

STEVENS ROOFING SYSTEMS PAVER BALLASTED STEVENS HYPALON

TABLE OF CONTENTS

		PAGE
Part 1	General	
	1.01 Description	HYP Paver 03.06.1
	1.02 Quality assurance	HYP Paver 03.06.1
	1.03 Submittals	HYP Paver.03.06.1
	1.04 Delivery and storage	HYP Paver.03.06.2
	1.05 Precautions	HYP Paver.03.06.2
	1.06 Warranty	HYP Paver 03.06.3
Part 2	Products	
	2.01 General	HYP Paver 03.06.3
	2.02 Membrane	HYP Paver 03.06.3
	2.03 Pavers	HYP Paver 03.06.4
	2.04 Related materials	HYP Paver 03.06.4
Part 3	Execution	
	3.01 Substrate preparation.....	HYP Paver 03.06.6
	3.02 Applications procedures	HYP Paver 03.06.7
	3.03 Application Procedures Ballast	HYP Paver 03.06.9
	3.04 Protected Membrane Assemblies	Hyp Paver 03.06.11
	3.05 Roof Walkways	Hyp Paver 03.06.11
	3.06 Height Exposure/Limitations	Hyp Paver 03.06.11
	Tables and Charts	
	Table 1 -Physical Properties	HYP Paver 03.06.3
	Table 2 -ASCE Exposure Classification Chart	HYP Paver 03.06.11
	Appendix A -Fastener Selection Guide	
	Appendix MA-B - Fastening requirements MA-EP	

CSI Division 7 Guide Specifications

PAVER BALLASTED

STEVENS HYPALON

PART 1 - GENERAL

1.01 Description

- A.** Furnish and install ballasted Stevens Hypalon Roofing Systems 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 having sufficient load-carrying capacity and meeting the guidelines herein and which have no abnormally severe or unknown environmental exposures, e.g. coastal winds, or certain chemicals, except as specifically authorized herein.
2. Applications that require a Stevens Paver Warranty and any applications that involve severe exposures (ASCE Ground Roughness Category D) must be reviewed 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 applicator authorized by Stevens.
- B.** Stevens Hypalon membrane is classified by Underwriters Laboratories as a Class A sheath-

ing material for use in construction of Class A roofing assemblies. See UL’s *Roofing Materials and Systems Directory* for specific assemblies.

- C. Inspection:** Upon completion of the membrane installation and **before the installation of the ballast paver system**, an inspection will be performed by a representative of Stevens to ascertain that the roofing system has been installed according to Stevens approved specifications and details. The applicator shall provide temporary ballast and protection as necessary but maintain all seams uncovered until an inspection by Stevens confirms the project is ready for installation of the Stevens Paver ballast system. Upon approval of the project, a Warranty shall be written.
- D. Lead time for inspections:** A two-week lead time may be required for scheduling in-progress or final inspections. Large projects should have in-progress inspections performed so that Stevens Paver units can be installed in stages to secure the membrane.
- E. 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.
- F.** All Stevens Hypalon 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 datasheets 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 pen-

etrations, 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 and SRP Detail Drawings must be shown as to their anticipated construction.

- C. Perimeter and penetration detailing shall require both an SR and SRP standard detail citation to specify both the membrane and the paver installation, respectively.
- D. 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 their original undamaged packaging and storage conditions shall be maintained in accordance with all manufacturers' requirements.
- C. Stevens Pavers are packaged and plastic wrapped on wood pallets. Check with your Stevens representative to determine the number of units and weight per pallet.
- D. Pallets of Stevens Pavers can be stored on the ground in a secure area. If placed on a roof, the load must not exceed the structural capacity of the deck.

1.05 Precautions

- A. Adhesives, solvents, and caulks as indicated are extremely flammable and/or toxic. Follow precautions indicated on containers or carton 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.
- C. All fasteners should be installed with a depth sensing screw gun to prevent overdriving or underdriving. The ASAP and PIF adapter tools are recommended to be used for the installation of Stevens ASAP and PIF fasteners. Insulations shall be loose laid. If the owner or specifier requires insulation fastening, a protection layer shall be required on top of the membrane, over fasteners and plates to prevent impingement on the membrane. Consult Stevens Technical Review Dept. for recommendation.

- D. Block off or shut down positive pressure building ventilation systems during application to prevent sheet from billowing during application.
- E. 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.
- F. Job specification and retrofit preparation should always include provision 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 to the roof. If rooftop grease units are not to receive continual maintenance program, 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 Hypalon membrane or caused by faulty installation may require total recover in those areas.
- J. Roof surface shall be free of ponded water, snow, ice, and all debris in order to provide proper uniform surface for installation of pavers.
- K. After exposure to sunlight for 24 hours or longer, Stevens Hypalon membrane may have achieved a "surface" curing. Prior to hot-air welding, an application of Stevens Solvent in conjunction with Stevens Primer is required to achieve a proper weld (*Reference section 3.02.C.4, Welding of Cured Membrane*).
- L. Provide temporary ballast in partially completed sections to control wind effects during construction. Temporary ballast shall have no sharp edges, protrusions, chemical contaminants, etc., that would damage the roof membrane. Install Stevens Paver Ballast System as soon as possible over completed membrane areas, after passing membrane system inspection.
- M. Protect the membrane, insulation, and installed areas of pavers from damage when transporting pallets of pavers or other material. Place 3/4-in. plywood sheets, or similar product, in the traffic path or use carts with balloon-type tires and reduce loads to quantities that do not exceed the compressive strength of the substrate.
- N. Care shall be taken to minimize damage to the paver units during handling and installing.

Table 1 - Physical Properties - Stevens Hypalon

Physical Property	Test Method	Typical Values 45 mil* (1.14 mm)	Typical Values 60 mil* (1.52 mm)
Breaking Strength	ASTM D-751 Grab Method	290 lbf. (1.3 kN)	330 lbf. (1.5 kN)
Tear Strength	ASTM D-751, Procedure B, 8"x8" sample)	100 lbf. (.44 kN)	110 lbf. (.50 kN)
Hardness Shore A	ASTM D-2240	85	85
Dimensional Stability (% change)	ASTM D-6878 (white: 24 hrs. @ 129°F/54°C)	±0.1	±0.1
Hydrostatic Resistance**	ASTM D-751 (Method A)	400 psi (2.8 MPa)	440 psi (3.0 MPa)
Ozone Resistance**	ASTM D-1149, (70 hrs. @ 100°F/37.8°C)	Pass	Pass
Weather Resistance	Xenon Arc, ASTM D-5019 G-155; 2000 hrs. 0.35 Wm ² @ 340nm	No cracks, no crazing	No cracks, no crazing
	EMMAQUA (Concentrated Natural Sunlight) (ASTM G-90) 4 million langleys total UV radiant exposure	Pass	Pass
Puncture Resistance	FTM 101B (Method 2031)	230 lbf. (1.0 kN)	290 lbf. (1.3 kN)
Water Vapor Transmission	ASTM E-96 (Procedure B, Condition BW @ 72°F/22.2°C)	0.049 Perms	0.049 Perms
Solar Reflectance (initial)	ASTM E-903	0.85	0.85
Thermal Emittance	ASTM E-408	0.87	0.87

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

**Test performed on non-reinforced Stevens Hypalon membrane.

- O.** All substrates and insulation to receive Stevens Pavers shall provide a minimum 17 psi compressive strength.
- P.** Stevens Pavers are designed to withstand general pedestrian roof traffic from maintenance crews and similar loads. Uneven substrates or insulation with low compressive strengths which may deform, might cause excessive tensile stress in pavers, and some minor cracking and chipping is to be expected. In most cases, the performance of the Stevens Paver Ballast System will not be diminished.
- Q.** A slip sheet shall be installed for areas having regular roof traffic. (Reference paragraphs 3.03.C.4). If equipment is to be rolled across the roof, provisions shall be made to minimize cracking the pavers by placing plywood sheets in the traffic path and the use of wide-tread tires.
- R.** Do not install pavers on fresh, uncured, caulking or sealants for the membrane and metal flashings. Allow the materials to cure to a nonstick surface condition prior to installing pavers.
- S.** Do not roll or place window washing rigs directly on Stevens Paver units.

1.06 Warranty

- A.** A Stevens representative shall inspect the installation for compliance with applicable Stevens specifications prior to the application of the paver ballast. If ballasting prior to this inspection is necessary, row ballasting or spot

ballasting is acceptable providing all seams are left exposed. After paver system is completed Stevens will perform the job completion inspection.

- B.** Upon acceptance through inspection, a Stevens Standard or Total System Warranty for a five (5), ten (10), or fifteen (15) year period that covers wind damage at up to 60 mph.
- C.** A warranty of up to 120 mph design wind speed is available with Stevens Paver Ballast System upon approval by Stevens Technical Review Dept.
- D.** See General Warranty section of the Stevens 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.

2.02 Membrane

- A.** Membrane for roof cover shall be .045-in. nominal thickness overall, scrim reinforced, Ethylene Propylene-based sheet 76.5-in. wide by appropriate length conforming to the mini-

imum physical properties in [Table 1, Physical Properties Chart](#). Stevens Hypalon membrane is available in White only.

2.03 Pavers

- A.** The Stevens Paver Ballast System shall consist of products from a Stevens-approved paver manufacturer.
- B.** The Stevens Paver Ballast System shall consist of shiplap interlocking concrete ballast pavers that have been designed specifically for ballasting loose-laid roofing systems. The pavers will provide for four-way drainage. **ONLY ACCESSORIES SUPPLIED OR APPROVED BY STEVENS FOR THE STEVENS HYPALON PAVER BALLAST SYSTEM ARE ACCEPTABLE**
- C.** Color shall be as selected by the architect/engineer. Standard color available through all outlets is gray. Special colors can be manufactured upon request.
- D. Constituents**
 - 1. Aggregate shall consist primarily of conventional sand conforming to ASTM C331.
 - 2. Portland cement shall conform to ASTM C150, Type I, Type II, or Type III specifications.
 - 3. Other constituents: Coloring pigments, and other additives shall conform to the applicable ASTM standards.

E. Physical Properties:

Pavers (12 psf nominal)

- 1. Nominal dimensions:
 - a. Standard block: 11-3/4 in. x 16-1/2 in. ($\pm 1/8$ -in.).
- 2. Unit weight: 12 psf \pm .75 lbs.
- 3. Unit density of concrete: 145 lb./cf (nominal).
- 4. Compressive strength of concrete: 5000 psi
- 5. Maximum water absorption: 5%
- 6. Surface bearing area: 30 sq. in./sq. ft. (approx.).
- 7. Packaging: Palletized not to exceed 2,500 pounds.

2.04 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 MA-B, Stevens Approved insulation List and Fastening Rates for Mechanically Attached Systems](#)).

- 1. **Stevens ISO 2000:** Closed-cell HCFC FREE “Green” polyisocyanurate foam core manufactured using (HCFC) (ACUUltra 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) (ACUUltra 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) (ACUUltra Hydrocarbon) 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 membrane for walls and curbs regardless of roof cover sheet thickness. Unsupported .055 in.-thick, Hypalon-based membrane shall be supplied for vent stacks, pipes, drains, and corners.

C. Adhesives, sealants, primers and caulks:

1. Stevens Hypalon Bonding

Adhesive: Stevens Hypalon Bonding Adhesive is designed to bonding all Stevens Hypalon membranes to wood, metal, masonry, and approved roof insulation board surfaces. Stevens Hypalon Bonding adhesive **is not** approved for use with other roofing membranes.

2. Stevens All-Purpose Sealant:

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

3. Stevens Hypalon All-Weather Primer/Seam Caulk:

Stevens Hypalon All-Weather Primer/Seam Caulk is a solvent-based primer developed to reactivate cured Stevens Hypalon membranes (when used in conjunction with Stevens Hypalon Solvent) in preparation for hot-air welding. Stevens Hypalon All-Weather Primer/Seam Caulk is also used to seal exposed cut edges of reinforced membrane.

4. Stevens Hypalon Solvent: Stevens

Hypalon Solvent has been developed for initial reactivation of partially cured Stevens Hypalon membranes in preparation for hot-air welding, and used in conjunction with Stevens Hypalon All-Weather Primer/Seam Caulk for rewelding cured Stevens Hypalon membrane.

5. 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.

D. Mechanical fasteners: Shall be supplied by Stevens.

1. Membrane:

- a. Refer to [Appendix A, Stevens Fastener Selection Guide](#) 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).

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

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

G. Prefabricated Stevens Hypalon Pipe Boots: Are provided as alternatives to .055-in. unsupported flashing for vent stacks and pipes 1-in. to 6-in.

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

corners.

- I. **Stevens Flashing Tape:** 6-in. wide x 70-mils thick, packaged in 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 Flashing Adhesive and Stevens All-Purpose Sealant when completing edge flashings. Surfaces must be prepared with Stevens Tape Primer prior to Flashing Tape application.
- J. **Paver Connectors/adhesives:** Shall be used to connect one paver unit to another as required by enhancement details and the use of cut-to-fit paver units.
- K. **Metal for paver securement:** Shall be required for most paver perimeter areas. Consult the standard SRP Detail Drawings for particular specifications. Where the SRP Detail Drawing replaces rather than augments the SR flashing detail will be indicated on the SRP drawing.

PART 3 - EXECUTION

3.01 Substrate preparation

- A. The applicator is responsible for ensuring the suitability of the substrate to accept the Stevens Hypalon 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. 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. Maximum slope allowed is two (2-in.) in twelve inches (12-in.).
- B. **Steel deck, wood plank, and light-weight cementitious decks:** Shall be covered with an approved insulation (*Reference Appendix MA-B, Approved insulation List and Fastening Rates*). Polystyrene boards may require a thermal barrier underlayment over steel decks. Consult manufacturer and local

building codes.

- C. **Concrete and plywood:** Surface shall be dry, clean, smooth, free of sharp edges, and suitable for acceptance of Stevens Hypalon membrane. Plywood must be exterior grade with an A or B finish side up and no joints gapped greater than 1/4-in. Consideration should be given to installing slip plates over all gapped or uneven joints where membrane seams will cross to minimize welding inconsistency. Thickness, structural grade, fastening, and fire resistance 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 standard SR Detail Drawings) where deck joints exceed 1/4-in. or when crossing a building expansion joint.
 - D. **Reroofing over existing roof:** The specifier and/or applicator shall determine the condition of the existing roof. 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 approved insulation board.
 - 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:** As specified by architect. A pressure preservative treated wood nailer is

recommended. Effective perimeter attachment must be achieved per standard SR Detail Drawings.

3. **All construction:** Nailer shall 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 $\pm 1/4$ inch. This permissible variation shall not contribute to ponding.
5. **Nailers** around skylights, curbs, expansion joints, etc., are not required. Use of Stevens fasteners and plates anchored to deck 12-in. o.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 tearoff of flashings: The applicator is responsible for the suitability of the substrate surface to accept the Stevens Hypalon membrane. The substrate shall be smooth and free of sharp edges and other surface irregularities that prevent the flashing membrane from being 100% adhered.

3.02 Application Procedures

Note: For insulation application and suitability, refer to **Appendix MA-B, Stevens Approved Insulation List & Fastening Rates**.

A. Insulation or protection board:

1. **Minimum thickness:** Shall be approved in writing by Stevens. Since the insulations requirement for thermal value will vary for each project, the thickness of the insulation must be calculated for the desired results.
2. **Compatibility:** Certain insulations such as polystyrene are not compatible with coal tar pitch. Contact manufacturer for recommendations. (*Reference Appendix MA-B, Approved Insulation List and Fastening Rates*).
3. **Manufacturers' instructions:** In regard to attachment, compatibility and spanning of

metal flutes, the manufacturers' instructions or specifications shall determine the suitability for an application, subject to acceptance by Stevens.

4. **Precautions:** Be careful when handling insulation to avoid damaging or rupturing the facer and/or surface. All damaged areas must be cut out and replaced with structurally sound insulation, and properly secured in place.
5. **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 should be used to provide a smooth transition to the flat areas.
6. Approved insulation boards shall be installed with the longest dimension perpendicular to the direction of the membrane seams whenever possible and installed with end joints staggered. Boards will be butted as closely as possible with no gaps over 1/4-in.

B. Membrane Installation Procedures:

1. Approved insulation shall be loose-laid with joints staggered over roof area to be covered. Boards will be butted as close as possible, and voids over 1/4-inch shall be filled.
2. Stevens Field Sheet Membrane shall be unrolled on the area to be covered, with a minimum 2-in. overlap from the edge of the previous roll of membrane.
3. 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. (*Reference Appendix A, Fastener Selection Guide*). At perimeters that are to receive a gravel stop or metal edging the Stevens Hypalon membrane must be brought over the outside edge and terminated 12-in. o.c.

C. Lap splice: Membrane shall be overlapped and hot-air welded without any contaminants (adhesive, dirt, debris, etc.) in the seam.

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 done 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 (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 had been allowed to cool down, and after any extreme changes in weather conditions. Cut edges shall be caulked by applying Stevens Hypalon All-Weather Primer/Caulk 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. 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 Hypalon membrane or .055-in. unsupported membrane.

4. Hot-air welding of exposed and cured membrane: Stevens Hypalon membrane is manufactured as an uncured Hypalon-based sheet and by design will cure with extended exposure to sunlight and moisture. Poor storage conditions can also initiate the curing process. After one day of exposure the curing process begins from the top surface down. Hot-air welding will be impossible after curing begins without first applying Stevens Solvent to the cured surface. After more than one day of surface cure Stevens Solvent *and* Stevens All-Weather Primer/Caulk must be applied to the cured surfaces. The following procedure must be followed.

- a. Surfaces to be primed must be clean and free of debris. Remove all dirt by washing with a detergent cleanser (for example, 409® or Fantastik®). Rinse thoroughly with water, allow to dry, and then wipe the cleaned surface with a white rag or natural bristle brush wet with Stevens Solvent (a soaking

application is required). **DO NOT SCRUB.**

- b. Brush or roller-apply a 100% even coverage of Stevens All-Weather Primer/Caulk to both surfaces. Allow the primer to dry until tacky, but not more than 20 minutes. If drying occurs, reapply primer.

NOTE: Welding of cured membrane. After prolonged curing of the membrane (more than a three day cure), it is necessary to use a two-coat primer application procedure to ensure that the chemical bonding process between old and new Stevens Hypalon membrane is effective. Allow liberal first coat on cured sheet to thoroughly dry. Apply second coat to cured surface and first coat to uncured surface, then hot-air weld after five minutes.

- c. Position the membrane that is to be welded to the cured membrane for proper seam overlap.
- d. Hot-air weld the two sheets of membrane together as if they were two uncured sheets.

NOTE: In cold temperatures, warming of the membrane with hand welder is necessary prior to application of primer and solvent.

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 flashing cover weep holes or any form of through-wall drainage.

1. Apply Stevens Hypalon 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) of surface coverage.

NOTE: Stevens Hypalon Bonding Adhesive shall not be applied to membrane surfaces that are to be hot-air welded. Hot-air welding shall be used anywhere throughout the system where Stevens membrane overlaps itself.

2. Stevens Hypalon Bonding Adhesive shall be allowed to dry until tacky and does not string or stick to a dry finger. Roll the flashing into the dry adhesive. Care must be taken to ensure 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 pressure to the entire surface area to

promote full contact.

3. All flashing shall be terminated as shown in standard SR and SRP Detail Drawings.
4. Stevens Hypalon Metal flashing at perimeter shall be made and installed as per standard SR and SRP Detail Drawings.
5. Pipe flashings shall be installed in accordance with standard SR and SRP Detail Drawings.
6. Expansion joints shall be installed in accordance with standard SR and SRP Detail Drawings.
7. Roof drains shall be installed in accordance with standard SR and SRP Detail Drawings. 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. Prefabricated sleeve insert with a clamping ring and backflow seal are acceptable.
8. In some applications for gravel stops, drip edges, and gutters, the standard SRP Detail Drawings will establish the membrane perimeter flashing and termination specification as well as paver securement (*Reference specific SRP Detail Drawing*).
9. A protective medium weight nonwoven needle punched polyester slip sheet and/or piece of foam rod stock shall be set between paver units and membrane flashings whenever no other separator such as metal enhancement prevents direct contact.

F. Metal work: Metal work other than Stevens Edge Metal Systems are 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 applicator shall coordinate installation to ensure the system is made watertight at the end of each workday.

3.03 Application procedures ballast

- A. The Stevens Paver System consists of full coverage of paver units.
 1. Stevens Paver System and enhancement requirements shall be approved for each project by Stevens Technical Review Dept. prior to job bid and start.
- B. Whenever conditions permit, the recommended perimeter securement details for the Stevens Paver System are:
 1. **SRP-13** at all gutter edges.
 2. Stevens Fascia, Stevens Paver System version at gravel stop edges. (*See SRP-10.*)
 3. Stevens Termination Bar Type 1 at all parapet edges and base of walls. (*See SRP-21.*)
- C. **Preparation of surface:**
 1. Insulation, roof membrane, and flashing shall be installed in accordance with Stevens specifications. A completion inspection of the membrane installation by a representative of Stevens is required prior to installing the Stevens Paver Ballast System.
 2. Maximum width of insulation joints shall be 1/4-in., and the difference in height of adjacent insulation sheets shall not exceed 1/4-in.
 3. Surface irregularities, membrane wrinkles, or similar conditions from uneven substrates that could prevent the interlocking of adjacent pavers shall be eliminated.
 4. Install a slip sheet of medium to heavy weight (6 oz. or heavier) nonwoven polyester fabric between the pavers and the membrane in areas where regular roof traffic is expected (regular foot traffic is considered to be once a month or more) or where clips are installed. In the absence of well defined traffic routes, entire surface protection should be installed.

NOTE: Some metal edge paver enhancement details must be installed before the paver units. It is nearly always practical and lower risk to install edge enhancement before or at the same time as laying the first course of paver units.

CAUTIONS: Use plywood or other substantial protection pads on all traffic routes where Stevens Paver units will be moved (or any other route with heavy construction traffic). This caution applies before and after the

routes are laid with pavers.

D. Layout of pavers:

1. System design and schematic layout of paver system shall be supplied by Stevens upon review of individual projects qualifying for the Stevens Paver System warranty.

CAUTION: Using no smaller than half units and making cuts in the required direction will frequently require cutting two or more units to fill one irregular space. SHORTCUTS ARE NOT ACCEPTABLE.

E. Installation of Stevens Paver System:

1. It may be desirable that the paver units be taken from three or more pallets at the same time to blend variations in color.
2. Prior to setting each paver unit, sweep the membrane area immediately under the unit to remove concrete particles.
3. All Stevens Paver Systems are not applicable for roofs that have a lack of proper drainage (no ponding 48 hours after rainfall).
4. Butt all paver units tightly together. Do not leave gaps between blocks. Discard any damaged units.

F. Installation basics:

System Design #1

1. Straight bond paver configuration.
2. Upper shiplap of the paver can only be 1 1/4 in. maximum distance from the first roofing element along the parapet wall or roof edge.
3. The 11-3/4 in. dimension of the paver can be as much as 12-in. from the first roofing element along the parapet wall or roof edge.
4. Reverse the interlock at mid-roof ± 4 courses using either the cut to match or butt underlaps method.
5. Mechanically clip or adhere:
 - a. Two courses of pavers to one another around all roof protrusions (HVAC, roof drains, structural members).
 - b. Any pavers that are less than full size to the adjacent full size paver.
 - c. First two courses of pavers where the 11-3/4 in. dimension is adjacent to the roof edge.

System Design #2

1. Staggered bond paver configuration.
2. Upper shiplap of the paver can only be 1 1/4-in. maximum distance from the first roofing

element along the parapet wall or roof edge.

3. The 11-3/4 in. dimension of the paver can be as much as 12-in. from the first roofing element along the parapet wall or roof edge.
4. Reverse the interlock at mid-roof ± 4 courses using either the cut to match or butt underlaps method.
5. Mechanically clip or adhere:
 - a. Two courses of pavers to one another around all roof protrusions (HVAC, roof drains, structural members).
 - b. Any pavers that are less than full size to the adjacent full size paver.
 - c. First two courses of pavers where the 11 3/4-in. dimensions are adjacent to the roof edge.

System Design #3

1. Staggered bond paver configuration.
2. Pavers can only be 1 1/4-in. maximum distance from the first roofing element along the parapet wall or roof edge.
3. Reverse the interlock at mid-roof ± 4 courses using either the cut to match or butt underlaps method.
4. Mechanically clip or adhere:
 - a. Two courses of pavers to one another around all roof protrusions (HVAC, roof drains, structural members).
 - b. Any pavers that are less than full size to the adjacent full size paver.
 - c. First two courses of pavers where the 11 3/4-in. dimensions are adjacent to the roof edge.
5. Apply approved attachment around the entire perimeter.

System Design #4

1. Staggered bond paver configuration.
2. Pavers can only be 1 1/4-in. maximum distance from the first roofing element along the parapet wall or roof edge.
3. Reverse the interlock at mid-roof ± 4 courses using either the cut to match or butt underlaps method.
4. Mechanically clip or adhere all pavers to one another.
5. Apply approved attachment around the entire perimeter.

G. Mechanical enhancement at perimeters:

1. All perimeter attachment shall extend a minimum of 2- in. across the top horizontal surface of the pavers. This flange shall sit tightly against the top surface of the pavers.
2. Unless otherwise required by project design, metal terminations shall be designed and secured to provide an uplift resistance of at least 100 pounds per linear foot. Size and spacing of fasteners will depend upon fastener and substrate type but in no condition should fastener or anchor spacing exceed 12-in. o.c.
3. Refer to specific SRP Detail Drawing for additional information.

3.04 Protected Membrane Assemblies

- A. The Stevens Paver System is recommended for ballasting a protected membrane assembly where suitable insulation is installed over the Stevens Hypalon membrane.
- B. Insulation products above and below membrane must be recommended for this type of application and be accepted by Stevens for the specific project.

- C. All assemblies must include a suitable stone mat fabric between the top insulation and the ballast units. The fabric must allow complete drainage.
- D. All significant ponding at the membrane level must be corrected by improved drainage design as needed. Only sporadic minor “birdbathing” (less than 4 square feet, less than 1/2-in. deep) is acceptable.

3.05 Roof walkways

- A. Stevens concrete pavers are acceptable as walkways provided that traffic is light foot traffic restricted to maintenance people and not accessible to the public. Paver units are not designed to support heavy loads or intensive traffic. If regular traffic is anticipated, especially when accompanied by carts or other items that might point load paver units, substantial walkway pads should be installed over pavers on appropriate routes.

3.06 Height/Exposure limitations

- A. Height/exposure limitations vary with the deck type, ground roughness, building configuration, etc. Contact Stevens for specific information on your project.

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.

STEVENS ROOFING SYSTEMS FASTENER SELECTION GUIDE

APPENDIX A



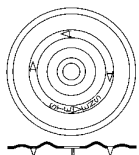
PRODUCT DESCRIPTION:
Stevens #14 All-Purpose Fastener

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:
1⁵/₈, 2¼, 2⁷/₈, 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
1⁵/₈ - 6-inch (41 - 150-mm): 1000/bucket
7 and 8-inch (175 and 200-mm): 500/bucket



PRODUCT DESCRIPTION:
Stevens Hex Insulation

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

SIZE AVAILABLE:
2⁷/₈-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



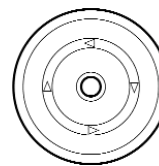
PRODUCT DESCRIPTION:
Stevens Purlin Fasteners

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



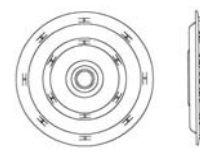
PRODUCT DESCRIPTION:
Stevens DeckGrip Fastener

#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



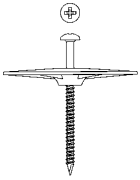
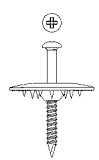
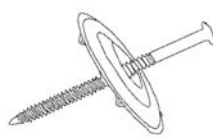
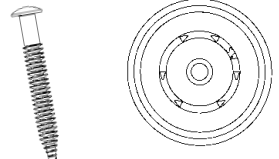



PRODUCT DESCRIPTION:
Stevens DeckGrip Plate

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

			
<p>PRODUCT DESCRIPTION: Stevens PIF (Preassembled insulation plate & fastener)</p> <p>Preassembled #12 (black) fastener with 3-inch (75-mm) (blue) locking plate for insulation attachment.</p> <p>SIZE AVAILABLE: 2¼, 2⅞, 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.</p> <p>DECK TYPE: Wood and 18 to 26 (1.3 - .55 - mm) gauge steel.</p> <p>PACKAGING 2¼ - 8-inch (57 - 200-mm): 250/box 10-inch (250-mm) and longer: 200/box</p>	<p>PRODUCT DESCRIPTION: Stevens ASAP (Preassembled membrane seam plate & fastener)</p> <p>All-purpose #14 fastener pre-assembled with 2-inch (50-mm) (gray) nylon locking plate for membrane attachment.</p> <p>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.</p> <p>DECK TYPE: Structural concrete (pre-drilling required), wood and 18 to 26 gauge (1.3 - .55-mm) steel.</p> <p>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</p>	<p>PRODUCT DESCRIPTION: Stevens Preassembled DeckGrip</p> <p>Preassembled membrane seam plate & fastener</p> <p>SIZE AVAILABLE: 2 - 8, 10, and 12-inch (50 - 200, 250 and 300-mm)</p> <p>DECK TYPE: Structural concrete (pre-drilling required), wood and 18 to 26 gauge (1.3 - .55-mm) steel.</p> <p>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</p>	<p>PRODUCT DESCRIPTION: Stevens SW Fastener and Plate Kits</p> <p>A "Superior Withdrawal" fastener for membrane attachment with 23/8-inch (60-mm) SW Barbed Metal Seam Plate.</p> <p>SIZE AVAILABLE: 2 - 8-inch(50 - 200-mm) in 1-inch (25-mm) increments</p> <p>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).</p> <p>PACKAGING: 2 - 8-inch (50 - 200-mm) 250 fasteners and plates/bucket</p>
			
<p>PRODUCT DESCRIPTION: Stevens CD-10 Concrete Fastener</p> <p>Non-threaded hammer-in (spike type) fastener for membrane and insulation attachment.</p> <p>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)</p> <p>DECK TYPE: Structural concrete</p> <p>PACKAGING: 2 - 8-inch (50 - 200-mm): 500/box 9-inch (228-mm) and longer: 250/box</p>	<p>PRODUCT DESCRIPTION: Stevens Masonry Anchor</p> <p>Hammer-in-type fastener for securing termination bar.</p> <p>SIZE AVAILABLE: 1/4-inch (6-mm) diameter x 1¼-inch (30-mm) length</p> <p>FOR USE IN: Concrete and masonry</p> <p>PACKAGING: 1,000/box</p>	<p>PRODUCT DESCRIPTION: Stevens Termination Bar</p> <p>Aluminum bar for use in membrane termination. Refer to specific SR details.</p> <p>SIZE AVAILABLE: 1-inch (25-mm) wide, 10-ft. (3-m) long 6-inch (150-mm) o/c slotted, punched</p> <p>DECK TYPE: N/A</p> <p>PACKAGING: 500-ft. (152-m)/tube 50 pcs,10-ft. (3-m) long</p>	



Appendix MA-B

(page 1 of 2)

STEVENS Approved Insulation List and Fastening Rates (Chart 5) for Mechanically Attached, Ballasted and VRS System Types

Introduction

This is a listing of insulation and cover board products acceptable for use with the Stevens Mechanically Attached Roofing System. 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. Please note the variations in required insulation pre-securement and/or cover board requirements as it relates to membrane color, insulation type and thickness.

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. Stevens recommends that the building dept. be consulted ensure compliance with local 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) Since many insulation systems provide taper to 1/2 inch thickness only, a tapered edging of Stevens approved insulation is recommended to be installed at all such transitions on Mechanically Attached, VRS (Vented Roofing System) and Ballasted Roofing Systems.
- 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) For Ballasted Systems (stone, paver), insulation boards shall be loose laid as outlined in the Stevens Guide Specifications. The insulation may be loose laid for VRS (Vented Roofing System) applications provided the boards are overlaid with a minimum 1/2 inch thick layer of moisture-resistant gypsum board.
- 8) 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.

STEVENS Approved Insulation List and Fastening Rates (Chart 5)
for Mechanically Attached, Ballasted and VRS System Types

Insulation Type	Approved Manufacturers	Approved Product Name	Approved for Retrofit Applications	Approved for Stevens "Total System" Warranty	Insulation Pre-Securement for Mechanically Attached Systems	
					Stevens EV colors, EP colors or black EP	Stevens white EV, EP and Hypalon
Expanded Polystyrene (EPS)	Insulfoam (Premier Industries)	Type VIII (1.25 pcf)	Yes (see note 1)	Yes	Overlayment Required (see note 2)	Overlayment Required (see note 3) 6 per 4'x 8' bd.
		Type VIII (1.25 pcf) with "Secure-Ply" overlay				
		Type II (1.50 pcf)				
	Generic	R-TECH (fanfold) 1/2-in., Type VIII (1.25 pcf)	Recover Only (see note 1)	N/A	Overlayment Required (see note 3)	15 per 4'x 50' area 15 per 4'x 50' area
		Type VIII (1.25 pcf)	Yes (see note 1)			
		Type II (1.50 pcf)	Yes (see note 1)			
Extruded Polystyrene	Dow Chemical Company	Styrofoam™	Yes (see note 1)	Yes	26 per 4'x 50' area	26 per 4'x 50' area
		Recovermate™ CR (fanfold)	Recover Only (see note 1)			
		Recovermate™				
	Owens-Corning Building Products	Durapink®	Yes (see note 1)		8 per 4'x 8' bd. (see note 6)	6 per 4'x 8' bd. 4 per 4'x 8' bd.
		Foamular® 250, 404				
	Paciv Building Products	PB-6® (fanfold)	Recover Only (see note 1)		26 per 4'x 50' area	26 per 4'x 50' area
Gypsum Board	Georgia-Pacific Corp.	1/4" Dens-Deck®	(see note 4)	Yes	5 per 4'x 8' bd.	5 per 4'x 8' bd.
		1/2" Dens-Deck®	Yes			
	Generic	Moisture Resistant	N/A	Yes	Overlayment Required for Mech. Attached systems (see note 5). Approved for VRS applications.	
	USG	1/4" Securock®	(see note 4)		5 per 4'x 8' bd.	5 per 4'x 8' bd.
		1/2" Securock®	Yes			
Perlite	Generic	Various	N/A	N/A	Overlayment Required (see note 5)	
Polyisocyanurate	STEVENS Roofing Systems	Iso 2000	Yes	Yes (see "Warranty Fee Table" for applicable fee discounts)	5 per 4'x 8' bd. 4 per 4'x4' bd.	5 per 4'x 8' bd. 4 per 4'x4' bd.
		Iso 2000 Tapered				
		Iso 3000				
		Recover Board				
	Atlas Roofing Corporation	AC Foam II®, AC Foam III®	Yes	Yes	5 per 4'x 8' bd. 4 per 4'x4' bd.	5 per 4'x 8' bd. 4 per 4'x4' bd.
		Recover Board®	Yes (recover only)			
	Dow Chemical Company	Hy-Therm AP®	Yes	Yes	5 per 4'x 8' bd. 4 per 4'x4' bd.	5 per 4'x 8' bd. 4 per 4'x4' bd.
		Hy-Therm Composite®				
	Dyplast Products, LLC	dpFOAM II, III™	Yes	N/A	5 per 4'x 8' bd. 4 per 4'x4' bd.	5 per 4'x 8' bd. 4 per 4'x4' bd.
	Firestone Building Products	ISO 95+®, ISO 300				
	Hunter Panels, LLC	H-Shield	Yes	Yes	5 per 4'x 8' bd. 4 per 4'x4' bd.	5 per 4'x 8' bd. 4 per 4'x4' bd.
Johns Manville Corp.	ENRGY™ 3					
		JM ISO I®	Yes	N/A	5 per 4'x 8' bd. 4 per 4'x4' bd.	5 per 4'x 8' bd. 4 per 4'x4' bd.
Rmax, Inc.	Multi-Max® FA					
		Recover Board	Yes (recover only)	Yes	6 per 4'x 8' bd.	6 per 4'x 8' bd.
Wood Fiberboard	Georgia-Pacific Corp.	High Density Roof Fiberboard	Yes	N/A	6 per 4'x 8' bd. 4 per 4'x4' bd.	6 per 4'x 8' bd. 4 per 4'x4' bd.
	IKO	Armourdeck				
	Knight-Celotex	Structodek™				
	Temple Inland	HD-1, HD-6				

Notes:

1. A separation sheet/layer may be required when using a polystyrene product directly over coal tar pitch B.U.R. or PVC-based roof systems. Consult the insulation manufacturer for specific requirements.
2. Stevens requires this product to be overlaid with an approved polyisocyanurate, wood fiberboard, or Dens-Deck™ insulation/cover board when using with black or colored Stevens Membrane.
3. Due to the lower compressive strength of Type II (1.25 pcf nominal density) expanded polystyrene (EPS), Stevens requires this product to be overlaid with an approved polyisocyanurate, wood fiberboard, or Dens-Deck™ insulation/cover board for Mechanically Attached, Fully Adhered and some VRS Roofing Systems. Type I (1.0 pcf nominal density) EPS is acceptable for use under ballasted systems only.
4. 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.
5. Stevens considers this product a "barrier board", used as an underlayment in insulation assemblies to meet specific fire ratings. Stevens requires barrier boards to be overlaid with an approved insulation or cover board.
6. Dow "Recovermate™" and Owens-Corning "Durapink®" products may have additional installation requirements/restrictions when used directly under black or dark colored membrane. Consult the product manufacturer and/or the Stevens Technical Department for specific requirements.