inc. approvals. FMG, UL and/or building code requirements for insulation type, thermal barrier requirements, minimum/maximum insulation thickness and product pre-securement rates may differ from the Stevens requirements shown herein. Refer to the current edition of the FMG Approval Guide, the UL Roofing Materials and Systems Directory and/or the UL Fire Resistance Directory for complete information, or contact the Stevens Technical Review Dept. In addition, consultation with local building department is recommended to ensure compliance with applicable requirements.

General Recommendations

1) Refer to the product manufacturer's literature to confirm minimum allowable thickness required to span steel deck flutes, etc.
2) Adjacent insulation/cover boards shall be installed as closely as possible with no gaps or offsets greater than 1/4 inch.
3) A tapered edging of Stevens approved insulation is required at step transitions greater than 1/4-in. (as is typical for polyisocyanurate panels that taper to 1/2-in. only).
4) Approved insulation products shall be installed with the longest dimension of the board perpendicular to the direction of mechanically secured membrane lap seams whenever possible. Insulation end joints shall be staggered.
5) Insulation pre-securement fasteners/plates shall be installed at the rates shown herein and located on each board as shown in Stevens detail drawings SR-622A, 622B and 622C.
6) For applicable substrates, Stevens permits insulation boards to be adhered using a Stevens-supplied insulation adhesive, hot steep asphalt (ASTM D312, type III and IV) and some commercial insulation adhesive products. The insulation manufacturer, adhesive manufacturer and Stevens Technical Services must specifically approve such applications.
7) Consult the Stevens Technical Review Department at (877)788-8324 if the insulation manufacturer's current installation/securement instructions conflict with information published herein.

For Products Not Listed Herein

In the event that you wish to use an insulation product that does not appear on the Stevens Approved Insulation list, please contact the Stevens Technical Review Dept. at (877) 788-8324 for recommendations prior to commencement of the project.

Appendix FA-B

Rev: 0050106

STEVENS Approved Insulation List and Fastening Rates (Chart 5)
for Adhered Roofing Systems

Insulation Type	Approved Manufacturers	Approved Product Name	Approved for Retrofit Applications	Approved for Stevens "Total System" Warranty	Fastening Rate for *Field Areas*[1] (see Note 2 for fastening rates at perimeter and corner areas)		
					Product Thickness of 1.4" and less	Product Thickness of 1.4" to 1.9"	Product Thickness of 2" and Greater
Gypsum Board	Georgia-Pacific Corp.	1/4" Dens-Deck®	(see note 3)	Yes	15 per 4'x 8' bd.	N/A	N/A
		1/4" Dens-Deck Prime®			12 per 4'x 8' bd.		
		1/2" Dens-Deck®	Yes		15 per 4'x 8' bd.		
		1/2" Dens-Deck Prime®			12 per 4'x 8' bd.		
	USG	1/4" Securock ®	Yes	Yes	10 per 4'x 8' bd	N/A	N/A
		3/8" Secrurock®					
		1/2" Securock ®					
		5/8" securock ®			8 per 4'x 8' bd		
Oriented Strand Board (OSB)	APA Rated Product	1/2" nominal thickness	Yes (when used as a cover board)	N/A	12 per 4'x 8' bd.; 6 per 4'x4' bd.	N/A	N/A
Polyisocyanurate	STEVENS Roofing Systems	Iso-2000, Iso-2000 Tapered, Iso-3000, Iso-3000 Tapered	Yes	Yes	16 per 4'x 8' bd.; 8 per 4'x4' bd.	11 per 4'x 8' bd.; 6 per 4'x4' bd.	8 per 4'x 8' bd.; 4 per 4'x4' bd.
	Atlas Roofing Corporation	AC Foam II®, AC Foam III®	Yes		16 per 4'x 8' bd.; 8 per 4'x4' bd.	11 per 4'x 8' bd.; 6 per 4'x4' bd.	8 per 4'x 8' bd.; 4 per 4'x4' bd.
	Dow Chemical Company	Hy-Therm AP®	Yes		16 per 4'x 8' bd.; 8 per 4'x4' bd.	16 per 4'x 8' bd.; 8 per 4'x4' bd.	8 per 4'x 8' bd.; 4 per 4'x4' bd.
		Hy-Therm Composite®					
	Dyplast Products, LLC	dpFOAM II™, dpFOAM III™		N/A		12 per 4'x 8' bd.; 6 per 4'x4' bd.	
	Firestone Building Products	ISO 95+®, ISO 300					
	Hunter Panels, LLC	H-Shield					
	Johns Manville Corp.	ENRGY 3™ (flat & tapered)				16 per 4'x 8' bd.; 8 per 4'x4' bd.	
	Rmax, Inc.	Multi-Max® FA		Yes			11 per 4'x 8' bd.; 5 per 4'x4' bd.
Wood Fiberboard	Knight-Celotex	StructodekTM	N/A	N/A	16 per 4'x 8' bd.; 8 per 4'x4' bd.	N/A	N/A
	IKO	Armourdeck					
	Georgia-Pacific Corp.	High Density Roof Fiberboard					
	Temple Inland	HD-1, HD-6	Yes	Yes	12 per 4'x 8' bd.; 6 per 4'x4' bd.		

Notes:

1. The fastening rates shown in this chart are applicable for buildings with a height of 70' and less that are located in an ASCE exposure category "A", "B" or "C" (See "Exposure Classification Table" in Stevens Guide Specifications). For fastening variations for buildings over 70' high, buildings in Exposure Category "D" and buildings with abnormal interior conditions, refer to the Adhered System Guide Specifications or contact the Stevens Technical Services Dept. The fastening rates shown here do not necessarily meet the requirements for Factory Mutual Global (FMG) Windstorm Resistance designs. Refer to the FMG "Approval Guide" or contact the Stevens Technical Services.

2. Stevens recommends that the fastening rates shown for the Field areas of the roof be increased by 50% at perimeter areas and 75% at corner areas. The extent of perimeter/corner enhancement is based on the smaller value of either 40% of building elevation or 10% of the least horizontal dimension and can not be less than 4% of the least horizontal dimension, or 3-ft. Contact the Stevens Technical Services Dept. at (877)788-8324 with questions.

3. This product is not approved as a recovery layer directly over gravel-surfaced B.U.R. roof systems. It is approved for use over existing single-ply and smooth or mineral surfaced roof systems.

4. Other insulations / cover boards may be used beneath the products referenced here. Refer to the listing in the Mechanically Attached System Guide Specifications.