

Product Evaluation

RC243 | 0523

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: RC-243

Effective Date: May 1, 2023

Re-evaluation Date: May 2027

Product Name: IB PVC Roofing Systems

Manufacturer: IB Roof Systems
8181 Jetstar Drive, Suite 150
Irving, TX 75063
(972) 354-6600

General Description:

- **IB PVC Single Ply** is a 50-mil, 60-mil, 80-mil polyester reinforced PVC membrane intended for use in fully adhered or mechanically attached systems.
- **IB PVC Single Ply Fleeceback** is a 50-mil, 60-mil, 80-mil polyester reinforced PVC membrane with a non-woven polyester fleeceback intended for use in fully adhered or mechanically attached systems.

Adhesives:

- **IB Vertibond PVC Bonding Adhesive** is an adhesive for bonding IB membranes to metal, wood, concrete and certain insulation boards.
- **IB Water Borne Adhesive** is an adhesive for bonding IB membranes to wood, concrete and certain insulation boards.
- **Millennium One Step Foamable Adhesive** is a highly elastomeric, one-step, all-purpose, foamable adhesive.
- **IB Rapid Set Insulation Adhesive** is a highly elastomeric, one-step, all-purpose, foamable adhesive.

- **OlyBond 500** is a dual component polyurethane foam adhesive. OlyBond 500 is available in 5 gal. containers or 1,500 ml SpotShot cartridges.

Insulations & Coverboards:

- **Multi-Max FA-3** is an energy-efficient thermal insulation board composed of a closed-cell polyisocyanurate foam core bonded to glass fiber/organic mat facers on both sides.
- **AC Foam-II** is a closed-cell polyisocyanurate foam core integrally bonded to non-asphaltic, fiber-reinforced organic felt facers.
- **AC Foam-III** is a closed-cell polyisocyanurate foam core integrally bonded to inorganic coated glass facers.
- **IB EnergyBoard II** is a closed-cell polyisocyanurate foam core integrally bonded to non-asphaltic, fiber-reinforced organic felt facers.
- **IB EnergyBoard III** is a closed-cell polyisocyanurate foam core integrally bonded to inorganic coated glass facers.
- **H-Shield** is a rigid roof insulation panel composed of a closed cell polyisocyanurate foam core manufactured on-line to fiber reinforced facers on each side.
- **H-Shield CG** is a rigid roof insulation panel composed of a closed cell polyisocyanurate foam core manufactured on-line to a premium performance coated glass facer on both sides.
- **DensDeck Prime** is a non-structural, glass mat faced gypsum product with a silicone-treated, water resistant gypsum core and glass surface mats front, back and long edges, the primed board has both sides coated with an acrylic limestone filled binder.
- **SECUROCK Gypsum-Fiber Roof Board** is a rigid, gypsum-based board stock for use as an overlayment, underlayment or bonding surface.
- **AC Foam-HS Coverboard** is a closed-cell polyisocyanurate foam core integrally bonded high-performance AC Foam-IV coated glass facers.
- **InsulFoam HD Composite** is an engineered insulation consisting of a closed cell expanded polystyrene (EPS) bonded to high-density polyisocyanurate cover board.

Fasteners & Plates:

- **#12 Standard Roofgrip** is a modified buttress thread, Phillips head, carbon steel fastener for use in steel or wood decks.
- **#14 Roofgrip** is a standard thread, Phillips head, pinch point, carbon steel fastener for use in metal, wood or concrete decks.
- **#15 Roofgrip** is a modified buttress thread, Phillips head, drill point, carbon steel fastener for use in steel, wood or concrete decks.
- **OMG 3" Galvalume Steel Plate** is a galvalume coated steel plate for use with approved fasteners.
- **OMG XHD** is a truss head, self-drilling, drill point, high thread fastener for use in wood or steel decks.
- **CD-10** is a carbon steel expansion fastener for use in structural concrete decks.
- **OMG 2" Barbed Plate** is a round galvanized steel stress plates for use with OMG fasteners.
- **Dekfast 3" Round Steel Plate** is a steel, galvalume AZ50 stress plate for use with all Dekfast fasteners.
- **Dekfast 12** is a truss head modified BP type, milled slot self-drilling point, 13 threads per inch, carbon steel fastener for use on steel and wood decks.

- **Dekfast 14** is a truss head modified BP type, self-drilling point, 13 threads per inch, carbon steel fastener for use on steel, wood or concrete decks.
- **Dekfast 15 HS** is a truss head, modified BP type, self-drilling point, 13 threads per inch, carbon fastener for use on concrete, steel and wood decks.
- **Dekspike** is a mushroom head hammer driven anchor for attachment of insulation and membrane attachment on concrete decks.
- **IB #12 Standard Roofing Fastener** is a modified buttress thread, Phillips head, carbon steel fastener for use in steel or wood decks.
- **IB #14 Heavy Duty Roofing Fastener** is a standard thread, Phillips head, pinch point, carbon steel fastener for use in metal, wood or concrete decks.
- **IB #15 XHD Roofing Fastener (aka IB Magnum Fastener)** is a truss head, self-drilling, drill point, high thread fastener for use in wood or steel decks.
- **IB 3" Round Metal Insulation Plate** is a steel, galvalume AZ50 stress plate for use with all Dekfast fasteners.
- **IB 3" Galvalume Insulation Plate** is a galvalume coated steel plate for use with approved fasteners.
- **IB 2" Barbed Seam Plate** is a round galvanized steel stress plates for use with IB fasteners.

Limitations:

- **Roof Framing:** Roof framing must be spaced a maximum of 24" on center.
- **Roof Deck:** For new applications, the roof deck must be secured to the roof framing to resist the required uplift loads.
- **Positive Drainage of Roof Deck:** Roof decks, in which this product is to be installed upon, must be provided with positive drainage. A minimum roof slope after construction of 1/4" per foot is recommended.
- **Design Wind Pressures:** The design wind uplift pressures must be specified in the assemblies listed in this evaluation report.

Installation over an Existing Roof Covering (Roof Recover):

Acceptable Application: The PVC roofing system may be installed over an existing built-up roof covering or an existing PVC roof covering based on the requirements set forth in this product evaluation report.

Inspection of Roof Covering Recover Installation: Inspection of the roof covering recover installation must be by a Texas Department of Insurance appointed engineer. The Texas Department of Insurance appointed engineer must determine if the roof framing can support the combined weight of the existing roof covering and the roof covering recover.

Roof Covering Replacement Vs Roof Covering Recover: All existing roof coverings must be completely removed and a new roof covering installed if any of the following conditions occur:

- The existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for the additional roof covering.
- The existing roof has two or more applications of any type of roof covering.

Fastener Withdrawal Resistance: The fastener withdrawal resistance must be conducted in accordance with ANSI/SPRI FX-1-2006 and this evaluation report.

Installation:**General Requirements:**

All International Residential Code (IRC) and the International Building Code (IBC) requirements must be satisfied and manufacturer's installation instructions followed, unless otherwise specified by this product evaluation.

Positive Drainage: The roof covering recover application is not required to meet the minimum roof slope of 1/4" per foot if positive drainage is provided.

Positive Drainage of Roof Deck: Roof decks, in which this product is to be installed upon, must be provided with positive drainage. A minimum roof slope after construction of 1/4" per foot is recommended.

Inspection of Roof Covering Recover Installation: Inspection of the roof covering recover installation must be by a Texas Department of Insurance appointed engineer. The TDI appointed engineer must determine if the roof framing can support the combined weight of the existing roof covering and the roof covering recover.

Roof Framing: The maximum allowable spacing of the roof framing must be as specified in this evaluation report.

Roof Deck: The existing roof deck must be as specified in each assembly listed in this evaluation report. The underside of the roof deck must be examined by the Texas Department of Insurance appointed engineer for corrosion or deterioration. If corrosion exists, then it must be treated with a rust inhibitor. A fastener withdrawal resistance test must be conducted in the corroded or deteriorated area to determine if the withdrawal resistance of the fastener complies with the minimum fastener requirements for the roof covering recover application. If the tested fastener fails to comply, then the deteriorated roof deck must be replaced.

Fasteners used for the installation of the roof covering recover to the existing roof deck must be as specified in the Installation Instructions section of this evaluation report. For the withdrawal test, the fasteners must be installed in the existing roof deck as required for the roof covering recover installation. A Texas Department of Insurance appointed engineer must review the data to verify the integrity of the existing roof deck and to compare results of the withdrawal tests with the minimum fastener requirements for the roof covering recover application.

The Texas Department of Insurance appointed engineer must document all test results, including the locations on the roof surface where the tests are performed. A minimum of ten withdrawal resistance tests are required for a roof area up to 50,000 square feet (a minimum of 50 percent of the tests must be conducted at the perimeter and the corners). Five additional tests are required for each additional 5,000 square feet of roof area or portion thereof (a minimum of 50 percent of the tests must be conducted at the perimeter and the corners). The tests must be located evenly spread across the surface of the roof. At least one withdrawal test must be performed on each roof level if the roof consists of multiple levels.

The withdrawal resistance of each tested fastener must comply with the minimum fastener requirements for the roof covering recover application. If a tested fastener fails to comply, then the Texas Department of Insurance appointed engineer must examine that area for deterioration of the roof deck by removing the existing roof covering in that area. If that area of the roof deck has deteriorated, then the deteriorated roof deck must be replaced.

Existing Roof Cover Preparation: The existing roof covering must be prepared to receive the roof covering recover as specified in the IB Roof Systems installation instructions. The existing roof covering surface must be dry and free of dirt and debris.

If the existing roof covering is gravel surfaced, then the loose gravel must be completely removed. The surface of the existing roof covering must be relatively smooth.

If the existing roof covering has blisters, buckles, ridges, folds, or other deformations, then they must be removed and the surface patched to provide a smooth surface.

If the existing roof covering has loose fasteners, then the existing membrane must be cut open, the loose fasteners removed, and the surface patched to provide a smooth surface.

Roof Covering Recover Installation: Installation of the roof covering recover must be specified in the Installation Instructions section of this evaluation report.

Membrane Attachment: The membrane must be mechanically attached or fully adhered using the fasteners, plates and adhesives specified in this evaluation report.

Fasteners: Fasteners must be of sufficient length to penetrate into and through the steel deck a minimum of 3/4" or the plywood deck or fully penetrate into the wood boards.

The following notes apply to the systems outlined:

1. Roof decks must be in accordance with the requirements of the IRC and the IBC along with applicable Texas Revisions and this product evaluation report.
2. Unless otherwise noted, fasteners and stress plates for insulation attachment must be as follows. Fasteners must be of sufficient length for the following engagements:
 - Wood Deck: IB #12 Standard Roofing Fastener, OMG #12 Standard Roofgrip (Thread diameter: 0.220"; head diameter: 0.435" and head style: #3 Phillips Truss head) or IB #14 Heavy Duty Roofing Fastener, OMG #14 Roofgrip (Thread diameter: 0.245", head diameter: 0.435" and head style: #3 Phillips Truss head) with IB 3" Galvalume Insulation Plate, IB 3" Round Metal Insulation Plate, SFS Dekfast 3" Round Steel Plate, OMG 3" Galvalume Steel Plate. Minimum 3/4" penetration into and through the roof deck or minimum 1" wood plank embedment.
 - Steel Deck: IB #12 Standard Roofing Fastener, OMG #12 Standard Roofgrip (Thread diameter: 0.220"; head diameter: 0.435" and head style: #3 Phillips Truss head), IB #14 Heavy Duty Roofing Fastener, OMG #14 Roofgrip (Thread diameter: 0.245", head diameter: 0.435" and head style: #3 Phillips Truss head), IB #15 XHD Roofing Fastener, IB Magnum Fastener, OMG #15 Roofgrip (Thread diameter: 0.265"; head diameter: 0.435" and head style: #3 Phillips Truss head) or Dekfast 12 (Thread diameter: 0.220", head diameter: 0.435"

and head style: #3 Phillips Truss Head), Dekfast 14 (Thread diameter: 0.245", head diameter: 0.435" and head style: #3 Phillips Truss Head), Dekfast 15 HS (Thread diameter: 0.275", head diameter: 0.435" and head style: #3 Phillips Truss Head) or OMG XHD (Thread diameter: 0.245", head diameter: 0.435" and head style: #3 Phillip Truss) with IB 3" Galvalume Insulation Plate, IB 3" Round Metal Insulation Plate, SFS Dekfast 3" Round Steel Plate, OMG 3" Galvalume Steel Plate. Minimum 3/4" steel penetration, engage the top flute of the steel deck.

- Concrete Deck: OMG CD-10 (Thread diameter: 0.270 / 0.277", head diameter: 0.435" and head style: Flat Top Pan), SFS Dekspike (Shank diameter: 0.239", head diameter: 0.500" and head style: Mushroom Head) with IB 3" Galvalume Insulation Plate, OMG 3" Galvalume Steel Plate. Minimum 1" embedment. Fasteners installed with a pilot hole in accordance with the fastener manufacturer's published installation instructions.
3. Unless otherwise noted, insulation may be any one layer or combination of polyisocyanurate, polystyrene, wood fiberboard, perlite, DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board that meets the requirements of the IRC and IBC with Texas Revisions.
 4. Preliminary insulation attachment for System Type D = Minimum four fasteners per 4 x 8' board or minimum two fasteners per 4 x 4' board.
 5. For System Types D and E:
 - In-Seam Fastened Systems involve a 5" lap with the stress plates or batten strips and fasteners installed along the fastener-line preprinted on the membrane, finished with a 1-1/2" field weld. Attachment is expressed as follows: In-Seam: <max fastener spacing> x <max lap spacing>.
 - In-Field Fastened Systems involve stress plate or batten strips and fastener placement through the field of the membrane and covered with a min. 5" wide PVC cover strip with 1-1/2" field welds on both sides. Attachment is expressed as follows: In-Field: <max fastener spacing> x <max row spacing>.
 6. For adhered membrane systems, side laps must be minimum 3" wide sealed with min. 1.5" heat weld.
 7. Unless otherwise noted and subject to IB installation requirements IB Vertibond PVC Bonding Adhesive may be used with IB PVC Single Ply and IB PVC Single Ply Fleeceback membranes. IB Water Borne Adhesive may be used with IB PVC Single Ply, and IB PVC Single Ply Fleeceback membranes. IB Vertibond PVC Bonding Adhesive and Flexocol V Adhesive are not accepted for use as membrane adhesive over assemblies with above deck polystyrene insulations.

Installations: Installation must be in accordance with the following assemblies:

| TABLE 1: STEEL or WOOD DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) or RECOVER | | | | | | | | | | | | | |
|--|-------------------------------|--|------------|---|---------------|--|--|--|--|-------------------------------|--|--|--|
| SYSTEM TYPE A: MECHANICALLY ATTACHED THERMAL BARRIER, BONDED VAPOR BARRIER, BONDED INSULATION, BONDED ROOF COVER | | | | | | | | | | | | | |
| Assembly No. | Deck (See Note 1) | Thermal Barrier | | Primer | Vapor Barrier | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | | | |
| | | Type | Attach | | | Type | Attach | Type | Attach | Type | Attach | | |
| #1 (S-1) | 22 ga. Type B, Grade 33 steel | Min. 1/2" DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board | See Note 2 | Elastocol Stick Zero or Elastocol Stick | Sopravap'r | Min. 1.0" H-Shield, ACFoam-II, ACFoam-III, IB EnergyBoard II, EnergyBoard III or H-Shield CG | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | Min. 1/4" DensDeck Prime, SECUROCK Gypsum-Fiber Roof Board or ACFoam-HS Coverboard | Millennium One Step Foamable Adhesive, IB Rapid Set Insulation Adhesive or OlyBond 500 spaced 12" o.c. | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive | | |
| | | | | | | | | | | IB PVC Single Ply | IB Water Borne Adhesive | | |
| | | | | | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive | | |
| Design Pressure (psf) | | Thermal Barrier Attachment | | | | | | | | | | | |
| | | Density (ft2 / fastener) | | | | Parts per 4 x 4' board | | | | Parts per 4 x 8' board | | | |
| 0 < P < -45.0* | | 4 | | | | 4 | | | | 8 | | | |

*The maximum allowable wind classification for the 5x9' test method is class 90 (MDP: -45.0 psf)

| Assembly No. | Deck (See Note 1) | Thermal Barrier | | Primer | Vapor Barrier | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | | | |
|------------------------------|--|--|------------|---|---------------|--|--|--|--|-------------------------------|--|--|--|
| | | Type | Attach | | | Type | Attach | Type | Attach | Type | Attach | | |
| #2 (W-1) | Min. 15/32", APA rated CDX, 5-ply plywood sheathing to wood supports spaced 24" o.c. using 8d common nails spaced max. 6" o.c. | Min. 1/2" DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board | See Note 2 | Elastocol Stick Zero or Elastocol Stick | Sopravap'r | Min. 1.0" H-Shield, ACFoam-II, ACFoam-III, IB EnergyBoard II, EnergyBoard III or H-Shield CG | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | Min. 1/4" DensDeck Prime, SECUROCK Gypsum-Fiber Roof Board or ACFoam-HS Coverboard | Millennium One Step Foamable Adhesive, IB Rapid Set Insulation Adhesive or OlyBond 500 spaced 12" o.c. | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive | | |
| | | | | | | | | | | IB PVC Single Ply | IB Water Borne Adhesive | | |
| | | | | | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive | | |
| Design Pressure (psf) | | Thermal Barrier Attachment | | | | | | | | | | | |
| | | Density (ft2 / fastener) | | | | Parts per 4 x 4' board | | | | Parts per 4 x 8' board | | | |
| 0 < P < -45.0* | | 1.6 | | | | 10 | | | | 20 | | | |

NOTES:**ASSEMBLY NO. #1 (S-1)****Original system came from:****SC5160.01.15-R1 (Date: 2015-01-21) Table 5A-2 Sample ID S-2A 22 ga., Type B, Grade 33 Steel (MDP: -45.0 psf)**

- 1) Table 4C: Shows ¼-inch SECUROCK attached with SFS Dekfast 3" Round Steel Plate (196 lbf) outperforming DensDeck Prime attached with SFS Dekfast 3" Round Steel Plate (181 lbf). Thus, allowing us to extend to SECUROCK.
- 2) Table 3B: Shows adhesion data of H-Shield being the most critical (202 lbf), thus, allowing extensions to ACFoam-II (IB Roof's EnergyBoard II) (312 lbf), ACFoam-III (IB Roof's EnergyBoard III) (469 lbf) and H-Shield CG (653 lbf).
- 3) Table 3B shows tensile adhesion / insulation combination H-Shield / OlyBond 500 being the most critical (202 lbf), thus, allowing extensions to ACFoam-III / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) (260 lbf) and the remaining adhesion / insulation combinations.
- 4) Table 3C: Shows tensile adhesion / coverboard combination DensDeck Prime / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) being the most critical (148 lbf), thus, allowing extensions to DensDeck Prime / OlyBond 500 (410 lbf), SECUROCK / OlyBond 500 (535 lbf), SECUROCK / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) (593 lbf) and ACFoam-HS / OlyBond 500 (213 lbf).
- 5) Table 1: Shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
- 6) Table 2C: Shows the Fleeceback membrane attached to DensDeck Prime with IB Water Borne Adhesive to perform better than the Bareback membrane attached to DensDeck Prime with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.
- 7) Table 1: Shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
- 8) Section 8.5.2: Primer options include Elastocol Stick.
- 9) Section 8.5.2: Applicable to structural concrete in NEW, Reroof (Tear-Off) or Recover.
 - a) Fastener/stress plate options are shown.

ASSEMBLY NO. #2 (W-1)**Original system came from:****SC5160.02.15 (Date: 2015-02-12) Section 3.1-3.3 allows for 15/32-in. Wood deck extension****SC5160.01.15-R1 (Date: 2015-01-21) Table 2C**

- 1) Table 2C: Shows the Fleeceback membrane attached to DensDeck Prime with IB Water Borne Adhesive to perform better than the Bareback membrane attached to DensDeck Prime with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.

Installation (Cont.):

| TABLE 1 (Continued): STEEL or WOOD DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) or RECOVER | | | | | | | | | | | |
|--|-------------------------------|--|------------|---|---------------|----------------------------------|--|----------------------|--------|-------------------------------|--|
| SYSTEM TYPE A: MECHANICALLY ATTACHED THERMAL BARRIER, BONDED VAPOR BARRIER, BONDED INSULATION, BONDED ROOF COVER | | | | | | | | | | | |
| Assembly No. | Deck (See Note 1) | Thermal Barrier | | Primer | Vapor Barrier | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | Type | Attach | | | Type | Attach | Type | Attach | Type | Attach |
| #3 (S-2) | 22 ga. Type B, Grade 33 steel | Min. 1/2" DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board | See Note 2 | Elastocol Stick Zero or Elastocol Stick | Sopravap'r | Min. 1.5" InsulFoam HD Composite | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | None | N/A | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | Thermal Barrier Attachment | | | | | | | | | |
| | | Density (ft2 / fastener) | | | | Parts per 4 x 4' board | | | | Parts per 4 x 8' board | |
| 0 < P < -45.0* | | 4 | | | | 4 | | | | 8 | |

*The maximum allowable wind classification for the 5x9' test method is class 90 (MDP: -45.0 psf)

| Assembly No. | Deck (See Note 1) | Thermal Barrier | | Primer | Vapor Barrier | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
|------------------------------|--|--|------------|---|---------------|----------------------------------|--|----------------------|--------|-------------------------------|--|
| | | Type | Attach | | | Type | Attach | Type | Attach | Type | Attach |
| #4 (W-2) | Min. 15/32", APA rated CDX, 5-ply plywood sheathing to wood supports spaced 24" o.c. using 8d common nails spaced max. 6" o.c. | Min. 1/2" DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board | See Note 2 | Elastocol Stick Zero or Elastocol Stick | Sopravap'r | Min. 1.5" InsulFoam HD Composite | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | None | N/A | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | Thermal Barrier Attachment | | | | | | | | | |
| | | Density (ft2 / fastener) | | | | Parts per 4 x 4' board | | | | Parts per 4 x 8' board | |
| 0 < P < -45.0* | | 1.6 | | | | 10 | | | | 20 | |

NOTES:**ASSEMBLY NO. #3 (S-2)****Original system came from:****SC5160.01.15-R1 (Date: 2015-01-21) Sample ID S-2B 22 ga., Type B, Grade 33 Steel (MDP: -45.0 psf)**

- 1) Table 4C: Shows ¼-inch SECUROCK attached with SFS Dekfast 3" Round Steel Plate (196 lbf) outperforming DensDeck Prime attached with SFS Dekfast 3" Round Steel Plate (181 lbf). Thus, allowing us to extend to SECUROCK.
- 2) Table 1: Shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
- 3) Table 2B: Shows the Fleeceback membrane attached to InsulFoam HD Composite with IB Water Borne Adhesive to perform better than the Bareback membrane attached to InsulFoam HD Composite with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.
- 4) Table 1: Shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
 - a) Section 8.5.3: Primer options include Elastocol Stick.
 - b) Section 8.5.3: Insulation adhesive options include Millennium One Step Foamable Adhesive and IB Rapid Set Insulation Adhesive.
 - c) Section 8.5.3: Applicable to structural concrete in NEW, Reroof (Tear-Off) or Recover.
 - d) Section 8.5.3: Fastener/stress plate options are shown.

ASSEMBLY NO. #4 (W-2)**Original system came from:****SC5160.02.15 (Date: 2015-02-12) Section 3.1-3.3 allows for 15/32-in. Wood deck extension**

- 1) SC5160.01.15-R1 (Date: 2015-01-21) Table 2B Table 2B: Shows the Fleeceback membrane attached to InsulFoam HD Composite with IB Water Borne Adhesive to perform better than the Bareback membrane attached to InsulFoam HD Composite with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.

Installation (Cont.):

| TABLE 1 (Continued): CONCRETE DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) | | | | | | | | | |
|---|------------------------------------|----------------|---------------|---|--|--|--|------------------------------|--|
| SYSTEM TYPE A: BONDED INSULATION, BONDED ROOF COVER | | | | | | | | | |
| Assembly No. | Deck (See Note 1) | Primer | Vapor Barrier | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | | | Type | Attach | Type | Attach | Type | Attach |
| #5 (C-1) | Min. 2,500 psi Structural concrete | None | None | (Optional) One or more layer(s), min. 1.0" H-Shield, ACFoam-II, ACFoam-III, IB EnergyBoard II, EnergyBoard III or H-Shield CG | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | Min. 1/4" DensDeck Prime or ACFoam-HS Coverboard | Millennium One Step Foamable Adhesive, IB Rapid Set Insulation Adhesive or OlyBond 500 spaced 12" o.c. | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | 0 < P < -257.5 | | | | | | | |

| TABLE 1 (Continued): CONCRETE DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) | | | | | | | | | |
|---|------------------------------------|----------------|---------------|---|--|---|--|------------------------------|--|
| SYSTEM TYPE A: BONDED INSULATION, BONDED ROOF COVER | | | | | | | | | |
| Assembly No. | Deck (See Note 1) | Primer | Vapor Barrier | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | | | Type | Attach | Type | Attach | Type | Attach |
| #6 (C-2) | Min. 2,500 psi Structural concrete | None | None | (Optional) One or more layer(s), min. 1.0" H-Shield, ACFoam-II, ACFoam-III, IB EnergyBoard II, EnergyBoard III or H-Shield CG | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | Min. 1/4" SECURO CK Gypsum-Fiber Roof Board | Millennium One Step Foamable Adhesive, IB Rapid Set Insulation Adhesive or OlyBond 500 spaced 12" o.c. | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | 0 < P < -267.5 | | | | | | | |

NOTES:**ASSEMBLY NO. #5 (C-1)****Original system came from:****SC5160.01.15-R1 (Date: 2015-01-21) Table 6A Sample ID C-1A-1 Structural Concrete (MDP: -257.5 psf)**

- 1) Table 3B: Shows adhesion data of H-Shield being the most critical (202 lbf), thus, allowing extensions to AC Foam-II (IB Roof's EnergyBoard II) (312 lbf), AC Foam-III (IB Roof's EnergyBoard III) (469 lbf) and H-Shield CG (653 lbf).
- 2) Table 3B: Shows tensile adhesion / insulation combination H-Shield / OlyBond 500 being the most critical (202 lbf), thus, allowing extensions to AC Foam-III / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) (260 lbf) and the remaining adhesion / insulation combinations.
- 3) Table 3C: Shows tensile adhesion / coverboard combination DensDeck Prime / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) being the most critical (148 lbf), thus, allowing extensions to DensDeck Prime / OlyBond 500 (410 lbf) and AC Foam-HS / OlyBond 500 (213 lbf).
- 4) Table 1: Shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
- 5) Table 2C: Shows the Fleeceback membrane attached to DensDeck Prime with IB Water Borne Adhesive to perform better than the Bareback membrane attached to DensDeck Prime with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.
- 6) Table 1: Shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
 - a) Section 8.7.1: States the base insulation has one or more layer(s) and it is optional.
 - b) Section 8.7.1: Applicable to structural concrete in NEW or Reroof (Tear-Off).

ASSEMBLY NO. #6 (C-2)**Original system came from: SC5160.01.15-R1 (Date: 2015-01-21) Table 6A Sample ID C-1A-2 Structural Concrete (MDP: -267.5 psf)**

- 1) Table 3B: Shows adhesion data of H-Shield being the most critical (202 lbf), thus, allowing extensions to AC Foam-II (IB Roof's EnergyBoard II) (312 lbf), AC Foam-III (IB Roof's EnergyBoard III) (469 lbf) and H-Shield CG (653 lbf).
- 2) Table 3B: Shows tensile adhesion / insulation combination H-Shield / OlyBond 500 being the most critical (202 lbf), thus, allowing extensions to AC Foam-III / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) (260 lbf) and the remaining adhesion / insulation combinations.
- 3) Table 3C: Shows tensile adhesion / coverboard combination SECUROCK / OlyBond 500 (535 lbf), thus, allowing extension to SECUROCK / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) (593 lbf).
- 4) Table 1: Shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
- 5) Table 2C: Shows the Fleeceback membrane attached to SECUROCK with IB Water Borne Adhesive to perform better than the Bareback membrane attached to SECUROCK with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.
- 6) Table 1: Shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
 - a) Section 8.7.2: States the base insulation has one or more layer(s) and it is optional.
 - b) Section 8.7.2: Applicable to structural concrete in NEW or Reroof (Tear-Off).

Installation (Cont.):

| TABLE 1 (Continued): CONCRETE DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) | | | | | | | | | |
|---|--|----------------|------------------|---|---|----------------------|--------|------------------------------|--|
| SYSTEM TYPE A: BONDED INSULATION, BONDED ROOF COVER | | | | | | | | | |
| Assembly No. | Deck (See Note 1) | Primer | Vapor Barrier | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | | | Type | Attach | Type | Attach | Type | Attach |
| #7 (C-3) | Min. 2,500 psi Structural concrete | None | None | One or more layer(s), min. 1.0" H-Shield, ACFoam-II, ACFoam-III, IB EnergyBoard II, EnergyBoard III or H-Shield CG | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | None | N/A | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | 0 < P < -327.5 | | | | | | | |

| TABLE 1 (Continued): CONCRETE DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) | | | | | | | | | |
|---|--|----------------|------------------|---|--|---|--|---------------------------------|--|
| SYSTEM TYPE A: BONDED INSULATION, BONDED ROOF COVER | | | | | | | | | |
| Assembly No. | Deck (See Note 1) | Primer | Vapor Barrier | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | | | Type | Attach | Type | Attach | Type | Attach |
| #8 (C-4) | Min. 2,500 psi Structural concrete | None | None | (Optional) Min. 1.0" H-Shield, ACFoam-II, ACFoam-III, IB EnergyBoard II, EnergyBoard III or H-Shield CG | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | Min. 1.5" InsulFoam HD Composite | Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | 0 < P < -102.5 | | | | | | | |

NOTES:**ASSEMBLY NO. #7 (C-3)****Original system came from:****SC5160.01.15-R1 (Date: 2015-01-21) Table 6A Sample ID C-1B Structural Concrete (MDP: -327.5 psf)**

- 1) Table 3B: Shows adhesion data of H-Shield being the most critical (202 lbf), thus, allowing extensions to AC Foam-II (IB Roof's EnergyBoard II) (312 lbf), AC Foam-III (IB Roof's EnergyBoard III) (469 lbf) and H-Shield CG (653 lbf).
- 2) Table 3B: Shows tensile adhesion / insulation combination H-Shield / OlyBond 500 being the most critical (202 lbf), thus, allowing extensions to AC Foam-III / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) (260 lbf) and the remaining adhesion / insulation combinations.
- 3) Table 1: Shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
- 4) Table 1: Shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
 - a) Section 8.7.3: States the base insulation has one or more layer(s).
 - b) Section 8.7.3: Applicable to structural concrete in NEW or Reroof (Tear-Off).

I33030.03.11 (Date: 2011-03-11), section 1.4 Table 1A – IB Water Borne Adhesive extension

- 1) shows adhesion data of IB PVC Single Ply attached with IB Vertibond PVC Bonding Adhesive to AC Foam-II being the most critical (1.91 pli) compared to IB PVC Single Ply attached with IB Water Borne Adhesive to AC Foam-II (2.86 pli). Thus, allowing extension to IB Water Borne Adhesive.

ASSEMBLY NO. #8 (C-4)**Original system came from:****SC5160.01.15-R1 (Date: 2015-01-21) Table 6A Sample ID C-1C Structural Concrete (MDP: -102.5 psf)**

- 1) ERD report SC5160.01.15-R1 Table 6A Sample ID C-1A-2 Structural Concrete (MDP: -267.5 psf): Shows system using ISO/Securock insulation to resist a design pressure of -267.5.
 - a) Table 2B (InsulFoam HD Composite) & Table 2C (SECUROCK) reports membrane delamination to be greater when comparing InsulFoam HD Composite (17 lbf) with SECUROCK (9 lbf). Therefore, Insulfoam HD Composite may be used as an alternate to SECUROCK.
- 2) Included IB Rapid Set Insulation Adhesive as it is the same product as the Millennium One Step Foamable Adhesive, however, manufactured with a different product name.
- 3) Table 1 shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
- 4) Table 2B: Shows the Fleeceback membrane attached to InsulFoam HD Composite with IB Water Borne Adhesive to perform better than the Bareback membrane attached to InsulFoam HD Composite with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.
- 5) Table 1 shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
 - a) Section 8.7.4: Applicable to structural concrete in NEW or Reroof (Tear-Off).

Installation (Cont.):

| TABLE 1 (Continued): CONCRETE DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) | | | | | | | | | |
|---|------------------------------------|---|---------------|---|--|--|--|------------------------------|--|
| SYSTEM TYPE A: BONDED VAPOR BARRIER, BONDED INSULATION, BONDED ROOF COVER | | | | | | | | | |
| Assembly No. | Deck (See Note 1) | Primer | Vapor Barrier | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | | | Type | Attach | Type | Attach | Type | Attach |
| #9 (C-5) | Min. 2,500 psi Structural concrete | Elastocol Stick or Elastocol Stick Zero | Sopravap'r | (Optional) One or more layer(s), min. 1.0" H-Shield, ACFoam-II, ACFoam-III, IB EnergyBoard II, EnergyBoard III or H-Shield CG | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | Min. 1/4" DensDeck Prime, SECUROCK Gypsum-Fiber Roof Board or ACFoam-HS Coverboard | Millennium One Step Foamable Adhesive, IB Rapid Set Insulation Adhesive or OlyBond 500 spaced 12" o.c. | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | 0 < P < -307.5 | | | | | | | |

| TABLE 1 (Continued): CONCRETE DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) | | | | | | | | | |
|---|------------------------------------|---|---------------|--|--|----------------------|--------|------------------------------|--|
| SYSTEM TYPE A: BONDED VAPOR BARRIER, BONDED INSULATION, BONDED ROOF COVER | | | | | | | | | |
| Assembly No. | Deck (See Note 1) | Primer | Vapor Barrier | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | | | Type | Attach | Type | Attach | Type | Attach |
| #10 (C-6) | Min. 2,500 psi Structural concrete | Elastocol Stick or Elastocol Stick Zero | Sopravap'r | One or more layer(s), min. 1.0" H-Shield, ACFoam-II, ACFoam-III, IB EnergyBoard II, EnergyBoard III or H-Shield CG | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | None | N/A | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | 0 < P < -290.0 | | | | | | | |

NOTES:**ASSEMBLY NO. #9 (C-5)****Original system came from:****SC5160.01.15-R1 (Date: 2015-01-21) Table 6A Sample ID C-2A Structural Concrete (MDP: -307.5 psf)**

- 1) Table 3B: Shows adhesion data of H-Shield being the most critical (202 lbf), thus, allowing extensions to AC Foam-II (IB Roof's EnergyBoard II) (312 lbf), AC Foam-III (IB Roof's EnergyBoard III) (469 lbf) and H-Shield CG (653 lbf).
- 2) Table 3B: Shows tensile adhesion / insulation combination H-Shield / OlyBond 500 being the most critical (202 lbf), thus, allowing extensions to AC Foam-III / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) (260 lbf) and the remaining adhesion / insulation combinations.
- 3) Table 3C: Shows tensile adhesion / coverboard combination DensDeck Prime / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) being the most critical (148 lbf), thus, allowing extensions to DensDeck Prime / OlyBond 500 (410 lbf), SECUROCK / OlyBond 500 (535 lbf), SECUROCK / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) (593 lbf) and AC Foam-HS / OlyBond 500 (213 lbf).
- 4) Table 1: Shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
- 5) Table 2C: Shows the Fleeceback membrane attached to DensDeck Prime with IB Water Borne Adhesive to perform better than the Bareback membrane attached to DensDeck Prime with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.
- 6) Table 1: Shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
 - a) Section 8.7.5: Primer options include Elastocol Stick Zero.
 - b) Section 8.7.5: States the base insulation has one or more layer(s) and it is optional.
 - c) Section 8.7.5: Applicable to structural concrete in NEW or Reroof (Tear-Off).

ASSEMBLY NO. #10 (C-6)**Original system came from:****SC5160.01.15-R1 (Date: 2015-01-21) Table 6A Sample ID C-2B Structural Concrete (MDP: -290.0 psf)**

- 1) Table 3B: Shows adhesion data of H-Shield being the most critical (202 lbf), thus, allowing extensions to AC Foam-II (IB Roof's EnergyBoard II) (312 lbf), AC Foam-III (IB Roof's EnergyBoard III) (469 lbf) and H-Shield CG (653 lbf).
- 2) Table 3B: Shows tensile adhesion / insulation combination H-Shield / OlyBond 500 being the most critical (202 lbf), thus, allowing extensions to AC Foam-III / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) (260 lbf) and the remaining adhesion / insulation combinations.
- 3) Table 1: Shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
- 4) Table 1: Shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
 - a) Section 8.7.6: Primer options include Elastocol Stick Zero.
 - b) Section 8.7.6: States the base insulation has one or more layer(s).
 - c) Section 8.7.6: Applicable to structural concrete in NEW or Reroof (Tear-Off).

I33030.03.11 (Date: 2011-03-11), section 1.4 Table 1A – IB Water Borne Adhesive extension

- 1) shows adhesion data of IB PVC Single Ply attached with IB Vertibond PVC Bonding Adhesive to AC Foam-II being the most critical (1.91 pli) compared to IB PVC Single Ply attached with IB Water Borne Adhesive to AC Foam-II (2.86 pli). Thus, allowing extension to IB Water Borne Adhesive.

Installation (Cont.):

| TABLE 1 (Continued): CONCRETE DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) | | | | | | | | | |
|---|------------------------------------|---|---------------|--|--|----------------------------------|--|------------------------------|--|
| SYSTEM TYPE A: BONDED VAPOR BARRIER, BONDED INSULATION, BONDED ROOF COVER | | | | | | | | | |
| Assembly No. | Deck (See Note 1) | Primer | Vapor Barrier | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | | | Type | Attach | Type | Attach | Type | Attach |
| #11 (C-7) | Min. 2,500 psi Structural concrete | Elastocol Stick or Elastocol Stick Zero | Sopravap'r | (Optional) Min. 1.0" H-Shield, AC Foam-II, AC Foam-III, IB EnergyBoard II, EnergyBoard III or H-Shield CG | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | Min. 1.5" InsulFoam HD Composite | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive spaced 12" o.c. | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | 0 < P < -115.0 | | | | | | | |

ASSEMBLY NO. #11 (C-7)**Original system came from:****SC5160.01.15-R1 (Date: 2015-01-21) Table 6A Sample ID C-2C Structural Concrete (MDP: -115.0 psf)**

- 1) ERD report SC5160.01.15-R1 Table 6A Sample ID C-2B (-290 psf): Allows the use of H-Shield.
 - a) ERD report SC5160.01.15-R1 Table 6A Sample ID C-1A-2 (MDP: -267.5 psf): Shows system using H-Shield/Securock combination to resist a design pressure of -267.5.
 - b) Table 2B (InsulFoam HD Composite) & Table 2C (SECUROCK) reports membrane delamination to be greater when comparing InsulFoam HD Composite (17 lbf) with SECUROCK (9 lbf). Therefore, Insulfoam HD Composite may be used as an alternate to SECUROCK.
- 2) Table 3A: Shows OlyBond 500 as critical insulation to be used with Sopravap'r, therefore, Millennium One Step Foamable Adhesive may be used as an alternate.
 - a) Included IB Rapid Set Insulation Adhesive as it is the same product as the Millennium One Step Foamable Adhesive, however, manufactured with a different product name.
- 3) Table 1 shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
- 4) Table 2B: Shows the Fleeceback membrane attached to InsulFoam HD Composite with IB Water Borne Adhesive to perform better than the Bareback membrane attached to InsulFoam HD Composite with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.
- 5) Table 1 shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
 - a) Section 8.7.7: Primer options include Elastocol Stick Zero.
 - b) Section 8.7.7: Applicable to structural concrete in NEW or Reroof (Tear-Off).

Installation (Cont.):

| TABLE 2: STEEL or WOOD DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) or RECOVER | | | | | | | |
|--|----------------------------------|--|-------------------------------|--|---|---------------------------------|---|
| SYSTEM TYPE B: MECHANICALLY ATTACHED BASE INSULATION, BONDED TOP INSULATION, BONDED ROOF COVER | | | | | | | |
| Assembly No. | Deck (See Note 1) | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | Type | Attach | Type | Attach | Type | Attach |
| #12 (S-3) | 22 ga. Type B, Grade 33 steel | Min. 2.0" ACFoam-II, ACFoam-III, IB EnergyBoard II, IB EnergyBoard III, H-Shield or H- Shield CG | See Note 2 | Min. 1/4" DensDeck Prime, SECUROCK Gypsum-Fiber Roof Board or ACFoam-HS Coverboard | Millennium One Step Foamable Adhesive, IB Rapid Set Insulation Adhesive or OlyBond 500, spaced 12" o.c. | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | Insulation Attachment | | | | | |
| | | Density (ft2 / fastener) | Parts per 4 x 4' board | | Parts per 4 x 8' board | | |
| 0 < P < -45.0* | | 2.9 | 6 | | 11 | | |

*The maximum allowable wind classification for the 5x9' test method is class 90 (MDP: -45.0 psf)

| Assembly No. | Deck (See Note 1) | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
|------------------------------|--|--|-------------------------------|--|---|---------------------------------|---|
| | | Type | Attach | Type | Attach | Type | Attach |
| #13 (W-3) | Min. 15/32" APA rated CDX, 5-ply plywood sheathing to wood supports spaced 24" o.c. using 8d common nails spaced max. 6" o.c. | Min. 2.0" ACFoam-II, ACFoam-III, IB EnergyBoard II, IB EnergyBoard III, H-Shield or H- Shield CG | See Note 2 | Min. 1/4" DensDeck Prime, SECUROCK Gypsum-Fiber Roof Board or ACFoam-HS Coverboard | Millennium One Step Foamable Adhesive, IB Rapid Set Insulation Adhesive or OlyBond 500, spaced 12" o.c. | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | Insulation Attachment | | | | | |
| | | Density (ft2 / fastener) | Parts per 4 x 4' board | | Parts per 4 x 8' board | | |
| 0 < P < -45.0 | | 1.6 | 10 | | 20 | | |

ASSEMBLY NO. #12 (S-3)**Original system came from:****SC5160.01.15-R1 (Date: 2015-01-21) Table 5A-1 Sample ID S-1A 22 ga., Type B, Grade 33 Steel (MDP: -45.0 psf)**

- 1) Table 4A: Shows rupture performance of AC Foam-II (IB Roof's EnergyBoard II) attached with Dekfast 3" Round Steel Plate being the most critical (153 lbf), thus, allowing extensions to H-Shield (198 lbf), AC Foam-III (IB Roof's EnergyBoard III (391 lbf) and H-Shield CG (335 lbf).
- 2) Table 3C: Shows tensile adhesion / coverboard combination DensDeck Prime / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) being the most critical (148 lbf), thus, allowing extensions to DensDeck Prime / OlyBond 500 (410 lbf), SECUROCK / OlyBond 500 (535 lbf), SECUROCK / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) (593 lbf) and AC Foam-HS / OlyBond 500 (213 lbf).
- 3) Table 1: Shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
- 4) Table 2C: Shows the Fleeceback membrane attached to DensDeck Prime with IB Water Borne Adhesive to perform better than the Bareback membrane attached to DensDeck Prime with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.
- 5) Table 1: Shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
 - a) Section 8.5.1: Applicable to structural concrete in NEW, Reroof (Tear-Off) or Recover.
 - b) Section 8.5.1: Fastener/stress plate options are shown.

ASSEMBLY NO. #13 (W-3)**Original system came from:****SC5160.02.15 (Date: 2015-02-12) Section 3.1-3.3 allows for 15/32 Wood deck extension****SC5160.01.15-R1 (Date: 2015-01-21) Table 2C**

- 1) Shows the Fleeceback membrane attached to DensDeck Prime with IB Water Borne Adhesive to perform better than the Bareback membrane attached to DensDeck Prime with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.

Installation (Cont.):

| TABLE 2: STEEL or WOOD DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) or RECOVER | | | | | | | |
|--|----------------------------------|--|------------|---|---|---------------------------------|---|
| SYSTEM TYPE B: MECHANICALLY ATTACHED BASE INSULATION, BONDED TOP INSULATION, BONDED ROOF COVER | | | | | | | |
| Assembly No. | Deck (See Note 1) | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | Type | Attach | Type | Attach | Type | Attach |
| #14 (S-4) | 22 ga. Type B, Grade 33 steel | Min. 1.5" H-Shield, ACFoam-III, IB EnergyBoard III or H-Shield CG | See Note 2 | Min. 1/4" SECUROCK Gypsum-Fiber Roof Board | Millennium One Step Foamable Adhesive, IB Rapid Set Insulation Adhesive or OlyBond 500, spaced 12" o.c. | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | Insulation Attachment | | | | | |
| | | Density (ft2 / fastener) | | Parts per 4 x 4' board | | Parts per 4 x 8' board | |
| 0 < P < -45.0* | | 2 | | 8 | | 16 | |

*The maximum allowable wind classification for the 5x9' test method is class 90 (MDP: -45.0 psf)

| Assembly No. | Deck (See Note 1) | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
|-----------------------|---|--|------------|---|---|---------------------------------|---|
| | | Type | Attach | Type | Attach | Type | Attach |
| #15 (W-4) | Min. 15/32", APA rated CDX, 5-ply plywood sheathing to wood supports spaced 24" o.c. using 8d common nails spaced max. 6"o.c. | Min. 1.5" H-Shield, ACFoam-III, IB EnergyBoard III or H-Shield CG | See Note 2 | Min. 1/4" SECUROCK Gypsum-Fiber Roof Board | Millennium One Step Foamable Adhesive, IB Rapid Set Insulation Adhesive or OlyBond 500, spaced 12" o.c. | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | Insulation Attachment | | | | | |
| | | Density (ft2 / fastener) | | Parts per 4 x 4' board | | Parts per 4 x 8' board | |
| 0 < P < -45.0 | | 1.6 | | 10 | | 20 | |

ASSEMBLY NO. #14 (S-4)**Original system came from:****SC5160.01.15-R1 (Date: 2015-01-21) Table 5A-1 Sample ID S-1B 22 ga., Type B, Grade 33 Steel (MDP: -45.0 psf)**

- 1) Table 4A: Shows rupture performance of H-Shield attached with OMG 3 in. Galvalume Steel Plate (192 lbf) performing less than the ACFoam-II (344 lbf) and H-Shield CG (297 lbf), thus, allowing extensions to ACFoam-II and H-Shield CG.
- 2) Table 3C: Shows tensile adhesion / coverboard combination SECUROCK / OlyBond 500 (535 lbf) performing less than the SECUROCK / Millennium One Step (IB Roof's Rapid Set Insulation Adhesive) (593 lbf), thus, allowing the extension to Millennium One Step (IB Roof's Rapid Set Insulation Adhesive).
- 3) Table 1: Shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
- 4) Table 2C: Shows the Fleeceback membrane attached to SECUROCK with IB Water Borne Adhesive to perform better than the Bareback membrane attached to SECUROCK with Flexocol V.
- a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.
- 5) Table 1: Shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
 - a) Section 8.5.1: Applicable to structural concrete in NEW, Reroof (Tear-Off) or Recover.
 - b) Section 8.5.1: Fastener/stress plate options are shown.

ASSEMBLY NO. #15 (W-4)**Original system came from:****SC5160.02.15 (Date: 2015-02-12) Section 3.1-3.3 allows for 15/32 Wood deck extension****SC5160.01.15-R1 (Date: 2015-01-21) Table 2C**

- 1) Shows the Fleeceback membrane attached to SECUROCK with IB Water Borne Adhesive to perform better than the Bareback membrane attached to SECUROCK with Flexocol V.
- a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.

Installation (Cont.):

| TABLE 2 (Continued): STEEL DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) or RECOVER | | | | | | | |
|--|----------------------------------|--|------------------------|--|---|---------------------------------|---|
| SYSTEM TYPE B: MECHANICALLY ATTACHED BASE INSULATION, BONDED TOP INSULATION, BONDED ROOF COVER | | | | | | | |
| Assembly No. | Deck (See Note 1) | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | Type | Attach | Type | Attach | Type | Attach |
| #16 (S-5) | 22 ga. Type B, Grade 40 steel | Min. 2.0" H-Shield, ACFoam-II, IB EnergyBoard II, ACFoam-III, IB EnergyBoard III or H-Shield CG | See Note 2 | Min. 1/4" SECUROCK Gypsum-Fiber Roof Board, DensDeck Prime or ACFoam-HS Coverboard | OlyBond 500, Millennium One Step Foamable Adhesive or IB Rapid Set Insulation Adhesive, spaced 6" o.c. | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | Insulation Attachment | | | | | |
| | | Density (ft2 / fastener) | Parts per 4 x 4' board | | Parts per 4 x 8' board | | |
| 0 < P < -75.0 | | 1.6 | 10 | | 20 | | |

ASSEMBLY NO. #16 (S-5)

Original system came from:

SC5160.01.15-R1 (Date: 2015-01-21) Table 7A Sample ID S-1C 22 ga., Type B, Grade 40 Steel (MDP: -75.0 psf)

- 1) Table 4A: Shows rupture performance of H-Shield attached with OMG 3" Galvalume Steel Plate (192 lbf), thus, allowing the extensions to ACFoam-III (IB Roof's EnergyBoard III (344 lbf) and H-Shield CG (297 lbf).
 - a) Note: Review of Panel S-1A indicates 2-inch thick ACFoam-II could withstand pressure differential loading to levels in excess of that imparted on Panel S-1C. Thus, allowing the inclusion of ACFoam-II (IB Roof's EnergyBoard II).
- 2) Table 1: Shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
- 3) Table 2C: Shows the Fleeceback membrane attached to SECUROCK with IB Water Borne Adhesive to perform better than the Bareback membrane attached to SECUROCK with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.
- 4) Table 1: Shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
 - a) Section 8.6.1: Explains the reasoning as to how DensDeck Prime and ACFoam-HS are being extended.
 - i) Coverboard adhesive options extend to Millennium One Step Foamable and IB Rapid Set Insulation Adhesive.
 - b) Section 8.6.1: Applicable to structural concrete in NEW, Reroof (Tear-Off) or Recover.
 - c) Section 8.6.1: Fastener/stress plate options are shown.

Installation (Cont.):

| TABLE 3: STEEL or WOOD DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) or RECOVER | | | | | | | |
|---|----------------------------------|--|-------------------------------|---|-------------------------------|---------------------------------|--|
| SYSTEM TYPE C: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER | | | | | | | |
| Assembly No. | Deck (See Note 1) | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | Type | Attach | Type | Attach | Type | Attach |
| #17 (S-6) | 22 ga. Type B, Grade 33 steel | (Optional) Any one or more layers, any combination | Loose Laid | Min. 1.5" ACFoam- II, ACFoam-III, IB EnergyBoard II, IB EnergyBoard III, H- Shield, H-Shield CG or min. 1/2" ACFoam-HS Coverboard or min. 1/4" DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board | See Note 2 | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | Insulation Attachment | | | | | |
| | | Density (ft2 / fastener) | Parts per 4 x 4' board | | Parts per 4 x 8' board | | |
| 0 < P < -45.0* | | 2 | 8 | | 16 | | |

*The maximum allowable wind classification for the 5x9' test method is class 90 (MDP: -45.0 psf)

| Assembly No. | Deck (See Note 1) | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
|------------------------------|--|--|-------------------------------|---|-------------------------------|---------------------------------|--|
| | | Type | Attach | Type | Attach | Type | Attach |
| #18 (W-5) | Min. 15/32", APA rated CDX, 5-ply plywood sheathing to wood supports spaced 24" o.c. using 8d common nails spaced max. 6"o.c. | (Optional) Any one or more layers, any combination | Loose Laid | Min. 1.5" ACFoam- II, ACFoam-III, IB EnergyBoard II, IB EnergyBoard III, H- Shield, H-Shield CG or min. 1/2" ACFoam-HS Coverboard or min. 1/4" DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board | See Note 2 | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | Insulation Attachment | | | | | |
| | | Density (ft2 / fastener) | Parts per 4 x 4' board | | Parts per 4 x 8' board | | |
| 0 < P < -45.0* | | 1.6 | 10 | | 20 | | |

ASSEMBLY NO. #17 (S-6)**Original system came from:****SC5160.01.15-R1 (Date: 2015-01-21) Table 5B Sample ID S-3A 22 ga., Type B, Grade 33 Steel (MDP: -45.0 psf)**

- 1) Table 1: Shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
- 2) Table 1: Shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
 - a) Section 8.5.4: States that any optional rigid board insulation or any type or thickness may be installed between the deck or existing roof cover and the top layer insulation provided the top layer insulation is min. ½-inch ACFoam-HS, 1.5-inch ACFoam-II (IB Roof's EnergyBoard II), ACFoam-III (IB Roof's EnergyBoard III), H-Shield, H-Shield CG, ¼-inch DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board.
 - b) Section 8.5.4: Applicable to structural concrete in NEW, Reroof (Tear-Off) or Recover.
 - c) Section 8.5.4: Fastener/stress plate options are shown.

I33030.03.11 (Date: 2011-03-11) Section 1.4 Table 1A – IB Water Borne Adhesive extension

- 1) shows adhesion data of IB PVC Single Ply attached with IB Vertibond PVC Bonding Adhesive to ACFoam-II being the most critical (1.91 pli) compared to IB PVC Single Ply attached with IB Water Borne Adhesive to ACFoam-II (2.86 pli). Thus, allowing extension to IB Water Borne Adhesive.

ASSEMBLY NO. #18 (W-5)**Original system came from:****SC5160.02.15 (Date: 2015-02-12) Section 3.1-3.3 allows for 15/32 Wood deck extension****I33030.03.11 (Date: 2011-03-11) Section 1.4 Table 1A – IB Water Borne Adhesive extension**

- 1) shows adhesion data of IB PVC Single Ply attached with IB Vertibond PVC Bonding Adhesive to ACFoam-II being the most critical (1.91 pli) compared to IB PVC Single Ply attached with IB Water Borne Adhesive to ACFoam-II (2.86 pli). Thus, allowing extension to IB Water Borne Adhesive.

Installation (Cont.):

| TABLE 3 (Continued): STEEL or WOOD DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) or RECOVER | | | | | | | |
|---|----------------------------------|--|------------|-------------------------------------|------------|---------------------------------|--|
| SYSTEM TYPE C: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER | | | | | | | |
| Assembly No. | Deck (See Note 1) | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
| | | Type | Attach | Type | Attach | Type | Attach |
| #19 (S-7) | 22 ga. Type B, Grade 33 steel | (Optional) Any one or more layers, any combination | Loose Laid | Min. 1.5" InsulFoam HD Composite | See Note 2 | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | Insulation Attachment | | | | | |
| | | Density (ft2 / fastener) | | Parts per 4 x 4' board | | Parts per 4 x 8' board | |
| 0 < P < -45.0* | | 2.67 | | 6 | | 12 | |

*The maximum allowable wind classification for the 5x9' test method is class 90 (MDP: -45.0 psf)

| Assembly No. | Deck (See Note 1) | Base Insulation Layer(s) | | Top Insulation Layer | | Roof Cover | |
|------------------------------|--|--|------------|-------------------------------------|------------|---------------------------------|--|
| | | Type | Attach | Type | Attach | Type | Attach |
| #20 (W-6) | Min. 15/32", APA rated CDX, 5-ply plywood sheathing to wood supports spaced 24" o.c. using 8d common nails spaced max. 6" o.c. | (Optional) Any one or more layers, any combination | Loose Laid | Min. 1.5" InsulFoam HD Composite | See Note 2 | IB PVC Single Ply | IB Vertibond PVC Bonding Adhesive |
| | | | | | | IB PVC Single Ply | IB Water Borne Adhesive |
| | | | | | | IB PVC Single Ply Fleeceback | IB Water Borne Adhesive or IB Vertibond PVC Bonding Adhesive |
| Design Pressure (psf) | | Insulation Attachment | | | | | |
| | | Density (ft2 / fastener) | | Parts per 4 x 4' board | | Parts per 4 x 8' board | |
| 0 < P < -45.0* | | 1.6 | | 10 | | 20 | |

ASSEMBLY NO. #19 (S-7)**Original system came from:****SC5160.01.15-R1 (Date: 2015-01-21) Table 5B Sample ID S-3C 22 ga., Type B, Grade 33 Steel (MDP: -45.0 psf)**

- 1) ERD report SC5160.01.15-R1 Table 5B Sample ID S-3A 22 ga., Type B, Grade 33 (MDP: 135psf): Allows the use of base insulation layer with AC Foam-HS.
 - a) Table 4B (InsulFoam HD Composite) & Table 4C (AC Foam-HS) reports rupture performance to be greater when comparing InsulFoam HS Composite (225 lbf) with AC Foam-HS (167 lbf). Therefore, InsulFoam HD Composite may be used as an alternate to AC Foam-HS.
- 2) Table 1 shows membrane / adhesive combination IB PVC-GR 60 / Flexocol V being the most critical (12.1 pli), thus, allowing extensions to IB PVC Single Ply / Flexocol V (13 pli) and IB PVC Single Ply / IB Vertibond PVC Bonding Adhesive (15 pli).
- 3) Table 2B: Shows the Fleeceback membrane attached to InsulFoam HD Composite with IB Water Borne Adhesive to perform better than the Bareback membrane attached to InsulFoam HD Composite with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.
- 4) Table 1 shows membrane / adhesive combination IB PVC-GR 60FB / IB Water Borne Adhesive being the most critical (1.1 pli), thus, allowing extensions to IB PVC Single Ply Fleeceback / IB Water Borne Adhesive (1.3 pli) and IB PVC Single Ply Fleeceback / IB VeritBond Adhesive (10.1 pli).
 - a) Section 8.5.5: States that any optional loose-laid base insulation of any type or thickness may be installed between the deck or existing roof cover and the top insulation.
 - b) Section 8.5.5: Applicable to structural concrete in NEW, Reroof (Tear-Off) or Recover.
 - c) Section 8.5.5: Fastener/stress plate options are shown.

ASSEMBLY NO. #20 (W-6)**Original system came from:****SC5160.02.15 (Date: 2015-02-12) Section 3.1-3.3 allows for 15/32 Wood deck extension**

- 1) Table 2B: Shows the Fleeceback membrane attached to InsulFoam HD Composite with IB Water Borne Adhesive to perform better than the Bareback membrane attached to InsulFoam HD Composite with Flexocol V.
 - a) Now we refer to Table 1: Based on comparative review between Fleeceback / IB Water Borne Adhesive vs. Bareback / IB Water Borne Adhesive, the Bareback / IB Water Borne Adhesive outperformed the Fleeceback / IB Water Borne Adhesive combination. Thus, allowing the inclusion of IB PVC Single Ply attached with IB Water Borne Adhesive.

Installation (Cont.):

| TABLE 4: WOOD DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) or RECOVER | | | | | | |
|--|--|---|--|----------------|-------------------|--|
| SYSTEM TYPE D: PRELIMINARILY ATTACHED INSULATION, MECHANICALLY ATTACHED ROOF COVER | | | | | | |
| Assembly No. | Deck (See Note 1) | Thermal Barrier | Insulation Layer(s) | | Roof Cover | |
| | | | Type | Attach | Membrane | Fastener ¹ |
| #21 (W-7) | Min. 19/32", plywood secured to supports spaced 24" o.c., with 8d common nails spaced max. 6" o.c. | (Optional) Any thermal barrier to obtain fire classification | (Optional) One or more layers, any combination | Prelim. attach | IB PVC Single Ply | IB #14 Heavy Duty Roofing Fasteners, IB #15 XHD Roofing Fasteners (aka IB Magnum Fasteners), #14 Roofgrip or OMG XHD fasteners, minimum 3" long, with IB 2" Barbed Seam Plates, OMG 2" Barbed Plates |
| Design Pressure (psf) | | | Roof Cover Attachment (In Seam) | | | |
| 0 < P ≤ -30.0 | | | 12" o.c. within 5" sidelaps spaced 67" o.c. | | | |
| -30.0 < P ≤ -45.0 | | | 6" o.c. within 5" sidelaps spaced 67" o.c. | | | |
| -45.0 < P ≤ -52.5 | | | 4" o.c. within 5" sidelaps spaced 67" o.c. | | | |
| -52.5 < P ≤ -60.0 | | | 3" o.c. within 5" sidelaps spaced 67" o.c. | | | |

| TABLE 4 (Continued): WOOD DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) or RECOVER | | | | | | |
|--|--|---|--|----------------|-------------------|---|
| SYSTEM TYPE D: PRELIMINARILY ATTACHED INSULATION, MECHANICALLY ATTACHED ROOF COVER | | | | | | |
| Assembly No. | Deck (See Note 1) | Thermal Barrier | Insulation Layer(s) | | Roof Cover | |
| | | | Type | Attach | Membrane | Fastener ¹ |
| #22 (W-8) | Min. 15/32", APA rated CDX, 5 ply plywood attached to roof framing members spaced max. 6" o.c. | (Optional) Any thermal barrier to obtain fire classification | One or more layers, any combination | Prelim. attach | IB PVC Single Ply | IB #14 Heavy Duty Roofing Fasteners, #14 Roofgrip with IB 2" Barbed Seam Plates, OMG 2" Barbed Plates |
| Design Pressure (psf) | | | Roof Cover Attachment (In Seam) | | | |
| 0 < P ≤ -37.5 | | | 6-inch o.c. within 5" sidelaps spaced 67" o.c. | | | |

ASSEMBLY NO. #21 (W-7)

02642.01.05-1-R1 (Date: 2005-01-14) Appendix 1 pg. 7 System No. W-1 Min. 19/32-inch plywood (MDP: -30.0psf).

- 1) A thermal barrier may be optional. The reasoning is because the use of multiple layers of thermal barrier underneath the fastened layer would not adversely affect the test results since fastened through to the deck.
- 2) Section 2.1: Applicable to NEW, Reroof (Tear-Off) or Recover.

02642.01.05-1-R1 (Date: 2005-01-14) Appendix 1 pg. 7 System No. W-2 Min. 19/32-inch plywood (MDP: -45.0psf).

- 1) A thermal barrier may be optional. The reasoning is because the use of multiple layers of thermal barrier underneath the fastened layer would not adversely affect the test results since fastened through to the deck.
- 2) Section 2.1: Applicable to NEW, Reroof (Tear-Off) or Recover.

03903.05.06-2-R1 (Date: 2006-05-10) Appendix 1 pg. 7 System No. W-1 Min. 19/32-inch plywood (MDP: -52.5psf).

- 1) A thermal barrier may be optional. The reasoning is because the use of multiple layers of thermal barrier underneath the fastened layer would not adversely affect the test results since fastened through to the deck.
- 2) System may be applicable to NEW, Reroof (Tear-Off) or Recover per section 2.1 of ERD 02642.01.05-1-R1.

03903.05.06-2-R1 (Date: 2006-05-10) Appendix 1 pg. 7 System No. W-2 Min. 19/32-inch plywood (MDP: -60.0psf).

- 1) A thermal barrier may be optional. The reasoning is because the use of multiple layers of thermal barrier underneath the fastened layer would not adversely affect the test results since fastened through to the deck.
- 2) System may be applicable to NEW, Reroof (Tear-Off) or Recover per section 2.1 of ERD 02642.01.05-1-R1.

ASSEMBLY NO. #22 (W-8)

I11110.11.08-2 (Date: 2008-12-01) section 1.1.3 Sample ID 1 & ID 3 Min. 15/32-inch APA rated CDX 5 plywood (MDP: -37.5psf).

- 1) A thermal barrier may be optional. The reasoning is because the use of multiple layers of thermal barrier underneath the fastened layer would not adversely affect the test results since fastened through to the deck.
- 2) Any rigid board insulation or combination will not adversely affect the system performance per Section 2.1.2 of ERD report I11110.11.08-2.
- 3) Section 2.1.3: Applicable to NEW, Reroof (Tear-Off) or Recover.

Installation (Cont.):

| TABLE 5: WOOD DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) or RECOVER | | | | | |
|---|--|--|---------------|-------------------|--|
| SYSTEM TYPE E: NON-INSULATED, MECHANICALLY ATTACHED ROOF COVER | | | | | |
| Assembly No. | Deck (See Note 1) | Thermal Barrier | | Roof Cover | |
| | | Type | Attach | Membrane | Fasteners |
| #23 (W-9) | Min. 19/32", plywood secured to supports spaced 24" o.c., with 8d common nails spaced max. 6" o.c. | (Optional) Any thermal barrier to obtain fire classification | Loose laid | IB PVC Single Ply | IB #14 Heavy Duty Roofing Fasteners, IB #15 XHD Roofing Fasteners (aka IB Magnum Fasteners), #14 Roofgrip or OMG XHD fasteners with IB 2" Barbed Seam Plates, OMG 2" Barbed Plates |
| Design Pressure (psf) | | Roof Cover Attachment (In Seam) | | | |
| 0 < P ≤ -30.0 | | 12" o.c. within 5" sidelaps spaced 67" o.c. | | | |
| -30.0 < P ≤ -45.0 | | 6" o.c. within 5" sidelaps spaced 67" o.c. | | | |
| -45.0 < P ≤ -52.5 | | 4" o.c. within 5" sidelaps spaced 67" o.c. | | | |
| -52.5 < P ≤ -60.0 | | 3" o.c. within 5" sidelaps spaced 67" o.c. | | | |

| TABLE 5 (Continued): WOOD DECKS - NEW CONSTRUCTION or REROOF (Tear-Off) or RECOVER | | | | | |
|---|--|--|---------------|-------------------|---|
| SYSTEM TYPE E: NON-INSULATED, MECHANICALLY ATTACHED ROOF COVER | | | | | |
| Assembly No. | Deck (See Note 1) | Thermal Barrier | | Roof Cover | |
| | | Type | Attach | Membrane | Fasteners |
| #24 (W-10) | Min. 15/32", APA rated CDX, 5 ply plywood attached to roof framing members spaced max. 6" o.c. | (Optional) Any thermal barrier to obtain fire classification | Loose laid | IB PVC Single Ply | IB #14 Heavy Duty Roofing Fasteners, #14 Roofgrip with IB 2" Barbed Seam Plates, OMG 2" Barbed Plates |
| Design Pressure (psf) | | Roof Cover Attachment (In Seam) | | | |
| 0 < P ≤ -37.5 | | 6" o.c. within 5" sidelaps spaced 67" o.c. | | | |

ASSEMBLY NO. #23 (W-9)

02642.01.05-1-R1 (Date: 2005-01-14) Appendix 1 pg. 7 System No. W-1 Min. 19/32-inch plywood (MDP: -30.0psf).

- 1) This assembly is identical to W-2 above with the exception of the insulation. Having no insulation will not affect the design pressure of this assembly. This is due to the load path going from the roof cover to the stress plates to the fasteners to the deck, and the insulation offers no resistance to the pressure differential.
- 2) A thermal barrier may be optional. The reasoning is because the use of multiple layers of thermal barrier underneath the fastened layer would not adversely affect the test results since fastened through to the deck.

02642.01.05-1-R1 (Date: 2005-01-14) Appendix 1 pg. 7 System No. W-2 Min. 19/32-inch plywood (MDP: -45.0psf).

- 1) This assembly is identical to W-2 above with the exception of the insulation. Having no insulation will not affect the design pressure of this assembly. This is due to the load path going from the roof cover to the stress plates to the fasteners to the deck, and the insulation offers no resistance to the pressure differential.
- 2) A thermal barrier may be optional. The reasoning is because the use of multiple layers of thermal barrier underneath the fastened layer would not adversely affect the test results since fastened through to the deck.

03903.05.06-2-R1 (Date: 2006-05-10) Appendix 1 pg. 7 System No. W-1 Min. 19/32-inch plywood (MDP: -52.5psf).

- 1) This assembly is identical to W-2 above with the exception of the insulation. Having no insulation will not affect the design pressure of this assembly. This is due to the load path going from the roof cover to the stress plates to the fasteners to the deck, and the insulation offers no resistance to the pressure differential.
- 2) A thermal barrier may be optional. The reasoning is because the use of multiple layers of thermal barrier underneath the fastened layer would not adversely affect the test results since fastened through to the deck.

03903.05.06-2-R1 (Date: 2006-05-10) Appendix 1 pg. 7 System No. W-2 Min. 19/32-inch plywood (MDP: -60.0psf).

- 1) This assembly is identical to W-2 above with the exception of the insulation. Having no insulation will not affect the design pressure of this assembly. This is due to the load path going from the roof cover to the stress plates to the fasteners to the deck, and the insulation offers no resistance to the pressure differential.
- 2) A thermal barrier may be optional. The reasoning is because the use of multiple layers of thermal barrier underneath the fastened layer would not adversely affect the test results since fastened through to the deck.

ASSEMBLY NO. #24 (W-10)

111110.11.08-2 (Date: 2008-12-01) section 1.1.3 Sample ID 1 & ID 3 Min. 15/32-inch APA rated CDX 5 plywood (MDP: -37.5psf).

- 1) This assembly is identical to W-3 above with the exception of the insulation. Having no insulation will not affect the design pressure of this assembly. This is due to the load path going from the roof cover to the stress plates to the fasteners to the deck, and the insulation offers no resistance to the pressure differential.
- 2) A thermal barrier may be optional. The reasoning is because the use of multiple layers of thermal barrier underneath the fastened layer would not adversely affect the test results since fastened through to the deck.
- 3) Section 2.1.3: Applicable to NEW, Reroof (Tear-Off) or Recover.

Note: Keep the manufacturer's installation instructions available on the job site during the installation. Use corrosion resistant fasteners as specified in the IRC and the IBC.