Dewberry

Submittal Review Form

Date:	July 30, 2021	**Project:**	Town of Vienna Police Station
Project No:	50108541	**Spec. Section:**	074113 – Standing Seam Metal Roof Panels
Spec. Par. No:	Product Data	**Submittal No:**	074113-1.1 (#210a)

☒	**APPROVED**	REVIEW IS FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH INFORMATION GIVEN AND DESIGN CONCEPT EXPRESSED IN THE CONTRACT DOCUMENTS. REVIEW IS NOT CONDUCTED FOR THE PURPOSE OF DETERMINING ACCURACY AND COMPLETENESS OF OTHER DETAILS, DIMENSIONS, QUANTITIES, OR SUBSTANTIATING INSTRUCTIONS FOR INSTALLATION OR PERFORMANCE OF EQUIPMENT OR SYSTEMS, ALL OF WHICH REMAIN THE SOLE RESPONSIBILITY OF THE CONTRACTOR. MARKINGS, CORRECTIONS OR COMMENTS MADE ON THE SUBMITTAL DURING THIS REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH CONTRACT DOCUMENTS. REVIEW SHALL NOT CONSTITUTE APPROVAL OF SAFETY PRECAUTIONS OR, OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES. APPROVAL OF A SPECIFIC ITEM SHALL NOT INDICATE APPROVAL OF AN ASSEMBLY OF WHICH THE ITEM IS A COMPONENT.
☐	**APPROVED AS NOTED**	
☐	**RETURN NO ACTION TAKEN**	
☐	**REJECTED**	
☐	**REVISE AND RESUBMIT**	

Comments:

1. O&M data is to be submitted with closeout documents only (017800 and 017823).
2. ~~Standing Seam Metal Roof Panels - Specification section 074113-2.2.5 indicates panel coverage to be 14''. Submitted product does not provide a 14'' panel option. Panel profile to be 12'' per exterior building elevations.~~
3. ~~Standing Seam Metal Roof Panels – Product data for Double-Lock DL20 and Span-Lock SL20 provided. Contractor to clarify which product is being submitted for review.~~ Confirmed Span-Lock SL20 is being submitted for review.
4. ~~Standing Seam Metal Roof Panels – Striated profile provided in product data. Specification section 074113-2.2 indicates a flat pan between ribs. Contractor to submit sample for initial selection per 074113-1.4.D for review and approval of striated profile.~~
5. Contractor to submit Manufacturer's full range of color for initial selection per 074113-1.4.D.
6. ~~Product data for Hunter Panels H-Shield and Hunter Panels H-Shield NB provided. Contractor to clarify application for installation.~~
7. ~~Hunter Panels H-Shield NB – Substrate not indicate in product data. Substrate to be 5/8'' OSB per specification section 061600.~~
8. ~~Roof Insulation to comply with specification section 075216-2.10. Hunter Panels H-Shield NB does not comply with Type, Grade, and Class per ASTM C1289. Contractor to note roof insulation has been approved in submittal #072100-3.0 (#159).~~
9. ~~Underlayment to be self-adhering per 074113-2.3. U20 is not approved.~~
10. Contractor to refer to specification section 072713 for coordination and compatibility with self-adhering sheet air barriers.

Review By: Ellen Augst **Signature:** Ellen Augst

Standing-Seam Metal Roofing Package

Submittal #210a
Status:**Submitted**
07/16/2021

Related Docs
Submittal #210

Submittal

Response Needed By:	**08/04/2021**	Owner:	**Town Of Vienna, VA**
Use Master Format Specification Number:	☐		
Specification Number:	**07 41 13**	Sub-Contractor Org:	
Submit To:	**Dewberry**	Submitting Organization:	**Hoar Construction**
Sent By:	Owner-Insite	Project:	**Vienna Police Dept Facility**
Tracking #:		Submitted Date:	**07/16/2021**
Number of Sets:	**1**	Change Proposals:	Create Change Proposal
Initiator:	**Brad Catalone**	Categories:	
Requested By Contractor On:	07/21/2021	Received By Contractor On:	
Tracked in Warranty:	**No** *		

Submittal Notes:

Change Proposal Request

Will this Submittal have a cost impact?	○ Yes ◉ No	Will this Submittal have a time impact?	○ Yes ◉ No

Submittal Action

Response:

Action:

Comments

From: **Kevin Fallin** | Senior Project Manager | Downey & Scott — 7/21/2021 11:55:07 AM
COMMENT REQUESTED

From: **Christine Kaldmaa** | Construction Administration Assistant | Dewberry
Please add your comment

From: **Ellen Augst** | Architect | Dewberry — 7/21/2021 11:55:07 AM
COMMENT REQUESTED

From: **Mark Kuczynski** | Construction Administration Manager | Dewberry — 7/21/2021 11:55:07 AM
COMMENT REQUESTED

From: **Brannon Addison** | Project Engineer | Downey & Scott — 7/21/2021 11:55:07 AM
COMMENT REQUESTED

Approvers

Lawrence Tressler		Downey & Scott	

Submittal Attachments

Date	File Name	Uploaded By	Version	Folders	Categories	
07/21/2021	Standing-Seam Metal Roofing Package REV1.pdf (11957.13 KB)	Brad Catalone **Submittal - Standing-Seam Metal Roofing Package**	1			Download
07/20/2021	074113-1.0 Standing Seam Metal Roofing Package #210 REVIEW.pdf (7666.6 KB)	Christine Kaldmaa **Submittal - Standing-Seam Metal Roofing Package**	1			Download
07/16/2021	Standing-Seam Metal Roofing Package.pdf (7955.71 KB)	Brad Catalone **Submittal - Standing-Seam Metal Roofing Package**	1			Download

HoarConstruction

Vienna Police Station Project

Project Number #04484

Architect: Dewberry

Construction Manager: Downey & Scott

General Contractor: Hoar Construction

SUBMITTAL TRANSMITTAL

Date: **7/21/2021**

Prepared By:	**PrimeKey**
Subcontractor:	**Primekey**
Submittal #:	**07 41 13 -1.1**
Submittal Type:	**Standing-Seam Metal Roofing Package**
Specifications Section	**07 41 13**
Drawing #/Related Details:	**Architectural**
Full or Partial Submittal:	**Full**
Location:	**Architectural**

*Sent via Owner Insite *Physical samples to be delivered to Dewberry*

X	For approval	
	For your use	
	As requested	
	For review and comment	

Hoar Construction has reviewed the information and verified that this package is in accordance with the Contract Documents and acceptable for review by the Architect/Engineer. Corrections and comments made on shop drawings during review do not relieve the Vendor or Subcontractor from compliance with requirements of drawings and specifications. Subcontractor is responsible for all dimensions and shall field verify site conditions prior to fabrication.

Approver Response:

074113- Standing Seam Metal Roof Panels REV1

Comments:

2. Standing Seam Metal Roof Panels - Specification section 074113-2.2.5 indicates panel coverage to be 14''. Submitted product does not provide a 14'' panel option. Panel profile to be 12'' per exterior building elevations.

Response: Revised to 12". Please refer to the attachment

3. Standing Seam Metal Roof Panels – Product data for Double-Lock DL20 and Span-Lock SL20 provided. Contractor to clarify which product is being submitted for review.

Response: Span-Lock SL20. Please refer to the attachment

4. Standing Seam Metal Roof Panels – Striated profile provided in product data. Specification section 074113-2.2 indicates a flat pan between ribs. Contractor to submit sample for initial selection per 074113-1.4.D for review and approval of striated profile.

Response: I will ship out the sample this week.

5. Contractor to submit Manufacturer's full range of color for initial selection per 074113-1.4.D.

Response: I will ship this out with the sample panels this week.

6. Product data for Hunter Panels H-Shield and Hunter Panels H-Shield NB provided. Contractor to clarify application for installation.

Response: Base layer is 2.5" H-Shield and top layer is 3" H-Shield NB which is composed of 5/8" OSB board on top of the same 2.5" H-Shield. Please refer to the attachment, 074113_(6)(7)(8)

7. Hunter Panels H-Shield NB – Substrate not indicate in product data. Substrate to be 5/8'' OSB per specification section 061600.

Response: Same response as to note 6. Please refer to the attachment

8. Roof Insulation to comply with specification section 075216-2.10. Hunter Panels HShield NB does not comply with Type, Grade, and Class per ASTM C1289.
Contractor to note roof insulation has been approved in submittal #072100-3.0 (#159).

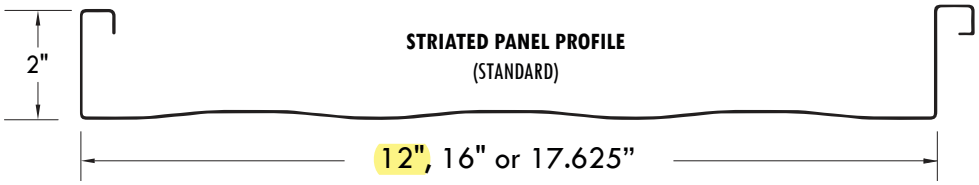
Response: Same response as to note 6. Please refer

9. Underlayment to be self-adhering per 074113-2.3. U20 is not approved.

Response: Tarco LeakBarrier PS 200 HT Ice & Water Shield. Please refer the attachment

STRUCTURAL PANEL

SPAN-LOCK SL20



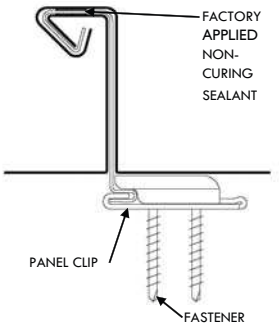
SPAN-LOCK SL20 is a structural panel that is mechanically seamed during installation. The panel is an integral interlocking system by design which installs in one direction from a given starting point. The Span-Lock is a very flexible panel that works well with a wide range of building designs.

Uses & Applications

Product uses include low to high slope roofing, vertical fascia, equipment screens, mansards, and wall panels. This system may also be installed on tapered roof areas.

Advantages

·Factory Applied Non-Curing Sealant - for superior watertightness
·Mechanically seamed - may be installed on low slope applications down to 1/2:12 slope
·No Hand Seaming Required - built-in locking leg keeps the roof panel in place until ready to mechanically seam
·Multi-directional Mechanical Seaming - panel seaming simplified
·Expansion Clips - allows for thermal expansion and contraction
·Continuous Roll Formed Lengths - eliminates need for panel lap joints (4’ min. panel length)
·Total System Warranties available - for total confidence

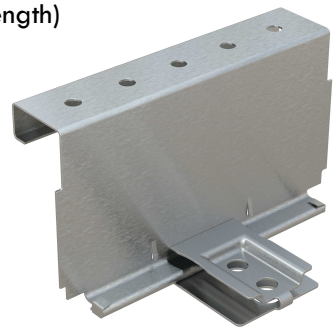


Seam Cross Section

Performance Tested

·UL-580 Wind Uplift
·UL-2218 Impact Resistance
·ASTM E1592 Uniform Static Air Pressure
·ASTM E1646 Water Penetration
·ASTM E1680 Air Leakage
·ASTM E2140 Static Water Penetration

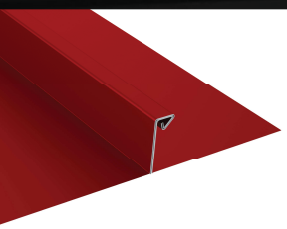
Please consult DMI for applicability of test reports for your project.



Low Floating Expansion Clip

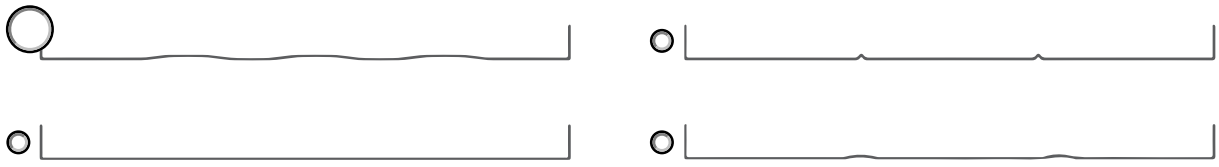
800.828.1510 ▪ www.dmimetals.com ▪ sales@dmimetals.com

SPAN-LOCK SL20



Project Name: _____
Architect: _____
Installing Contractor: _____
General Contractor: _____
Specification Section: _____

Stiffener Profile



DynaClad®
PVDF Color Chart

			WHITE SRI = 85	COBALT BLUE SRI = 20	
PUTTY SRI = 77	SANDSTONE SRI = 77	DOVE GREY SRI = 61	PATINA COPPER SRI = 58	BRITE RED* SRI = 44	
BEIGE SRI = 53	STONE SRI = 49	SLATE GREY SRI = 47	TERRA COTTA SRI = 43	METALLIC SILVER SRI = 53	
MUSKET GREY SRI = 35	SEAPORT SRI = 35	COLONIAL RED SRI = 34	SLATE BLUE SRI = 34	CHAMPAGNE SRI = 51	
BURGUNDY SRI = 34	HEMLOCK GREEN SRI = 31	LEAF GREEN SRI = 31	CHARCOAL GREY SRI = 31	METALLIC COPPER SRI = 49	
SPARTAN BRONZE SRI = 30	CLASSIC BRONZE SRI = 29	MATTE BLACK SRI = 29	EVERGREEN SRI = 28	AGED COPPER SRI = 43	
DARK BRONZE SRI = 27	ROYAL BLUE SRI = 27	HARTFORD GREEN SRI = 26	BROWN SRI = 25	WEATHERED ZINC SRI = 37	

Metallic Colors † — Premium Colors **

Custom Colors Available

Colors shown are samples and may vary slightly from actual material.
Please consult DMI Color Chart for stocking color availability.
†Metallic colors are directionally sensitive and therefore entire roof areas should be ordered at once time to ensure uniformity.
*Brite Red has a clear coat. **Premium colors carry an upcharge.

Panel Width
- ◉ 12”
- ○ 16”
- ○ 18” (17.625”)

Clip
- ○ Low Floating
- ○ Fixed
- ○ Long Fixed (Custom Application)

Substrate
- ◉ 24 ga. Galvalume®
- ○ 22 ga. Galvalume®
- ○ .032 Aluminum
- ◉ .040 Aluminum
- ○ 16 oz. Copper
- ○ 20 oz. Copper

Embossed: _____

Consult DMI for minimum quantities, upcharges, set up fees and extended lead times

Standard Finishes (N/A on Mill Finishes)
- ○ DynaClad® PVDF: _____
- ○ Acrylic Coated Galvalume (Acrylume®)
- ○ Clear Anodized Aluminum

Premium Finishes*
- ○ DynaClad® Metallic PVDF: _____
- ○ DynaClad® Brite Red PVDF
- ○ DynaClad® Cobalt Blue PVDF
- ○ DynaClad® Standard Color PVDF w/ Clearcoat: _____
- ○ DynaClad® Premium Color PVDF w/ Clearcoat: _____
- ○ Custom Color: _____

*Premium Colors subject to minimum quantities, extended lead times and upcharges. Consult DMI for details.

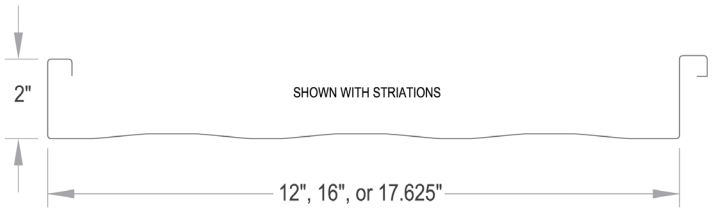
Warranty
Finish
- ○ DynaClad® Paint Finish
- ○ Galvalume® 20 Year - 6 Month (Substrate)
- ○ Aluminum Sheet 2 Year (Substrate)

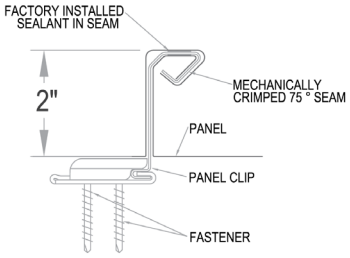
Watertight
- ○ DynaClad® Metal Roofing System: _____
- ○ DynaClad® Metal Roofing System NDL: _____

Since 1988 Dimensional Metals, Inc. (DMI) has specialized in the manufacturing of architectural metal roof and wall panel systems as well as fabricated architectural sheet metal for the construction industry. We are backed by decades of proven metal envelope design, dependable Technical Field Services, and an Engineering Department delivering sustainable solutions. You are sure to find the product that will best enhance your design.

800.828.1510 ▪ www.dmimetals.com ▪ sales@dmimetals.com

SPAN-LOCK
SL20 ALUMINUM





180 Deflection

SECTION PROPERTIES							ALLOWABLE UNIFORM LOADS, psf (single span)						
Ga.	Width in.	Yield ksi	Weight psf	Top in Compression			Inward Load						
				I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'
0.032	12	19	0.700	0.3150	0.3150	0.6554	92.9	64.5	47.4	36.3	28.7	23.2	19.2
0.040	12	19	0.855	0.3870	0.3870	0.8075	143.8	99.9	73.4	56.2	44.4	36.0	29.7
0.032	16	19	0.640	0.2540	0.2540	0.6390	67.5	46.9	34.4	26.4	20.8	16.9	13.9
0.040	16	19	0.790	0.3390	0.3390	0.7860	104.8	72.8	53.5	40.9	32.4	26.2	21.7
0.032	18	19	0.620	0.2470	0.2470	0.6310	89.5	62.2	45.7	35.0	27.6	22.4	18.5
0.040	18	19	0.760	0.2830	0.2830	0.7760	91.9	63.8	46.9	35.9	28.4	23.0	19.0

SECTION PROPERTIES							ALLOWABLE UNIFORM LOADS, psf (two equal spans)						
Ga.	Width in.	Yield ksi	Weight psf	Top in Compression			Inward Load						
				I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'
0.032	12	19	0.700	0.3150	0.3150	0.6554	92.9	64.5	47.4	36.3	28.7	23.2	19.2
0.040	12	19	0.855	0.3870	0.3870	0.8075	143.8	99.9	73.4	56.2	44.4	36.0	29.7
0.032	16	19	0.640	0.2540	0.2540	0.6390	67.5	46.9	34.4	26.4	20.8	16.9	13.9
0.040	16	19	0.790	0.3390	0.3390	0.7860	104.8	72.8	53.5	40.9	32.4	26.2	21.7
0.032	18	19	0.620	0.2470	0.2470	0.6310	89.5	62.2	45.7	35.0	27.6	22.4	18.5
0.040	18	19	0.760	0.2830	0.2830	0.7760	91.9	63.8	46.9	35.9	28.4	23.0	19.0

SECTION PROPERTIES							ALLOWABLE UNIFORM LOADS, psf (three equal spans)						
Ga.	Width in.	Yield ksi	Weight psf	Top in Compression			Inward Load						
				I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'
0.032	12	19	0.700	0.3150	0.3150	0.6554	116.2	80.7	59.3	54.4	35.9	29.0	24.0
0.040	12	19	0.855	0.3870	0.3870	0.8075	179.8	124.9	91.7	70.2	55.5	45.0	37.2
0.032	16	19	0.640	0.2540	0.2540	0.6390	84.4	58.6	43.0	33.0	26.0	21.1	17.4
0.040	16	19	0.790	0.3390	0.3390	0.7860	131.0	91.0	66.8	51.2	40.4	32.8	27.1
0.032	18	19	0.620	0.2470	0.2470	0.6310	111.9	77.7	57.1	43.7	34.5	28.0	23.1
0.040	18	19	0.760	0.2830	0.2830	0.7760	114.9	79.8	58.6	44.9	35.5	28.7	23.7

SPAN-LOCK
SL20 ALUMINUM

240 Deflection

SECTION PROPERTIES							ALLOWABLE UNIFORM LOADS, psf (single span)						
Ga.	Width in.	Yield ksi	Weight psf	Top in Compression			Inward Load						
				I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'
0.032	12	19	0.700	0.3150	0.3150	0.6554	92.9	64.5	47.4	36.3	28.7	23.2	19.2
0.040	12	19	0.855	0.3870	0.3870	0.8075	143.8	99.9	73.4	56.2	44.4	36.0	29.7
0.032	16	19	0.640	0.2540	0.2540	0.6390	67.5	46.9	34.4	26.4	20.8	16.9	13.9
0.040	16	19	0.790	0.3390	0.3390	0.7860	104.8	72.8	53.5	40.9	32.4	26.2	21.7
0.032	18	19	0.620	0.2470	0.2470	0.6310	89.5	62.2	45.7	35.0	27.6	22.4	18.5
0.040	18	19	0.760	0.2830	0.2830	0.7760	91.9	63.8	46.9	35.9	28.4	23.0	19.0

SECTION PROPERTIES							ALLOWABLE UNIFORM LOADS, psf (two equal spans)						
Ga.	Width in.	Yield ksi	Weight psf	Top in Compression			Inward Load						
				I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'
0.032	12	19	0.700	0.3150	0.3150	0.6554	92.9	64.5	47.4	36.3	28.7	23.2	19.2
0.040	12	19	0.855	0.3870	0.3870	0.8075	143.8	99.9	73.4	56.2	44.4	36.0	29.7
0.032	16	19	0.640	0.2540	0.2540	0.6390	67.5	46.9	34.4	26.4	20.8	16.9	13.9
0.040	16	19	0.790	0.3390	0.3390	0.7860	104.8	72.8	53.5	40.9	32.4	26.2	21.7
0.032	18	19	0.620	0.2470	0.2470	0.6310	89.5	62.2	45.7	35.0	27.6	22.4	18.5
0.040	18	19	0.760	0.2830	0.2830	0.7760	91.9	63.8	46.9	35.9	28.4	23.0	19.0

SECTION PROPERTIES							ALLOWABLE UNIFORM LOADS, psf (three equal spans)						
Ga.	Width in.	Yield ksi	Weight psf	Top in Compression			Inward Load						
				I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'
0.032	12	19	0.700	0.3150	0.3150	0.6554	116.2	80.7	59.3	54.4	35.9	29.0	24.0
0.040	12	19	0.855	0.3870	0.3870	0.8075	179.8	124.9	91.7	70.2	55.5	45.0	37.2
0.032	16	19	0.640	0.2540	0.2540	0.6390	84.4	58.6	43.0	33.0	26.0	21.1	17.4
0.040	16	19	0.790	0.3390	0.3390	0.7860	131.0	91.0	66.8	51.2	40.4	32.8	27.1
0.032	18	19	0.620	0.2470	0.2470	0.6310	111.9	77.7	57.1	43.7	34.5	28.0	23.1
0.040	18	19	0.760	0.2830	0.2830	0.7760	114.9	79.8	58.6	44.9	35.5	28.7	23.7

NOTES:

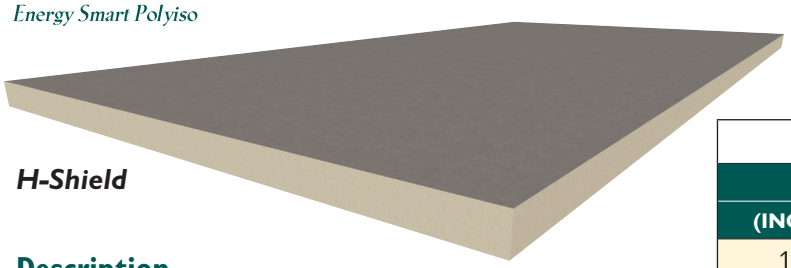
1. Theoretical section properties have been calculated per the latest edition of the Aluminum Association's Design Manual.
Ixx and Sxx are effective section properties for deflection and bending.
2. Allowable load is calculated in accordance with the latest edition of the Aluminum Association's Design Manual
considering bending, shear, combined bending and shear and deflection. Allowable load considers a 3 or more equal span condition.
3. Allowable load does not address panel weight, fasteners, connection strength or support material.
4. Allowable load includes web crippling.
5. Load/Span values are based on theoretical computations and not load testing.
6. Deflection consideration is limited by a maximum deflection ratio of L/180 or L/240 of span.
7. Allowable loads do not include a 1/3 stress increase for wind.

HUNTER

Energy Smart Polyiso

HUNTER PANELS H-SHIELD

Flat Polyisocyanurate Insulation



H-Shield

Description

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 (GRF).

Premium Performance Attributes

- Manufactured with NexGen Chemistry: Contains no CFCs, HFCs, HCFCs, is Zero ODP, EPA Compliant, and has virtually no GWP
- Manufactured with NexGen Chemistry: Contains no CFCs, HCFCs, HFCs, is Zero ODP, EPA Compliant, and has virtually no GWP
- Approved for direct application to steel decks
- Approved under all major roof covering systems – BUR, Modified and Single-Ply

Applications

- Constructions requiring FM Class 1 and UL Class A ratings
- Single-Ply Roof Systems (Ballasted, Mechanically Attached, Fully Adhered)
- Standing Seam Metal Roof Systems
- Modified Bitumen Systems
- Built-Up Roofing: Asphalt and Coal Tar

Panel Characteristics

- Available in two grades of compressive strengths per ASTM C1289 Type II, Class 1 Grade 2 (20 psi) or Grade 3 (25 psi)
- Available in 4'x4' (1220mm x 1220mm) and 4'x8' (1220mm x 2440mm) panels in thicknesses of 1" (25mm) to 4.5" (114mm)
- Also available as special cut products - straight cut and flute fill. For more information please see Hunter Panels product data sheets for these products.

Potential LEED Credits for Polyiso Use

Energy and Atmosphere

- Optimize Energy Performance

Materials & Resources

- Building Life-Cycle Impact Reduction
- Environment Product Declaration
- Material Reuse
- Recycled Content
- Construction and Demolition Waste Management

Indoor Environmental Quality

- Thermal Comfort

H-SHIELD THERMAL VALUES

THICKNESS (INCHES)	THICKNESS (MM)	LTTR R VALUE*	FLUTE SPANABILITY
1.00	25	5.7	2 5/8"
1.50	38	8.6	4 3/8"
1.80	46	10.3	4 3/8"
2.00	51	11.4	4 3/8"
2.50	64	14.4	4 3/8"
2.60	66	15.0	4 3/8"
3.00	76	17.4	4 3/8"
3.50	89	20.5	4 3/8"
3.80	97	22.3	4 3/8"
4.00	102	23.6	4 3/8"
4.30	109	25.5	4 3/8"
4.50	114	26.8	4 3/8"

*Long Term Thermal Resistance Values are based on ASTM C 1289.

Codes and Compliances

- ASTM C 1289 Type II, Class 1 Grade 2 (20 psi) or Grade 3 (25 psi)
- International Building Code (IBC) Chapter 26
- State of Florida Product Approval Number FL 5968
- California Code of Regulations, Title 24, Insulation Quality Standard License #TI-1420
- Miami Dade County Product Control Approved

Underwriters Laboratories Inc Classifications

- UL 1256
- Insulated Steel Deck Construction Assemblies – No. 120, 123, 292
- UL 790
- UL 263 Hourly Rated P Series Roof Assemblies

UL Classified for use in Canada

- Refer to UL Directory of Products Certified for Canada for more details
- CCMC 13460-L
- UL Certified for Canada, CAN/ULC-S126, CAN/ULC-S101, CAN/ULC- S107
- CAN/ULC-S704 Type 2, Class 3 (20 psi) or Type 3, Class 3 (25 psi)

Factory Mutual Approvals

- FM 4450, FM 4470
- Approved for Class 1 insulated steel deck constructions for 1-60 to 1-270. Refer to FM Approval's RoofNav for details on specific systems

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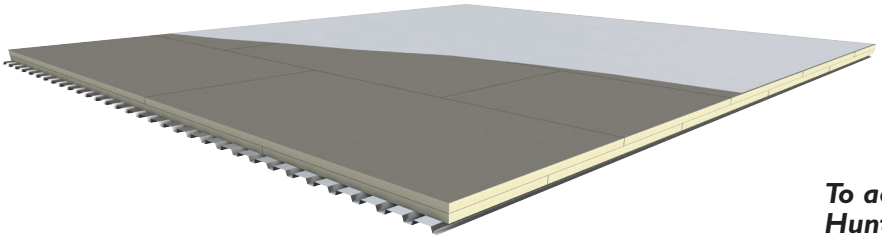
HUNTER PANELS H-SHIELD

Flat Polyisocyanurate Insulation

Energy Smart Polyiso



R-30.0, two layers of 2.6" H-Shield with Single-Ply membrane

To achieve optimal thermal performance, Hunter Panels recommends installation of a multi-layer system with staggered joints.

H-SHIELD TYPICAL PHYSICAL PROPERTY DATA CHART
POLYISO FOAM CORE ONLY

PROPERTY	TEST METHOD	VALUE
Compressive Strength	ASTM D 1621	20 psi* (138kPa, Grade 2)
Dimensional Stability	ASTM D 2126	2% linear change (7 days)
Moisture Vapor Transmission	ASTM E 96	< 1 perm (57.5ng/(Pa•s•m²))
Water Absorption	ASTM C 209	< 1% volume
Flame Spread**	ASTM E 84	< 75
Smoke Developed**	ASTM E 84	< 450
Service Temperature	–	-100° to 250° F (-73°C to 122°C)

*Also available in 25 psi, Grade 3
**Meets the requirements of the IBC code. For specific Flame Spread or Smoke Developed Ratings please contact the Hunter Panels Technical Department

WARNINGS AND LIMITATIONS

Insulation must be protected from open flame and kept dry at all times. Install only as much insulation as can be covered the same day by completed roof covering material. Hunter Panels will not be responsible for specific building and roof design by others, for deficiencies in construction or workmanship, for dangerous conditions on the job site or for improper storage and handling. Technical specifications shown in this literature are intended to be used as general guidelines only and are subject to change without notice. For more information refer to the Storage and Handling Technical Bulletin at www.hunterpanels.com, or refer to PIMA Technical Bulletin No. 109: *Storage & Handling Recommendations for Polyiso Roof Insulation* at www.polyiso.org.

INSTALLATION
Single-Ply Systems

Ballasted Single-Ply Systems

Each H-Shield panel is loosely laid on the roof deck. Butt edges and stagger joints of adjacent panels. Install the roof covering according to the manufacturer's specifications.

Mechanically Attached Single-Ply Systems

Each H-Shield panel must be secured to the roof deck. Butt edges and stagger joints of adjacent panels. Install the roof covering according to the manufacturer's specifications.

Fully Adhered Single-Ply

Each H-Shield panel must be secured to the roof deck. Maximum 4'x4'(1220mm x 1220mm) panels of H-Shield may be adhered to a prepared concrete deck or subsequent layers of insulation with a full mopping of hot steep asphalt, insulation adhesive or cold applied mastic. Butt edges and stagger joints of adjacent panels. Install the roof covering according to the manufacturer's specifications.

Built Up, Coal Tar And Modified Bitumen Systems (APP, SBS)

Each H-Shield panel must be secured to the roof deck. Maximum 4'x4' (1220mm x 1220mm) panels of H-Shield may be adhered to a prepared concrete deck or subsequent layers of insulation with a full mopping of hot steep asphalt, insulation adhesive or cold applied mastic. Butt edges and stagger joints of adjacent panels. Install the roof covering according to the manufacturer's specifications.

NEXGEN CHEMISTRY | PIMA POLYISOCYANURATE INSULATION MANUFACTURERS ASSOCIATION

HUNTER

Energy Smart Polyiso

HUNTER PANELS H-SHIELD NB

Flat Polyisocyanurate Insulation Manufactured On-Line to Oriented Strand Board

H-Shield NB

Product Description

H-Shield NB is a rigid roof insulation composite panel composed of a closed cell polyisocyanurate foam core manufactured on-line to a fiber reinforced facer on one side and either 7⁄16" or 5⁄8" oriented strand board (OSB) on the other. H-Shield NB can also be manufactured off-line bonded to 5⁄8" or 3⁄4" plywood.

Features and Benefits

- Manufactured with NexGen Chemistry: Contains no CFCs, HFCs, HCFCs, is Zero ODP, EPA Compliant, and has virtually no GWP
- A superior combination of high insulating properties and a nailable surface
- Suitable for new construction and re-roofing on both commercial and residential projects
- Incorporates APA-TECO Rated Exposure 1 OSB and Plywood
- The edges of the wood panels are rabbeted to allow for expansion and contraction of the wood. The foam edges shall be installed tightly to achieve thermal integrity across the entire roof deck
- Available as a non-rabbeted panel upon special request
- Hail Rating: SH-1, VSH

Panel Characteristics

- Available in two grades of compressive strengths per ASTM C1289 Type V, Class 1 Grade 2 (20 psi) or Grade 3 (25 psi)
- Also available in ASTM C1289 Type V, Class 2 (H-Shield CG), Grade 2 (20 psi) or Grade 3 (25 psi)
- Available foam size is 47.5"x95.5" when manufactured on line in thicknesses of 1.5" (38mm) to 4.0" (102mm)
- Available in foam size is 48"x96" when manufactured off-line in thicknesses of 1.5" (38mm) to 4.0" (102mm)
- Multiple Substrate Types Available:

OSB:
- 7⁄16" or 5⁄8"

Plywood:
- 5⁄8" or 3⁄4" CDX
- Fire-Treated

APPLICATIONS

- Heavyweight Shingles
- Standing Seam Metal Roof Systems
- Tile
- Slate
- Single-Ply Roof Systems - Ballasted, Mechanically Attached, Fully Adhered. (For high wind speed warranty – see individual Single-Ply manufacturer approvals and listings)

H-SHIELD NB THERMAL VALUES

THICKNESS† (INCHES)	THICKNESS† (MM)	LTTR R-VALUE*	FLUTE SPANABILITY
1.5	38	6.3	4 3/8"
2.0	51	9.2	4 3/8"
2.5	64	12.0	4 3/8"
3.0	76	15.0	4 3/8"
3.5	89	18.0	4 3/8"
4.0	102	21.1	4 3/8"

*Long Term Thermal Resistance Values are based on ASTM C 1289.
†Thickness is calculated with 7/16" OSB.

H-Shield NB is only manufactured in the sizes listed above and on our packaging and weight chart. R-values other than those listed can be achieved by installing a multi layer system consisting of an additional layer of flat polyiso under H-Shield NB.

Codes and Compliances

- ASTM C 1289 Type V, Grade 2 (20 psi) or Grade 3 (25 psi)
- International Building Code (IBC) Chapter 26
- State of Florida Product Approval Number FL 5968
- California Code of Regulations, Title 24, Insulation Quality Standard License #TI-1420
- Miami Dade County Product Control Approved

Underwriters Laboratories Inc Classifications

- UL 1256
- Insulated Steel Deck Construction Assemblies – No. 120, 123
- UL 790
- UL 263 Hourly Rated P Series Roof Assemblies

UL Classified for use in Canada

- Refer to UL Directory of Products Certified for Canada for details

Factory Mutual Approvals

- FM 4450, FM 4470
- Approved for Class 1 insulated steel deck constructions. Refer to FM Approval's RoofNav for details on specific systems

Potential LEED Credits for Polyiso Use

Energy and Atmosphere

- Optimize Energy Performance

Materials & Resources

- Building Life-Cycle Impact Reduction
- Environment Product Declaration
- Material Reuse
- Recycled Content
- Construction and Demolition Waste Management

Indoor Environmental Quality

- Thermal Comfort

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INSTALLATION

Shingles, Tiles, Slate, Metal and Membrane Roofing

H-Shield NB is installed, wood side up over steel, plywood or structural roof decks. Hunter SIP NB Panel Fasteners are required to secure the H-Shield NB to the steel or plywood deck. Wood blocking, if necessary, should be equal in thickness to the H-Shield NB and should be installed along the eaves and rake edges of the roof. The roofing system is then installed according to the manufacturer's recommendations.

H-Shield NB may be adhered to a ½" per ft. max slope properly prepared cementitious deck (with a full mopping of Type III or Type IV asphalt or a low rise adhesive) only when manufactured online. ***All H-Shield NB manufactured off-line must be mechanically attached.***

The Use of Synthetic Underlayments

The use of synthetic underlayments is becoming an industry norm (for steep slope applications). Hunter Panels strongly suggests the use of a synthetic underlayment under asphalt shingles unless otherwise specified by the shingle manufacturer. Synthetic underlayments provide excellent water resistance and absorb no moisture.

Vapor Retarders

In building construction, vapor retarders are used to inhibit or block the passage of moisture into roofing assemblies. Vapor barriers also serve as air barriers to limit the movement of moisture-laden air from the interior to the exterior. This is especially important during the construction phase where excessive moisture drive is present. To determine whether a vapor retarder is necessary, we recommend that calculations on the building's interior relative humidity, interior temperature conditions and outside temperature fluctuations during the various seasons be performed prior to the completion of the design. Excessive moisture migration can cause unwanted condensation that will potentially damage the system or infiltrate the occupied space. Hunter Panels strongly suggests the use of a vapor retarder with a perm value of 0.5 or less on all projects except in extreme cooling conditions. Consult a licensed design professional, architect or engineer to establish whether or not a vapor retarder is necessary and to specify its type and location within the assembly. This criteria varies with geographical location and is therefore specific to each project.

Fastening Guidelines

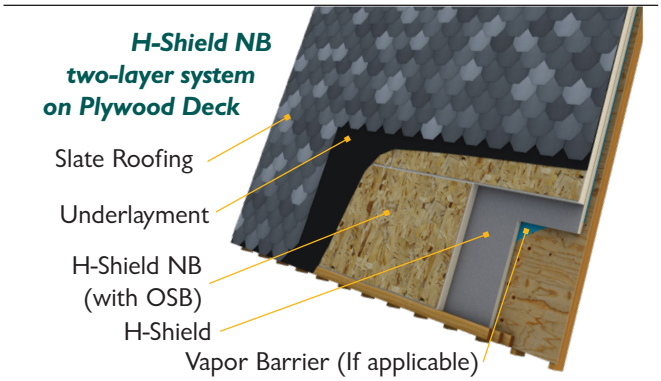
Hunter Panels requires the use of the Hunter Panels SIP SD Panel Fastener for steel deck applications, the SIP WD for plywood deck applications, and SIP HD for heavy duty steel decks. Additional information on fasteners and fastening patterns are available on our website at www.hunterpanels.com.

Refer to ***H-Shield NB Installation Guide*** for application specific installation instruction & fastener information. Access a digital copy at www.hunterpanels.com or scan this QR code

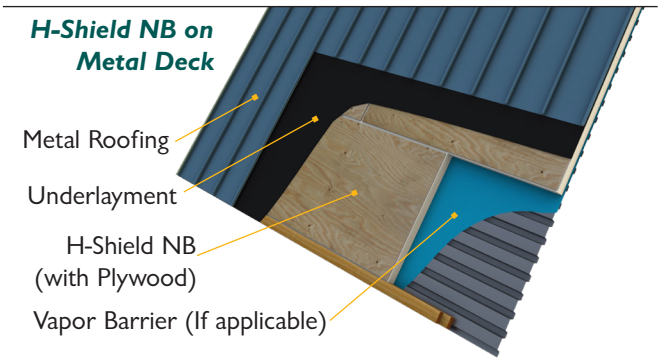
WARNINGS AND LIMITATIONS

Insulation must be protected from open flame and kept dry at all times. Install only as much insulation as can be covered the same day by completed roof covering material. Hunter Panels will not be responsible for specific building and roof design by others, for deficiencies in construction or workmanship, for dangerous conditions on the job site or for improper storage and handling. Technical specifications shown in this literature are intended to be used as general guidelines only and are subject to change without notice. For more information refer to the Storage and Handling Technical Bulletin at www.hunterpanels.com, or refer to PIMA Technical Bulletin No. 109: *Storage & Handling Recommendations for Polyiso Roof Insulation* at www.polyiso.org.

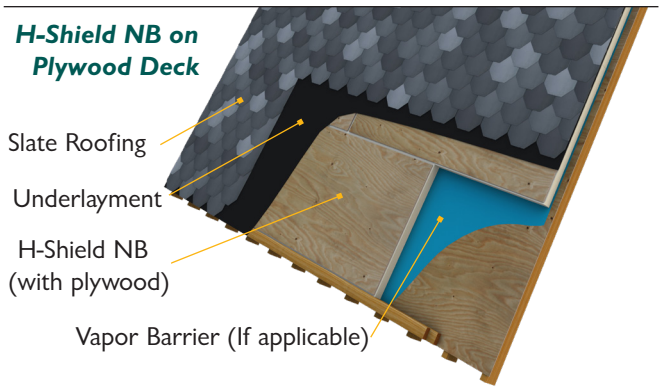
H-Shield NB two-layer system on Plywood Deck



H-Shield NB on Metal Deck



H-Shield NB on Plywood Deck



H-SHIELD NB TYPICAL PHYSICAL PROPERTY DATA CHART
POLYISO FOAM CORE ONLY

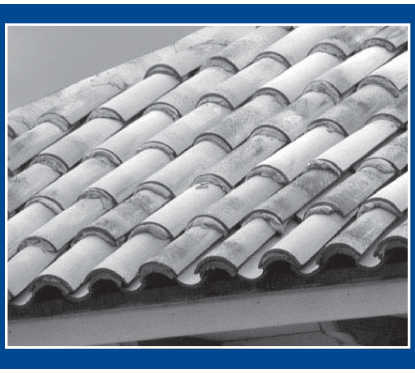
PROPERTY	TEST METHOD	VALUE
Compressive Strength	ASTM D 1621	20 psi* (138kPa, Grade 2)
Dimensional Stability	ASTM D 2126	2% linear change (7 days)
Moisture Vapor Transmission	ASTM E 96	< 1 perm (57.5ng/(Pa•s•m²))
Water Absorption	ASTM C 209	< 1% volume
Flame Spread**	ASTM E 84	< 75
Smoke Developed**	ASTM E 84	< 450
Service Temperature	–	-100° to 250° F (-73°C to 122°C)

*Also available in 25 psi, Grade 3

**Meets the requirements of the IBC code. For specific Flame Spread or Smoke Developed Ratings please contact the Hunter Panels Technical Department

LeakBarrier® PS 200HT Ice and Water Armor

LeakBarrier PS 200HT Ice and Water Armor is a self-adhering underlayment composed of a high tack SBS modified asphalt reinforced with a glass fiber mat and protected by a split-back release film for easy installation. New Cool Diamond Sure Grip Surface allows for maximum walkability and cooler work surface, and is specifically designed for the demands of metal and tile roofing.



LeakBarrier PS 200HT Ice and Water Armor has a skid resistant smooth poly film surface and is specifically formulated to provide High Temperature Stability up to 260°F. It is ideal for use below metal, tile, slate and asphalt shingle applications.

Usage

LeakBarrier PS 200HT Ice and Water Armor helps to protect a building's deck or internal structure against leaks caused by ice and water damming and wind-driven rain. It is highly effective in critical roofing areas such as valleys, ridges, coping joints, chimneys, vents, dormers, skylights and low-slope sections.

Features and Benefits

- New White "Cool Diamond Sure-Grip Surface" allows for better walkability and cooler surface temperatures.
- Specifically designed for the demands of metal and tile roofing systems, with high temperature stability of 260 degrees and "Cool Diamond Sure-Grip Surface" for maximum walkability. Non skid surface also helps prevent tile from sliding off the roof.
- Split-back release film peels off for easy installation and handling
- 90 day exposure limitation allows for long term dry in.
- Adheres directly to concrete, plywood, wood composition board and gypsum sheathing decks
- Self-sealing around nails preventing moisture penetration
- Product available for multi climates with superior adhesion to plywood.
- "Cool Diamond Sure-Grip Surface" provides improved footing
- Functions as a vapor barrier for commercial roofing applications
- Meets ASTM D-1970
- ICC-ESESR-1329
- FL 2783
- UL Prepared Roofing Accessory

Storage

LeakBarrier PS 200^{HT} requires protection from damage and the weather. Constantly store membranes upright, in a dry location and never install when wet.

Application

- Warm weather conditions are ideal for good adhesion. Application should be made when ambient temperatures are 40°F (5°C) or higher.
- Deck must be clean, dry and free of voids.
- For re-roofing applications, all old roofing and other loose materials must be removed. Do not install directly on old roof coverings.
- Prime concrete/masonry and fiberglass faced gypsum surfaces.
- Cut PS 200^{HT} into manageable lengths before installation.
- Peel back one to two feet of the release film and stick the membrane directly over the roof deck, aligning it with the gutter edge and extending coverage at least three feet inside the exterior wall or the highest point of damming.
- Side laps must be a minimum of three inches and end laps a minimum of six inches.
- When covering the entire roof deck with PS 200^{HT}, the roof system must include proper ventilation, including both ridge and soffit venting.
- All installed Ice and Water Armor must be covered and not left exposed for more than 30 days.

Properties

Property	Typical Values	Reference Test
Approx. Thickness	40 mils	ASTM D-1970
Tensile Strength (lbf/in.)	MD=32-38,CD=26-30	ASTM D-1970
Adhesion to Plywood @ 75°F	30 lbf/ft. of width	ASTM D-1970
Adhesion to Plywood @ 40°F	18 lbf/ft. of width	ASTM D-1970
Slip Resistance	Pass	ASTM D-1970
Low Temp. Flexibility °F	-20 Pass	ASTM D-1970
Water Vapor Permeability	0.1 U.S. Perms or less	ASTM D-1970
Compound Stability	260°F	ASTM D-5147

Product Data

Roll Width	36 Inches	**Roll Length**	66.8 Ft.
Coverage per Roll	200 Sq. Ft.	**Approx. Roll Wt.**	42 Lbs.
Boxes per pallet	25		

Warranty

PS 200^{HT} Ice and Water Armor is warranted to be free from manufacturer's defects.

Note:

All statements information and data given herein are believed to be accurate and reliable, but are presented without guaranty, warranty or responsibility of any kind, expressed or implied, except as may be indicated otherwise in this literature. Statements or suggestions concerning possible use of our products are made without representation

Tarco

One Information Way, Suite 225
Little Rock, AR 72202
Voice: 501-945-4506 • 800-365-4506
Fax: 501-945-7718 • www.tarcoroofing.com

Dewberry

Submittal Review Form

Date:	July 20, 2021	**Project:**	Town of Vienna Police Station
Project No:	50108541	**Spec. Section:**	074113 – Standing Seam Metal Roof Panels
Spec. Par. No:	Product Data	**Submittal No:**	074113-1.0 (#210)

☐	**APPROVED**	REVIEW IS FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH INFORMATION GIVEN AND DESIGN CONCEPT EXPRESSED IN THE CONTRACT DOCUMENTS. REVIEW IS NOT CONDUCTED FOR THE PURPOSE OF DETERMINING ACCURACY AND COMPLETENESS OF OTHER DETAILS, DIMENSIONS, QUANTITIES, OR SUBSTANTIATING INSTRUCTIONS FOR INSTALLATION OR PERFORMANCE OF EQUIPMENT OR SYSTEMS, ALL OF WHICH REMAIN THE SOLE RESPONSIBILITY OF THE CONTRACTOR. MARKINGS, CORRECTIONS OR COMMENTS MADE ON THE SUBMITTAL DURING THIS REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH CONTRACT DOCUMENTS. REVIEW SHALL NOT CONSTITUTE APPROVAL OF SAFETY PRECAUTIONS OR, OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES. APPROVAL OF A SPECIFIC ITEM SHALL NOT INDICATE APPROVAL OF AN ASSEMBLY OF WHICH THE ITEM IS A COMPONENT.
☐	**APPROVED AS NOTED**	
☐	**RETURN NO ACTION TAKEN**	
☐	**REJECTED**	
☒	**REVISE AND RESUBMIT**	

Comments:

1. O&M data is to be submitted with closeout documents only (017800 and 017823).
2. Standing Seam Metal Roof Panels - Specification section 074113-2.2.5 indicates panel coverage to be 14''. Submitted product does not provide a 14'' panel option. Panel profile to be 12'' per exterior building elevations.
3. Standing Seam Metal Roof Panels – Product data for Double-Lock DL20 and Span-Lock SL20 provided. Contractor to clarify which product is being submitted for review.
4. Standing Seam Metal Roof Panels – Striated profile provided in product data. Specification section 074113-2.2 indicates a flat pan between ribs. Contractor to submit sample for initial selection per 074113-1.4.D for review and approval of striated profile.
5. Contractor to submit Manufacturer's full range of color for initial selection per 074113-1.4.D.
6. Product data for Hunter Panels H-Shield and Hunter Panels H-Shield NB provided. Contractor to clarify application for installation.
7. Hunter Panels H-Shield NB – Substrate not indicate in product data. Substrate to be 5/8'' OSB per specification section 061600.
8. Roof Insulation to comply with specification section 075216-2.10. Hunter Panels H-Shield NB does not comply with Type, Grade, and Class per ASTM C1289. Contractor to note roof insulation has been approved in submittal #072100-3.0 (#159).
9. Underlayment to be self-adhering per 074113-2.3. U20 is not approved.
10. Contractor to refer to specification section 072713 for coordination and compatibility with self-adhering sheet air barriers.

Review By: Ellen Augst **Signature:** Ellen Augst

Standing-Seam Metal Roofing Package

Submittal #210
Status:**Submitted**
07/16/2021

Submittal

Response Needed By:	**07/30/2021**	Owner:	**Town Of Vienna, VA**
Use Master Format Specification Number:	☐		
Specification Number:	**07 41 13**	Sub-Contractor Org:	
Submit To:	**Dewberry**	Submitting Organization:	**Hoar Construction**
Sent By:	Owner-Insite	Project:	**Vienna Police Dept Facility**
Tracking #:		Submitted Date:	**07/16/2021**
Number of Sets:	**1**	Change Proposals:	Create Change Proposal
Initiator:	**Brad Catalone**	Categories:	
Requested By Contractor On:	07/16/2021	Received By Contractor On:	
Tracked in Warranty:	**No** *		

Submittal Notes:

Change Proposal Request

Will this Submittal have a cost impact?	○ Yes ◉ No	Will this Submittal have a time impact?	○ Yes ◉ No

Submittal Action

Response:

Action:

Comments

From: Ellen Augst | Architect | Dewberry — 7/16/2021 1:39:15 PM
COMMENT REQUESTED

From: Mark Kuczynski | Construction Administration Manager | Dewberry — 7/16/2021 1:39:15 PM
COMMENT REQUESTED

From: Kevin Fallin | Senior Project Manager | Downey & Scott — 7/16/2021 1:39:15 PM
COMMENT REQUESTED

From: Brannon Addison | Project Engineer | Downey & Scott — 7/16/2021 1:39:15 PM
COMMENT REQUESTED

From: Christine Kaldmaa | Construction Administration Assistant | Dewberry
Please add your comment

Approvers

Lawrence Tressler		Downey & Scott	

Submittal Attachments

Date	File Name	Uploaded By	Version	Folders	Categories		
07/16/2021	Standing-Seam Metal Roofing Package.pdf  (7955.71 KB)	Brad Catalone **Submittal - Standing-Seam Metal Roofing Package**	1			Download	

HoarConstruction

Vienna Police Station Project

Project Number #04484

Architect: Dewberry

Construction Manager: Downey & Scott

General Contractor: Hoar Construction

SUBMITTAL TRANSMITTAL

Date: **7/16/2021**

Prepared By:	**PrimeKey**
Subcontractor:	**PrimeKey**
Submittal #:	**07 41 13 -1.0**
Submittal Type:	**Standing-Seam Metal Roofing Package**
Specifications Section	**07 41 13**
Drawing #/Related Details:	**Architectural**
Full or Partial Submittal:	**Full**
Location:	**Architectural**

*Sent via Owner Insite *Physical samples to be delivered to Dewberry*

X	For approval	
	For your use	
	As requested	
	For review and comment	

Hoar Construction has reviewed the information and verified that this package is in accordance with the Contract Documents and acceptable for review by the Architect/Engineer. Corrections and comments made on shop drawings during review do not relieve the Vendor or Subcontractor from compliance with requirements of drawings and specifications. Subcontractor is responsible for all dimensions and shall field verify site conditions prior to fabrication.

Approver Response:

PrimeKey LLC
8829 Telegraph Rd
Lorton Virginia 22079
P (703) 397-4000
F (703) 397-4001

Transmittal Cover

Project Name: Town of Vienna Police Station

Owner: Town of Vienna

Architect: Dewberry

Contractor: Hoar Construction

Submittal Sections: 074113 Standing Seam Metal Roof Panels

TOC:

December 1, 2020

Installer Certification

Please be advised that:

PrimeKey, LLC

8828 Telegraph, Rd.
Lorton, VA, 22079

Has met the Quality and Experience requirements set forth and is hereby fully authorized as a *DMI Certified Installer* of our Standing Seam Metal Roof Systems and Wall Systems.

Furthermore, PrimeKey, LLC. is authorized to install DMI products to be covered under the terms of our manufacturer issued Water-Tight Warranties.

Bill McKee
Vice President
Dimensional Metals, Inc.

DynaClad® Metal Roofing System
XX Year Limited Warranty

Dimensional Metals, Inc. (hereinafter referred to as "DMI") warrants to the named building owner (hereinafter referred to as "owner") that subject to all term(s), condition(s), limitation(s), allocation(s) of warranty, and responsibility(ies) stated herein, the installers workmanship on the named building will be adequate to prevent leaks for xx years from the date of completion of the metal roof system installation. This includes all materials supplied by DMI including but not limited to insulation, felt underlayment, ice and water underlayment, vapor barrier and fasteners. The installer is solely responsible for any leaks arising during the first two years after completion of the installation and DMI is responsible for any leaks first arising after the second anniversary of successful completion of the installation of the subject roof but arising not later than xxth anniversary of such completion. This warranty will be fully satisfied by repair of the roof, and any such repairs shall carry a warranty against leaks only for any then remaining balance of the original xx year warranty period.

DMI's aggregate total cumulative liability under this warranty is limited to the dollar amount of the original materials furnished by DMI only and the installation of those materials only.

DMI MAKES NO OTHER WARRANTY EITHER EXPRESS OR IMPLIED. ALL IMPLIED WARRANTIES OF MECHANTABILITY OR FITNESS FOR ANY PURPOSE WHICH EXCEED OR DIFFER FROM THE WARRANTIES HEREIN EXPRESSED ARE DISCLAIMED AND EXCLUDED FROM THIS WARRANTY. DMI DOES NOT IN ANY WAY WARRANT THE MERCHANTABILITY OF THE GOODS SOLD HEREBY. NO WARRANTIES EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF INCLUDING TERMS, CONDITIONS, AND LIMITATIONS LISTED.

Roof Completion Date - _____

XXXXXXX
Building/Project Name

XXXXXXX
Building Address **City** **State**

XXXXXXX
Building Owners Name

XXXXXXX
Owners Address **City** **State**

1. Owner shall provide DMI with written notice within thirty (30) days of the discovery of any leaks in the roof. Failure of the owner to do so shall relieve both DMI of any and all responsibility and/or liability under this warranty.

2. DMI shall not have any liability or responsibility under or in connection with either this warranty or the roof, if any one or more of the following shall occur:
   a. Deterioration caused by marine atmosphere or regular spray of salt water.
   b. Corrosion caused by heavy fallout or exposure to any corrosive chemicals, ash or fumes from any type of manufacturing facility.
   c. Deterioration caused by any corrosive substance or any condensation of any harmful substance contained, generated or released inside the building.
   d. Damage caused by owner's agents, employees or any other third party not under the direct control and supervision of DMI and/or installer on the roof.
   e. Damage caused by natural disasters, including, but not limited to lightening, any strong gale, hurricane, tornado, or earthquake.
   f. Damage caused by any panels or other components installed in a manner that does not permit drainage of water from all surfaces or have a slope of less than ¼" per foot.
   g. Damage caused, after installation of the roof system by the installer, resulting from any alterations, such as, but not limited to, structures, fixtures, or utilities being placed upon or attached to the roof without prior written authorization from DMI.
   h. Corrosion to the underside of the roof system which is or was caused at any time in part or wholly by any condensation resulting from either or both of the following; the use of inadequate vapor barrier where insulation is installed immediately beneath the roof panels. (An adequate vapor barrier must have a perm rating of .05 or less with sealed joints and perimeter) or inadequate ventilation of the attic space between roof panel and insulation.
   i. If there is any failure by the owner or occupant or user to use reasonable care in maintaining the roof.
   j. If the owner fails to comply with every term and/or condition stated in this Limited Warranty.
   k. Any other cause beyond DMI's control, including but not limited to acts of war, terrorism or civil disobedience.

3. DMI shall not have any liability or responsibility under or in connection with either this Limited Warranty or the roof in the event of a failure by any contractor or subcontractor to use approved installation methods and details indicated in approved shop drawing details furnished by DMI, [or to substitute therefore only products approved in writing in advance by DMI as equal (if provided by the contractor or subcontractor)].

4. DMI shall not have any obligation under this Limited Warranty until final shop drawings of the projects roof are submitted by DMI to the installer and accepted in writing by the installer, architect, general contractor and DMI. Shop drawings must show the exact number, size and location of all roof penetrations and roof top equipment.

5. DMI shall not have any obligation under this Limited Warranty until all invoices for installation, supplies, materials, and services have been paid in full to both DMI and installer.

6. DMI shall not be responsible for any consequential damage or loss to the building, its contents or other materials.

7. In no event shall DMI have any liability for any commercial loss, claims for labor, or consequential damages of any other type, whether owner's claim be based in contract, tort, warranty, strict liability, or otherwise, it is expressly agreed that owners remedies expressed in this Limited Warranty are owners exclusive remedies.

8. DMI's failure at any time to enforce any of the terms and conditions stated herein shall not be construed to be a waiver of such provisions or of the right to exercise any right in the future.

9. During the term of this warranty, DMI, its sales representatives and employees, shall have free access to the roof during regular business hours.

This Limited Warranty is tendered for the sole benefit of the original purchaser as named below and is not transferable or assignable. It becomes valid only when signed by DMI.

This Limited Warranty may not be changed orally.

THIS LIMITED WARRANTY SHALL BE GOVERNED BY AND CONSTRUED AND ENFORCED IN ACCORDANCE WITH THE LAWS OF THE STATE OF OHIO. JURISDICTION AND VENUE FOR ANY DISPUTE CONCERNING THE ROOF OR THIS LIMITED WARRANTY ARE FIXED IN FRANKLIN COUNTY, OHIO.

_____
Installing Contractor

_____
Signature Title Date

_____
Building Owner

_____
Signature Title Date

Dimensional Metals, Inc.
58 Klema Drive North - Reynoldsburg, OH 43068
(740) 927-3633

_____
Signature Title Date

GALVALUME SHEET
20 YEAR-6 MONTH
LIMITED WARRANTY

DIMENSIONAL METALS, INC.

EXCLUSIVE WARRANTY

Dimensional Metals, Inc, 58 Klema Drive North, Reynoldsburg, Oh 43068 ("seller") hereby provides the LIMITED WARRANTY to: _____("Buyer"). Dimensional Metals, Inc. Warrants that, subject to the following provisions, Seller's hot dipped aluminum-zinc alloy- coated Galvalume sheet steel sold for use as unpainted steel building, roofing and siding panels, if erected within the Continental United States, WILL NOT rupture, fail structurally, or perforate within a period of 20 years and 6 months after shipment from our facility due to exposure to normal atmospheric conditions.

EXCLUDED ATMOSPHERIC CONDITIONS

This limited warranty DOES NOT APPLY to sheets exposed at any time to corrosive or aggressive atmospheric conditions, including but not limited to:

1. Areas subject to salt-water marine atmospheres or to constant spraying of either salt or fresh water.
2. Areas subject to fallout or exposure to corrosive chemicals, fumes, ash, cement dust or animal waste.
3. Areas subject to water run-off from lead or copper flashings or areas in metallic contact with lead or copper.
4. Conditions/circumstances where corrosive fumes or condensates are generated or released inside the building,

OTHER EXCLUDED SITUATIONS

This warranty DOES NOT APPLY in the event of:

1. Bends less than 2T for sheet thickness 0.030" and thinner and less than 4T for sheet thickness 0.031" and thicker.
2. Slopes of the roof or sections of the roof flatter than 1/4:12.
3. Mechanical, chemical, or other damage sustained during shipment, storage, forming, fabrication, or during or after erection.
4. Forming which incorporates severe reverse bending or which subjects coating to alternate compression and tension.
5. Failure to provide free drainage of water, including internal condensation, from overlaps and all other surfaces of the sheets or panels.
6. Failure to remove debris from overlaps and all other surfaces of the sheets or panels.
7. Damage caused to the metallic coating by improper roll forming, scouring or cleaning procedures.
8. Deterioration of the panels caused by contact with green or wet lumber or wet storage stain caused by water damage or condensation.
9. Presence of damp insulation or other corrosive materials in contact with or close proximity to the panel.
10. This warranty does not apply in the event of deterioration to the panels caused directly or indirectly by panel contact with fasteners. Selection of suitable long-lasting fasteners to be used with Galvalume roofing and siding panels rests solely with the Buyer.

EXCLUSIVE REMEDIES

Buyer's exclusive remedy and Seller's sole liability for breach of this limited warranty shall be limited exclusively to the cost of either repairing nonconforming panels, or at Seller's sole option, of furnishing FOB buyer's plant sufficient sheet product to enable Buyer to fabricate replacement panels for the nonconforming panels.

LIMITATION OF DAMAGES

THE LIABILITY OF THE SELL SHALL NOT EXTEND TO PERSONAL INJURY, PROPERTY DAMAGE, LOSS OF PROFIT, DELAY OR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE FAILURE OF ANY SHEET TO CONFORM WITH THE PROVISIONS OF THIS LIMITED WARRANTY.

OTHER WARRANTIES, INCLUDING MERCHANTABILITY

THERE ARE NO WARRANTIES, PROMISES OR AFFIRMATIONS OF FACT, INCLUDING WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE OTHER THAN THOSE EXPRESSLY SET FORT HEREIN. THE CONDITIONS OF LIABILITY, RIGHTS, OBLIDATIONS AND REMEDIES OF THE PARTIES RELATING TO CLAIMS ARISING FROM ANY NONCONFORMING SHEET SHALL BE GOVERNED EXCLUSIVELY BY THE TERMS SET FORTH HEREIN.

INSPECTIONS AND NOTICE OF CLAIM

Buyer shall exercise diligence in inspection of material as received from Seller prior to utilization so as to mitigate expense involved in repairing, repainting, or replacing nonconforming sheets. Claims for any breach of warranty must be made within the period of this limited warranty and within 30 days after Buyer discovered the nonconforming sheet, and Buyer must give Seller a reasonable opportunity to inspect the material.

DUTIES OF BUYER IN PRESENTING CLAIMS

As a condition precedent to Seller's liability hereunder, Buyer must present with his claim such records so to enable Seller and the date of installation in the form of building panels for the claimed nonconforming sheet. Buyer shall also present such evidence that establishes any claimed nonconformance was due to a breach of the limited warranty stated herein.

TRANSFERS REPRESENTATIONS AND ASSIGNMENTS

UNLESS EXPRESSLY AGREED IN WRITING BY AND BETWEEN BUYER AND SELLER, THIS LIMITED WARRANTY IS EXTENDED TO BUYER AS THE ORIGINAL PURCHASER FROM SELLER AND IS NON-TRANSFERABLE AND BY ANY PURPORTED TRANSFER OR ASSIGNMENT, NOR SHALL ANY RIGHT AGAINST SELLER SURVIVE ANY TRANSFER OR ASSIGNMENT. BUYER OR ITS AGENTS OR REPRESENTATIVES SHALL NOT CLAIM, REPRESENT OR IMPLY NOR PERMIT ITS CUSTOMERS, DISTTRIBUTORS, APPLICATORS, OR CONTRACTORS TO CLAIM, REPRESENT OR IMPLY THAT THIS LIMITED WARRANTY EXTENDS OR IS AVAILABLE TO PARTIES OTHER SHAL CAUSE ANY PARTY TO CEASE AND DESIST IN ANY SUCH MISREPRESENTATIONS. THIS CONDITION SHALL CONSTITUTE A MATERIAL TERM OF THIS LIMITED WARRANTY AND ITS VIOLATION BY BUYER SHALL EXCUSE SELLER FROM ITS OBLIGATIONS HEREUNDER.

WAIVER OR MODIFICATIONS OF SELLER'S RIGHTS

No terms or conditions, other than those stated herein, and no agreement or understanding, oral or written, and no course of conduct or performance, in any way purporting to modify this limited warranty or to waive Seller's rights hereunder, shall be binding on Seller unless the same be clearly set forth in a writing that expressly refers to this limited warranty and expressly refers to having such effect upon this limited warranty is signed by the authorized representative of Seller.

TERMINATION

Seller reserves the right to terminate this limited warranty, except with respect to orders, which it has already accepted, upon the giving of written notice thereof.

GOVERNING LAW

The substantive law of the State of Ohio shall of exclusively govern the rights and duties of the parties under this agreement.

ENTIRE AGREEMENT

The provisions set forth herein are in lieu of and expressly supersede any other provisions irrespective of where contained. All proposals, negotiations and representations, if any, made prior to or with reference hereto are merged herein.

Signature Title Date

Dimensional Metals, Inc.

LITHO. IN U.S.A.

DYNACLAD® KYNAR 500® COATING
20 Year Limited Warranty

Dimensional Metals, Inc. (DMI) warrants for a period of twenty (20) years after Customer's shipment of painted products that Dimensional Metal's standard color, Medium Gloss DynaClad coil coatings (Coatings) when applied on Galvalume, HDG-90 steel and aluminum substrate will not:

A. Change color more than5) E Units, chalk more than a #8 ASTM D-4214-98 rating.
B. Peel, crack, check, chip or erode to the base metal when exposed at 0 degrees to 86 degrees from vertical.
C. Color change determination shall be made on a washed section of the exposed panel in accordance with ASTM D-2244-79.

TERMS AND CONDITIONS

1. It is acknowledged that fading or color change may not be uniform if the surfaces are not equally exposed to the sun and elements. DMI recommends that there be a systematic fresh water rinse maintenance program in effect in areas of high salt concentration (such as adjacent to the seashore and/or industrial atmospheres) so as to prevent the accumulation of concentrated mineral deposits.

2. This Limited Warranty covers DMI Coatings exposed to normal atmospheric conditions and specifically excludes corrosive or aggressive atmospheres including direct salt spray. This Limited Warranty shall not apply where coating failure is the result of physical damage resulting from fabrication or embossing operations, corrosion due to cut edge exposure, salt spray, acts of God, vandalism, any negligent acts of the Customer including, but not limited to, improper packaging, storage, shipping, or, installation which prohibit proper drainage of standing water or other such occurrences beyond DMI's control.

3. DMI's liability shall not exceed the Customer's liability and the Customer's exclusive remedy for any breach of this Limited Warranty or failure of the Coatings is strictly limited to the direct cost of refinishing or replacing the failed coated metal. Refinishing of the failed coated metal shall be performed by using standard finishing practices and materials. DMI will, in all instances, be the sole judge as to whether refinishing or replacement of the failed areas is required to fulfill its obligation under this Limited Warranty and reserves the right to approve and negotiate the contract.

4. This Limited Warranty shall not be extended by the refinishing or replacement of the coated material, but the remaining warranty period shall continue in effect and be applicable to the refinished or replaced areas under the terms and conditions of the Limited Warranty.

5. Claims under this Limited Warranty must be presented in writing during the warranty period and within sixty (60) days after Customer becomes aware that any warranted condition has occurred. Time is of the essence and failure to give notice within the specified time shall discharge DMI from any obligations under this Limited Warranty. DMI must be given a reasonable opportunity to an on-site inspection to determine the cause and the corrective action to be taken if it is determined to be a Coating failure.

6. THIS LIMITED WARRANTY IS GIVEN AS THE EXCLUSIVE WARRANTY AND REMEDY, AND DMI DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. DMI SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. THE CUSTOMER'S EXCLUSIVE REMEDY SHALL BE THAT SET FORTH IN PARAGRAPH 3 FOR ANY CLAIM OF LIABILITY RELATING TO THE COATINGS UNDER NEGLIGENCE, STRICT LIABILITY, BREACH OF WARRANTY, OR ANY OTHER LEGAL THEORY.

7. This Limited Warranty is extended to Customer alone, is nontransferable and non-assignable, and may not be modified or enlarged in its scope by any representative, salesman, agent, or other employee of DMI. Customer shall not permit anyone to claim or imply that this Limited Warranty extends to anyone other than Customer. This condition is a material term of this Limited Warranty and its violation by Customer or its agents or representatives shall release DMI from its obligations hereunder.

8. This Limited Warranty shall be governed by and interpreted in accordance with the laws of the State of Ohio.

XXXXXXX
Project Name

XXXXXXX
Address

XXXXXXXX XX XXXXX
City **State** **Zip**

XXXXXXXX
Material Description

XXXXXXXX
Sold To

XXXXXXX
Address

XXXXXXXX XX XXXXX
City **State** **Zip**

XXXXXX XXXXXXX
Invoice/(Order Number) **Effective Date**

Dimensional Metals, Inc.
58 Klema Drive North - Reynoldsburg, OH 43068 - (740) 927-3633

Signature **Title** **Date**

Kynar 500® is a registered trademark of Atochem of North America.
Hylar 5000® is a registered trademark of Ausimont USA, Inc.
DYNACLAD® is a registered trademark of Dimensional Metals, Inc.

LITHO. IN U.S.A.

Chemical Solutions
Sodium hypochlorite solution (laundry bleach, Clorox®)
Hydrochloric acid (muriatic acid)
Oxalic acid
Acetic acid (vinegar)

Hydrochloric or muriatic acid, diluted with ten volumes of water, may assist in removing rust stains from fluoropolymer surfaces. Limit contact to five minutes. Caution: acid solutions are corrosive and toxic. Flush all surfaces with copious amounts of water after use.

Oxalic acid solutions or vinegar may be used for the same purpose. Flush with water.

GRAFFITI
Graffiti presents a special problem because of the many possible agents used (generally aerosol paint). It is best to try the less active solvents first (Solvent Group A, B, C), then the stronger solvents (Solvent Group D). If none of these are satisfactory, it may be necessary to resort to touchup, repaint, or replacement, depending on the extent of the damage.

TOUCH-UP REPAIR OF SCRATCHES
Edges of deep scratches should be lightly sanded or feathered with #400 grit sandpaper. Take care not to remove the galvanizing. Scratches and adjacent areas should be wiped with mineral spirits using a dampened lint-free cloth. Allow area to dry thoroughly before applying touch-up coatings. Mix touch-up paint thoroughly to ensure proper color and gloss match. Apply touch-up finish to damaged areas only. Use a good quality artist's brush to blend touch-up paint with factory finish surrounding scratched area. Drying time will depend on temperature, humidity, and should be checked after application.

Spray application for air-dry touch-up is not recommended for repair of scratches and minor damage.

WARRANTY
Misuse or abuse of any of the cleaning agents listed above will result in a voiding of warranty for the surface affected.

CLEANING AND MAINTENANCE OF DIMENSIONAL METALS, INC. *DYNACLAD®* FINISH

Dimensional Metals, Inc.'s DYNACLAD® 70% fluoropolymer systems are similar in molecular structure to Teflon®, a product most of us are familiar with through use in our households. Among the beneficial characteristics of our fluoropolymer coatings is that they are extremely inert. The molecules on the surface of the coating are so tightly bound together that they don't want to react with anything. Their slick surface helps make them resistant to many elements found in the environment such as air pollution, acid rain, and general air born dirt.

However, if the need to clean or remove deposits from your coating does arise, a variety of methods for removal of surface deposits are available. Two precautions: (1) do not use wire brushes, abrasives, or similar cleaning tools which will mechanically abrade the coatings surface, and (2) certain cleaning agents listed below should be tested in an inconspicuous area before use on a large scale.

CLEANING DYNACLAD® KYNAR 500® COATED SURFACES

Although DynaClad® factory-applied finishes are extremely durable; a periodic cleaning to remove build-ups of resins and other residue is a good idea to extend coating life.

Simple washing with plain water using hoses or pressure spray equipment is usually adequate. When heavy deposits of dirt or other contaminants dull surfaces, a heavy-duty dry powdered laundry detergent (such as Tide®) may be used. - Mix 1/3 cup detergent with one gallon of water. A long-handled soft bristle brush will make cleaning easier. Follow cleaning operation with a clear water rinse.

In areas subject to high humidity levels, mildew can occur. Most fluorocarbon finishes like DynaClad® are inherently mildew-resistant, but dirt and spore deposits can permit mildew growth to occur. The following solution is recommended to remove mildew when necessary:

1/3 cup dry powdered laundry detergent (such as Tide®)
1 quart of sodium hypochlorite 5% solution (such as Clorox®)
1 gallon of water

HOT OR COLD DETERGENT SOLUTIONS

A 5% solution in water of commonly used commercial and industrial detergents will not have any deleterious effect on a fluoropolymer surface. These solutions should be followed by an adequate rinse of water. Use cloth or soft bristle brush for application.

SOLVENTS

Most organic solvents are flammable and/or toxic, and must be handled accordingly. Keep away from open flames, sparks and electrical motors. Use adequate ventilation, protective clothing, and goggles.

Solvent that may be used to remove non-water soluble deposits (tar, grease, oil, paint, graffiti, etc.) from fluoropolymer surfaces include:

A. Alcohols
- Denatured alcohol (ethanol)
- Isopropyl (rubbing alcohol)
- Methanol (wood alcohol)

Note: Methanol is toxic. The above alcohols have no permanent effect on fluoropolymer surfaces.

B. Petroleum Solvents and Turpentine
- VM&P naphtha
- Mineral spirits
- Kerosene
- Turpentine (wood or gum spirits)

Note: The above alcohols have no permanent effect on fluoropolymer surfaces.

C. Aromatic and Chlorinated
- Xylol (Xylene)
- Toluol (Toluene)
- Perchlorethylene (Perclene)
- Tricholorethylene (Triclene)

Note: Perchlorethylene and Trichlorethylene are toxic. The above solvents should be used with caution on fluoropolymer surface. Limit contact of the fluoropolymer surface with solvent to five minutes maximum and test before using.

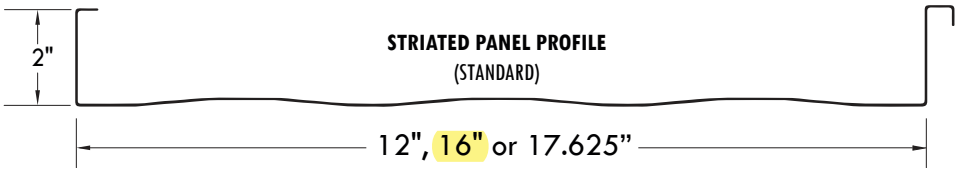
D. Ketones, Esters, Lacquer Thinner, Paint Remover
- Methyl ethyl ketone (MEK)
- Methyl isobutyl ketone (MIBK)
- Ethyl acetate (nail polish remover)
- Butyl acetate
- Lacquer thinner
- Paint remover (non-flammable)
- Acetone (do not use acetone on fluoropolymer surfaces)

Note: The above solvents should be used cautiously on a fluoropolymer surface. Limit contact of fluoropolymer surface and test before using. Note: There are many formulations of paint remover on the market. It is possible that some may remove the fluoropolymer surface. Proceed very cautiously in use of paint remover. Metal supplier and coating manufacturer are not responsible for damage from unrestricted use.

DMI
DIMENSIONAL METALS, INC.

STRUCTURAL PANEL

DOUBLE-LOCK DL20



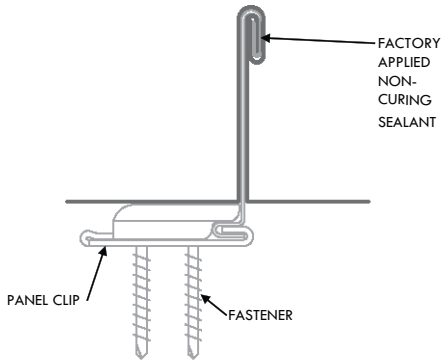
DOUBLE-LOCK DL20 is a structural panel that is mechanically seamed during installation. The panel is an integral interlocking system by design that installs in one direction from a given starting point. A double male starter panel is available (for a minimal set-up fee) and may be installed in the middle of a roof area to achieve a symmetrical layout. DOUBLE-LOCK utilizes the traditional SMACNA standing seam “double-lock” plate.

Uses & Applications

Product uses include low to high slope roofing, vertical fascia, equipment screens, mansards, and wall panels. This system may also be installed on tapered and curved roof areas.

Advantages

·Factory Applied Non-Curing Sealant - for superior watertightness
·SMACNA Seam Design: A traditional and historical aesthetic appearance
·Mechanically seamed - may be installed on low slope applications down to 1/2:12 slope
·Expansion Clips - allows for thermal expansion and contraction
·Continuous Roll Formed Lengths - eliminates need for panel lap joints (4’ min. panel length)
·Total System Warranties available - for total confidence

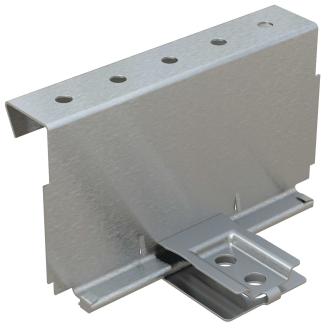


Seam Cross Section

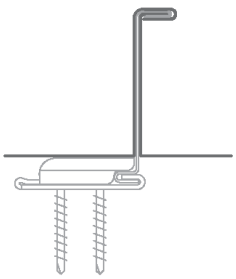
Performance Tested

·UL-580 Wind Uplift
·ASTM E1592 Uniform Static Air Pressure
·ASTM E1646 Water Penetration
·ASTM E1680 Air Leakage

Please consult DMI for applicability of test reports for your project.



Low Floating Expansion Clip

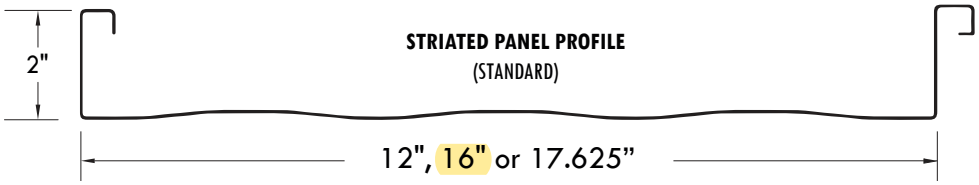


Optional Panel Profile Single Lock

800.828.1510 ▪ www.dmimetals.com ▪ sales@dmimetals.com

STRUCTURAL PANEL

SPAN-LOCK SL20



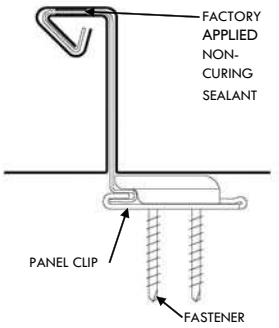
SPAN-LOCK SL20 is a structural panel that is mechanically seamed during installation. The panel is an integral interlocking system by design which installs in one direction from a given starting point. The Span-Lock is a very flexible panel that works well with a wide range of building designs.

Uses & Applications

Product uses include low to high slope roofing, vertical fascia, equipment screens, mansards, and wall panels. This system may also be installed on tapered roof areas.

Advantages

·Factory Applied Non-Curing Sealant - for superior watertightness
·Mechanically seamed - may be installed on low slope applications down to 1/2:12 slope
·No Hand Seaming Required - built-in locking leg keeps the roof panel in place until ready to mechanically seam
·Multi-directional Mechanical Seaming - panel seaming simplified
·Expansion Clips - allows for thermal expansion and contraction
·Continuous Roll Formed Lengths - eliminates need for panel lap joints (4’ min. panel length)
·Total System Warranties available - for total confidence

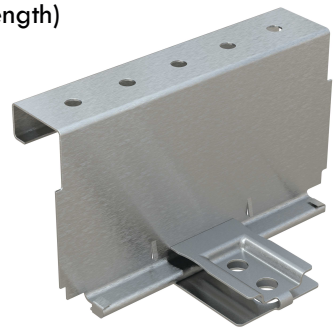


Seam Cross Section

Performance Tested

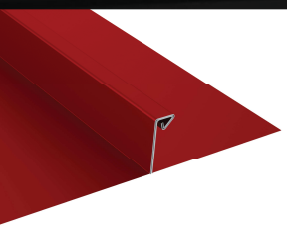
·UL-580 Wind Uplift
·UL-2218 Impact Resistance
·ASTM E1592 Uniform Static Air Pressure
·ASTM E1646 Water Penetration
·ASTM E1680 Air Leakage
·ASTM E2140 Static Water Penetration

Please consult DMI for applicability of test reports for your project.



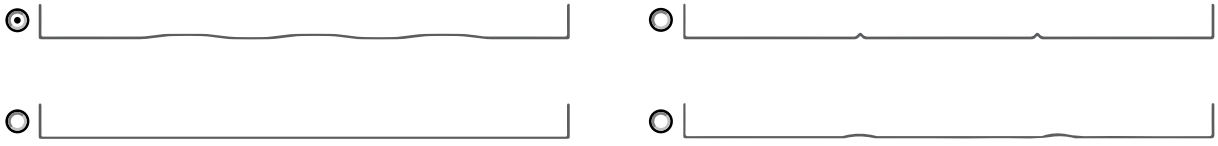
Low Floating Expansion Clip

SPAN-LOCK SL20



Project Name: _____
Architect: _____
Installing Contractor: _____
General Contractor: _____
Specification Section: _____

Stiffener Profile



DynaClad®
PVDF Color Chart

			WHITE SRI = 85	COBALT BLUE SRI = 20	
PUTTY SRI = 77	SANDSTONE SRI = 77	DOVE GREY SRI = 61	PATINA COPPER SRI = 58	BRITE RED* SRI = 44	
BEIGE SRI = 53	STONE SRI = 49	SLATE GREY SRI = 47	TERRA COTTA SRI = 43	METALLIC SILVER SRI = 53	
MUSKET GREY SRI = 35	SEAPORT SRI = 35	COLONIAL RED SRI = 34	SLATE BLUE SRI = 34	CHAMPAGNE SRI = 51	
BURGUNDY SRI = 34	HEMLOCK GREEN SRI = 31	LEAF GREEN SRI = 31	CHARCOAL GREY SRI = 31	METALLIC COPPER SRI = 49	
SPARTAN BRONZE SRI = 30	CLASSIC BRONZE SRI = 29	MATTE BLACK SRI = 29	EVERGREEN SRI = 28	AGED COPPER SRI = 43	
DARK BRONZE SRI = 27	ROYAL BLUE SRI = 27	HARTFORD GREEN SRI = 26	BROWN SRI = 25	WEATHERED ZINC SRI = 37	

Metallic Colors † — Premium Colors **

Custom Colors Available

Colors shown are samples and may vary slightly from actual material.
Please consult DMI Color Chart for stocking color availability.
†Metallic colors are directionally sensitive and therefore entire roof areas should be ordered at once time to ensure uniformity.
*Brite Red has a clear coat. **Premium colors carry an upcharge.

Panel Width
- ○ 12"
- ◉ 16"
- ○ 18" (17.625")

Clip
- ◉ Low Floating
- ○ Fixed
- ○ Long Fixed (Custom Application)

Substrate
- ○ 24 ga. Galvalume®
- ○ 22 ga. Galvalume®
- ○ .032 Aluminum
- ◉ .040 Aluminum
- ○ 16 oz. Copper
- ○ 20 oz. Copper

Embossed: No

Consult DMI for minimum quantities, upcharges, set up fees and extended lead times

Standard Finishes (N/A on Mill Finishes)
- ○ DynaClad® PVDF: _____
- ○ Acrylic Coated Galvalume (Acrylume®)
- ○ Clear Anodized Aluminum

Premium Finishes*
- ○ DynaClad® Metallic PVDF: _____
- ○ DynaClad® Brite Red PVDF
- ○ DynaClad® Cobalt Blue PVDF
- ○ DynaClad® Standard Color PVDF w/ Clearcoat: _____
- ○ DynaClad® Premium Color PVDF w/ Clearcoat: _____
- ○ Custom Color: _____

*Premium Colors subject to minimum quantities, extended lead times and upcharges. Consult DMI for details.

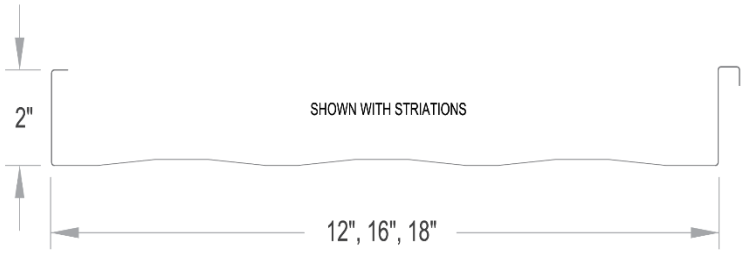
Warranty
Finish
- ○ DynaClad® Paint Finish
- ◉ Galvalume® 20 Year - 6 Month (Substrate)
- ○ Aluminum Sheet 2 Year (Substrate)

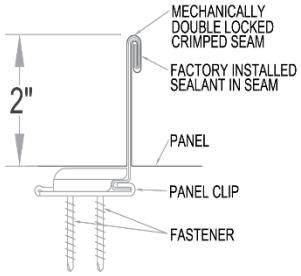
Watertight
- ◉ DynaClad® Metal Roofing System: 20 Year
- ○ DynaClad® Metal Roofing System NDL: _____

Since 1988 Dimensional Metals, Inc. (DMI) has specialized in the manufacturing of architectural metal roof and wall panel systems as well as fabricated architectural sheet metal for the construction industry. We are backed by decades of proven metal envelope design, dependable Technical Field Services, and an Engineering Department delivering sustainable solutions. You are sure to find the product that will best enhance your design.

800.828.1510 ▪ www.dmimetals.com ▪ sales@dmimetals.com

DOUBLE-LOCK
DL20 STEEL





180 Deflection

SECTION PROPERTIES							ALLOWABLE UNIFORM LOADS, psf (single span)						
Ga.	Width in.	Yield ksi	Weight psf	Top in Compression			Inward Load						
				I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'
24	12	50	1.47	0.1816	0.1525	0.0774	247.7	172.0	126.4	96.8	76.4	61.9	51.2
22	12	50	1.88	0.2249	0.1890	0.1007	322.2	223.8	164.4	125.9	99.5	80.6	66.6
24	16	50	1.36	0.1450	0.1206	0.0583	186.6	129.6	95.2	72.9	57.6	46.6	38.6
22	16	50	1.71	0.1800	0.1500	0.0760	243.2	168.9	124.1	95.0	75.1	60.8	50.3
24	17.625	50	1.28	0.2940	0.2240	0.0517	165.4	114.9	84.4	64.6	51.1	41.4	34.2
22	17.625	50	1.61	0.1630	0.1360	0.0674	215.7	149.8	110.0	94.3	66.6	53.9	44.6

SECTION PROPERTIES							ALLOWABLE UNIFORM LOADS, psf (two equal spans)						
Ga.	Width in.	Yield ksi	Weight psf	Top in Compression			Inward Load						
				I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'
24	12	50	1.47	0.1816	0.1525	0.0774	247.7	172.0	126.4	96.8	76.4	61.9	51.2
22	12	50	1.88	0.2249	0.1890	0.1007	322.2	223.8	164.4	125.9	99.5	80.6	66.6
24	16	50	1.36	0.1450	0.1206	0.0583	186.6	129.6	95.2	72.9	57.6	46.6	38.6
22	16	50	1.71	0.1800	0.1500	0.0760	243.2	168.9	124.1	95.0	75.1	60.8	50.3
24	17.625	50	1.28	0.2940	0.2240	0.0517	165.4	114.9	84.4	64.6	51.1	41.4	34.2
22	17.625	50	1.61	0.1630	0.1360	0.0674	215.7	149.8	110.0	94.3	66.6	53.9	44.6

SECTION PROPERTIES							ALLOWABLE UNIFORM LOADS, psf (three equal spans)						
Ga.	Width in.	Yield ksi	Weight psf	Top in Compression			Inward Load						
				I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'
24	12	50	1.47	0.1816	0.1525	0.0774	309.6	215.0	158.0	120.9	95.6	77.4	64.0
22	12	50	1.88	0.2249	0.1890	0.1007	402.8	279.7	205.5	157.3	124.3	100.7	83.2
24	16	50	1.36	0.1450	0.1206	0.0583	186.6	129.6	95.2	72.9	57.6	46.6	38.6
22	16	50	1.71	0.1800	0.1500	0.0760	304.0	211.0	155.1	118.8	93.8	76.0	62.8
24	17.625	50	1.28	0.2940	0.2240	0.0517	206.8	143.6	105.5	80.8	63.8	51.7	42.7
22	17.625	50	1.61	0.1630	0.1360	0.0674	269.6	187.2	137.6	105.3	83.2	67.4	55.7

DOUBLE-LOCK
DL20 STEEL

240 Deflection

SECTION PROPERTIES							ALLOWABLE UNIFORM LOADS, psf (single span)						
				Top in Compression			Inward Load						
Ga.	Width in.	Yield ksi	Weight psf	I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'
24	12	50	1.47	0.1816	0.1525	0.0774	247.7	172.0	126.4	96.8	76.4	61.9	51.2
22	12	50	1.88	0.2249	0.1890	0.1007	322.2	223.8	164.4	125.9	99.5	80.6	66.6
24	16	50	1.36	0.1450	0.1206	0.0583	186.6	129.6	95.2	72.9	57.6	46.6	38.6
22	16	50	1.71	0.1800	0.1500	0.0760	243.2	168.9	124.1	95.0	75.1	60.8	50.3
24	17.625	50	1.28	0.2940	0.2240	0.0517	165.4	114.9	84.4	64.6	51.1	41.4	34.2
22	17.625	50	1.61	0.1630	0.1360	0.0674	215.7	149.8	110.0	94.3	66.6	53.9	44.6

SECTION PROPERTIES							ALLOWABLE UNIFORM LOADS, psf (two equal spans)						
				Top in Compression			Inward Load						
Ga.	Width in.	Yield ksi	Weight psf	I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'
24	12	50	1.47	0.1816	0.1525	0.0774	247.7	172.0	126.4	96.8	76.4	61.9	51.2
22	12	50	1.88	0.2249	0.1890	0.1007	322.2	223.8	164.4	125.9	99.5	80.6	66.6
24	16	50	1.36	0.1450	0.1206	0.0583	186.6	129.6	95.2	72.9	57.6	46.6	38.6
22	16	50	1.71	0.1800	0.1500	0.0760	243.2	168.9	124.1	95.0	75.1	60.8	50.3
24	17.625	50	1.28	0.2940	0.2240	0.0517	165.4	114.9	84.4	64.6	51.1	41.4	34.2
22	17.625	50	1.61	0.1630	0.1360	0.0674	215.7	149.8	110.0	94.3	66.6	53.9	44.6

SECTION PROPERTIES							ALLOWABLE UNIFORM LOADS, psf (three equal spans)						
				Top in Compression			Inward Load						
Ga.	Width in.	Yield ksi	Weight psf	I_{xx} $in^4/ft.$	$I_{xx\ (eff)}$ $in^4/ft.$	S_{xx} in^3/ft	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'
24	12	50	1.47	0.1816	0.1525	0.0774	309.6	215.0	158.0	120.9	95.6	77.4	64.0
22	12	50	1.88	0.2249	0.1890	0.1007	402.8	279.7	205.5	157.3	124.3	100.7	83.2
24	16	50	1.36	0.1450	0.1206	0.0583	186.6	129.6	95.2	72.9	57.6	46.6	38.6
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24	17.625	50	1.28	0.2940	0.2240	0.0517	206.8	143.6	105.5	80.8	63.8	51.7	42.7
22	17.625	50	1.61	0.1630	0.1360	0.0674	269.6	187.2	137.6	105.3	83.2	67.4	55.7

NOTES:

1. Theoretical section properties have been calculated per AISI 2012 North American Specification for the Design of Cold-Formed Steel Structural Member.
Ixx and Sxx are effective section properties for deflection and bending.
2. Allowable load is calculated in accordance with AISI 2012 specifications considering bending, shear, combined bending and shear and deflection. Allowable load considers a 3 or more equal span condition.
3. Allowable load does not address web crippling, fasteners, connection strength or support material.
4. Panel weight is not considered.
5. Load/Span values are based on theoretical computations and not load testing.
6. Deflection consideration is limited by a maximum deflection ratio of L/180 or L/240 of span.
7. Allowable loads do not include a 1/3 stress increase for wind.

HUNTER

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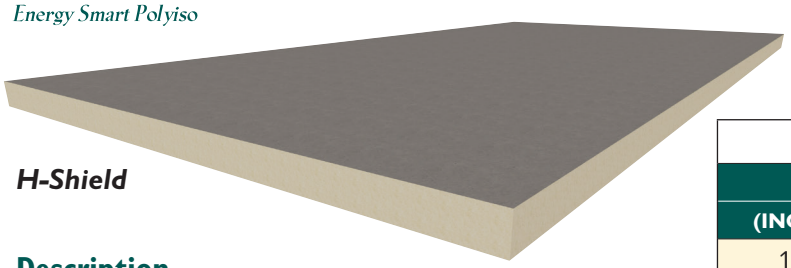
HUNTER PANELS H-SHIELD

Flat Polyisocyanurate Insulation



H-Shield

Description

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 (GRF).

Premium Performance Attributes

- Manufactured with NexGen Chemistry: Contains no CFCs, HFCs, HCFCs, is Zero ODP, EPA Compliant, and has virtually no GWP
- Manufactured with NexGen Chemistry: Contains no CFCs, HCFCs, HFCs, is Zero ODP, EPA Compliant, and has virtually no GWP
- Approved for direct application to steel decks
- Approved under all major roof covering systems – BUR, Modified and Single-Ply

Applications

- Constructions requiring FM Class 1 and UL Class A ratings
- Single-Ply Roof Systems (Ballasted, Mechanically Attached, Fully Adhered)
- Standing Seam Metal Roof Systems
- Modified Bitumen Systems
- Built-Up Roofing: Asphalt and Coal Tar

Panel Characteristics

- Available in two grades of compressive strengths per ASTM C1289 Type II, Class 1 Grade 2 (20 psi) or Grade 3 (25 psi)
- Available in 4'x4' (1220mm x 1220mm) and 4'x8' (1220mm x 2440mm) panels in thicknesses of 1" (25mm) to 4.5" (114mm)
- Also available as special cut products - straight cut and flute fill. For more information please see Hunter Panels product data sheets for these products.

Potential LEED Credits for Polyiso Use

Energy and Atmosphere

- Optimize Energy Performance

Materials & Resources

- Building Life-Cycle Impact Reduction
- Environment Product Declaration
- Material Reuse
- Recycled Content
- Construction and Demolition Waste Management

Indoor Environmental Quality

- Thermal Comfort

H-SHIELD THERMAL VALUES

THICKNESS (INCHES)	THICKNESS (MM)	LTTR R VALUE*	FLUTE SPANABILITY
1.00	25	5.7	2 5/8"
1.50	38	8.6	4 3/8"
1.80	46	10.3	4 3/8"
2.00	51	11.4	4 3/8"
2.50	64	14.4	4 3/8"
2.60	66	15.0	4 3/8"
3.00	76	17.4	4 3/8"
3.50	89	20.5	4 3/8"
3.80	97	22.3	4 3/8"
4.00	102	23.6	4 3/8"
4.30	109	25.5	4 3/8"
4.50	114	26.8	4 3/8"

*Long Term Thermal Resistance Values are based on ASTM C 1289.

Codes and Compliances

- ASTM C 1289 Type II, Class 1 Grade 2 (20 psi) or Grade 3 (25 psi)
- International Building Code (IBC) Chapter 26
- State of Florida Product Approval Number FL 5968
- California Code of Regulations, Title 24, Insulation Quality Standard License #TI-1420
- Miami Dade County Product Control Approved

Underwriters Laboratories Inc Classifications

- UL 1256
- Insulated Steel Deck Construction Assemblies – No. 120, 123, 292
- UL 790
- UL 263 Hourly Rated P Series Roof Assemblies

UL Classified for use in Canada

- Refer to UL Directory of Products Certified for Canada for more details
- CCMC 13460-L
- UL Certified for Canada, CAN/ULC-S126, CAN/ULC-S101, CAN/ULC- S107
- CAN/ULC-S704 Type 2, Class 3 (20 psi) or Type 3, Class 3 (25 psi)

Factory Mutual Approvals

- FM 4450, FM 4470
- Approved for Class 1 insulated steel deck constructions for 1-60 to 1-270. Refer to FM Approval's RoofNav for details on specific systems

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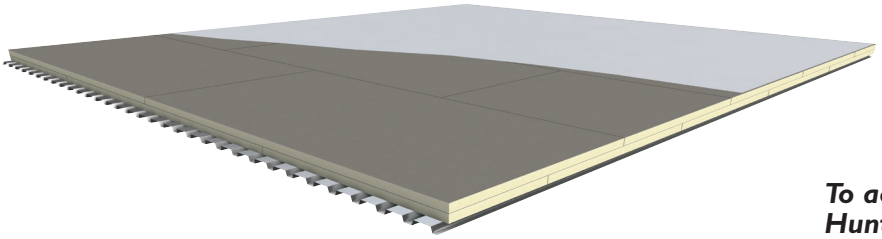
HUNTER PANELS H-SHIELD

Flat Polyisocyanurate Insulation

Energy Smart Polyiso



R-30.0, two layers of 2.6" H-Shield with Single-Ply membrane

To achieve optimal thermal performance, Hunter Panels recommends installation of a multi-layer system with staggered joints.

H-SHIELD TYPICAL PHYSICAL PROPERTY DATA CHART
POLYISO FOAM CORE ONLY

PROPERTY	TEST METHOD	VALUE
Compressive Strength	ASTM D 1621	20 psi* (138kPa, Grade 2)
Dimensional Stability	ASTM D 2126	2% linear change (7 days)
Moisture Vapor Transmission	ASTM E 96	< 1 perm (57.5ng/(Pa•s•m²))
Water Absorption	ASTM C 209	< 1% volume
Flame Spread**	ASTM E 84	< 75
Smoke Developed**	ASTM E 84	< 450
Service Temperature	–	-100° to 250° F (-73°C to 122°C)

*Also available in 25 psi, Grade 3
**Meets the requirements of the IBC code. For specific Flame Spread or Smoke Developed Ratings please contact the Hunter Panels Technical Department

WARNINGS AND LIMITATIONS

Insulation must be protected from open flame and kept dry at all times. Install only as much insulation as can be covered the same day by completed roof covering material. Hunter Panels will not be responsible for specific building and roof design by others, for deficiencies in construction or workmanship, for dangerous conditions on the job site or for improper storage and handling. Technical specifications shown in this literature are intended to be used as general guidelines only and are subject to change without notice. For more information refer to the Storage and Handling Technical Bulletin at www.hunterpanels.com, or refer to PIMA Technical Bulletin No. 109: *Storage & Handling Recommendations for Polyiso Roof Insulation* at www.polyiso.org.

INSTALLATION
Single-Ply Systems

Ballasted Single-Ply Systems

Each H-Shield panel is loosely laid on the roof deck. Butt edges and stagger joints of adjacent panels. Install the roof covering according to the manufacturer's specifications.

Mechanically Attached Single-Ply Systems

Each H-Shield panel must be secured to the roof deck. Butt edges and stagger joints of adjacent panels. Install the roof covering according to the manufacturer's specifications.

Fully Adhered Single-Ply

Each H-Shield panel must be secured to the roof deck. Maximum 4'x4'(1220mm x 1220mm) panels of H-Shield may be adhered to a prepared concrete deck or subsequent layers of insulation with a full mopping of hot steep asphalt, insulation adhesive or cold applied mastic. Butt edges and stagger joints of adjacent panels. Install the roof covering according to the manufacturer's specifications.

Built Up, Coal Tar And Modified Bitumen Systems (APP, SBS)

Each H-Shield panel must be secured to the roof deck. Maximum 4'x4' (1220mm x 1220mm) panels of H-Shield may be adhered to a prepared concrete deck or subsequent layers of insulation with a full mopping of hot steep asphalt, insulation adhesive or cold applied mastic. Butt edges and stagger joints of adjacent panels. Install the roof covering according to the manufacturer's specifications.

NEXGEN CHEMISTRY | PIMA POLYISOCYANURATE INSULATION MANUFACTURERS ASSOCIATION

HUNTER

Energy Smart Polyiso

HUNTER PANELS H-SHIELD NB

Flat Polyisocyanurate Insulation Manufactured On-Line to Oriented Strand Board

H-Shield NB

Product Description

H-Shield NB is a rigid roof insulation composite panel composed of a closed cell polyisocyanurate foam core manufactured on-line to a fiber reinforced facer on one side and either 7⁄16" or 5⁄8" oriented strand board (OSB) on the other. H-Shield NB can also be manufactured off-line bonded to 5⁄8" or 3⁄4" plywood.

Features and Benefits

- Manufactured with NexGen Chemistry: Contains no CFCs, HFCs, HCFCs, is Zero ODP, EPA Compliant, and has virtually no GWP
- A superior combination of high insulating properties and a nailable surface
- Suitable for new construction and re-roofing on both commercial and residential projects
- Incorporates APA-TECO Rated Exposure 1 OSB and Plywood
- The edges of the wood panels are rabbeted to allow for expansion and contraction of the wood. The foam edges shall be installed tightly to achieve thermal integrity across the entire roof deck
- Available as a non-rabbeted panel upon special request
- Hail Rating: SH-1, VSH

Panel Characteristics

- Available in two grades of compressive strengths per ASTM C1289 Type V, Class 1 Grade 2 (20 psi) or Grade 3 (25 psi)
- Also available in ASTM C1289 Type V, Class 2 (H-Shield CG), Grade 2 (20 psi) or Grade 3 (25 psi)
- Available foam size is 47.5"x95.5" when manufactured on line in thicknesses of 1.5" (38mm) to 4.0" (102mm)
- Available in foam size is 48"x96" when manufactured off-line in thicknesses of 1.5" (38mm) to 4.0" (102mm)
- Multiple Substrate Types Available:

OSB:	Plywood:
· 7⁄16" or 5⁄8"	· 5⁄8" or 3⁄4" CDX
	· Fire-Treated

APPLICATIONS

- Heavyweight Shingles
- Standing Seam Metal Roof Systems
- Tile
- Slate
- Single-Ply Roof Systems - Ballasted, Mechanically Attached, Fully Adhered. (For high wind speed warranty – see individual Single-Ply manufacturer approvals and listings)

H-SHIELD NB THERMAL VALUES

THICKNESS† (INCHES)	THICKNESS† (MM)	LTTR R-VALUE*	FLUTE SPANABILITY
1.5	38	6.3	4 3/8"
2.0	51	9.2	4 3/8"
2.5	64	12.0	4 3/8"
3.0	76	15.0	4 3/8"
3.5	89	18.0	4 3/8"
4.0	102	21.1	4 3/8"

*Long Term Thermal Resistance Values are based on ASTM C 1289.
†Thickness is calculated with 7/16" OSB.

H-Shield NB is only manufactured in the sizes listed above and on our packaging and weight chart. R-values other than those listed can be achieved by installing a multi layer system consisting of an additional layer of flat polyiso under H-Shield NB.

Codes and Compliances

- ASTM C 1289 Type V, Grade 2 (20 psi) or Grade 3 (25 psi)
- International Building Code (IBC) Chapter 26
- State of Florida Product Approval Number FL 5968
- California Code of Regulations, Title 24, Insulation Quality Standard License #TI-1420
- Miami Dade County Product Control Approved

Underwriters Laboratories Inc Classifications

- UL 1256
- Insulated Steel Deck Construction Assemblies – No. 120, 123
- UL 790
- UL 263 Hourly Rated P Series Roof Assemblies

UL Classified for use in Canada

- Refer to UL Directory of Products Certified for Canada for details

Factory Mutual Approvals

- FM 4450, FM 4470
- Approved for Class 1 insulated steel deck constructions. Refer to FM Approval's RoofNav for details on specific systems

Potential LEED Credits for Polyiso Use

Energy and Atmosphere

- Optimize Energy Performance

Materials & Resources

- Building Life-Cycle Impact Reduction
- Environment Product Declaration
- Material Reuse
- Recycled Content
- Construction and Demolition Waste Management

Indoor Environmental Quality

- Thermal Comfort

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INSTALLATION

Shingles, Tiles, Slate, Metal and Membrane Roofing

H-Shield NB is installed, wood side up over steel, plywood or structural roof decks. Hunter SIP NB Panel Fasteners are required to secure the H-Shield NB to the steel or plywood deck. Wood blocking, if necessary, should be equal in thickness to the H-Shield NB and should be installed along the eaves and rake edges of the roof. The roofing system is then installed according to the manufacturer's recommendations.

H-Shield NB may be adhered to a ½" per ft. max slope properly prepared cementitious deck (with a full mopping of Type III or Type IV asphalt or a low rise adhesive) only when manufactured online. ***All H-Shield NB manufactured off-line must be mechanically attached.***

The Use of Synthetic Underlayments

The use of synthetic underlayments is becoming an industry norm (for steep slope applications). Hunter Panels strongly suggests the use of a synthetic underlayment under asphalt shingles unless otherwise specified by the shingle manufacturer. Synthetic underlayments provide excellent water resistance and absorb no moisture.

Vapor Retarders

In building construction, vapor retarders are used to inhibit or block the passage of moisture into roofing assemblies. Vapor barriers also serve as air barriers to limit the movement of moisture-laden air from the interior to the exterior. This is especially important during the construction phase where excessive moisture drive is present. To determine whether a vapor retarder is necessary, we recommend that calculations on the building's interior relative humidity, interior temperature conditions and outside temperature fluctuations during the various seasons be performed prior to the completion of the design. Excessive moisture migration can cause unwanted condensation that will potentially damage the system or infiltrate the occupied space. Hunter Panels strongly suggests the use of a vapor retarder with a perm value of 0.5 or less on all projects except in extreme cooling conditions. Consult a licensed design professional, architect or engineer to establish whether or not a vapor retarder is necessary and to specify its type and location within the assembly. This criteria varies with geographical location and is therefore specific to each project.

Fastening Guidelines

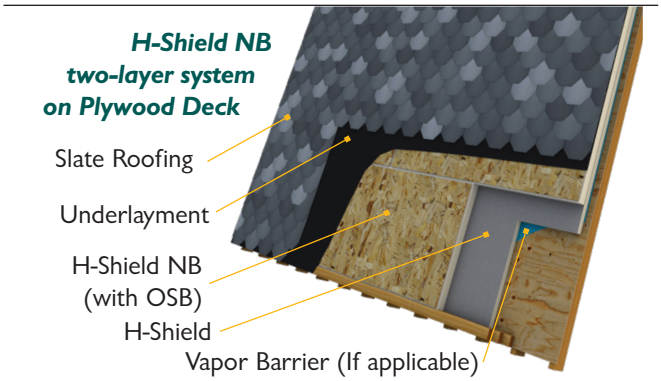
Hunter Panels requires the use of the Hunter Panels SIP SD Panel Fastener for steel deck applications, the SIP WD for plywood deck applications, and SIP HD for heavy duty steel decks. Additional information on fasteners and fastening patterns are available on our website at www.hunterpanels.com.

Refer to ***H-Shield NB Installation Guide*** for application specific installation instruction & fastener information. Access a digital copy at www.hunterpanels.com or scan this QR code

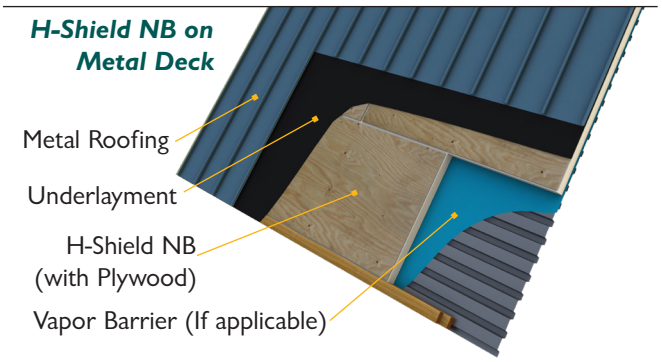
WARNINGS AND LIMITATIONS

Insulation must be protected from open flame and kept dry at all times. Install only as much insulation as can be covered the same day by completed roof covering material. Hunter Panels will not be responsible for specific building and roof design by others, for deficiencies in construction or workmanship, for dangerous conditions on the job site or for improper storage and handling. Technical specifications shown in this literature are intended to be used as general guidelines only and are subject to change without notice. For more information refer to the Storage and Handling Technical Bulletin at www.hunterpanels.com, or refer to PIMA Technical Bulletin No. 109: *Storage & Handling Recommendations for Polyiso Roof Insulation* at www.polyiso.org.

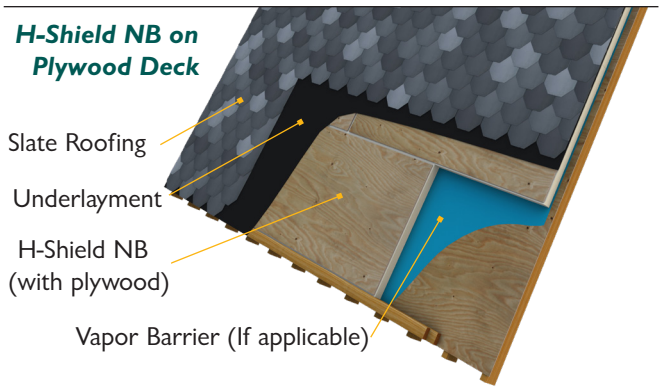
H-Shield NB two-layer system on Plywood Deck



H-Shield NB on Metal Deck



H-Shield NB on Plywood Deck



H-SHIELD NB TYPICAL PHYSICAL PROPERTY DATA CHART
POLYISO FOAM CORE ONLY

PROPERTY	TEST METHOD	VALUE
Compressive Strength	ASTM D 1621	20 psi* (138kPa, Grade 2)
Dimensional Stability	ASTM D 2126	2% linear change (7 days)
Moisture Vapor Transmission	ASTM E 96	< 1 perm (57.5ng/(Pa•s•m²))
Water Absorption	ASTM C 209	< 1% volume
Flame Spread**	ASTM E 84	< 75
Smoke Developed**	ASTM E 84	< 450
Service Temperature	–	-100° to 250° F (-73°C to 122°C)

*Also available in 25 psi, Grade 3

**Meets the requirements of the IBC code. For specific Flame Spread or Smoke Developed Ratings please contact the Hunter Panels Technical Department

Georgia-Pacific

DensDeck®
Roof Board

Technical Service Hotline 1.800.225.6119 or
www.densdeck.com

Manufacturer

Georgia-Pacific Gypsum
133 Peachtree Street
Atlanta, GA 30303

Georgia-Pacific Canada
2180 Meadowvale Boulevard, Suite 200
Mississauga, ON L5N 5S3

Technical Service Hotline: 1-800-225-6119

Description

DensDeck® Roof Board is an exceptional fire barrier, thermal barrier, coverboard and recovery board used in various commercial roofing systems. The DensDeck Roof Board design employs fiberglass mats front and back that are mechanically bonded to a high density gypsum core, providing excellent fire resistance and wind uplift properties. The unique construction of DensDeck Roof Board provides superior flute spanning that stiffens and provides increased foot traffic resistance to the roof deck. Additionally, DensDeck Roof Board has been shown to withstand delamination, deterioration and job-site damage far more effectively than roofing membrane substrates such as paperfaced gypsum board, fiberboard and perlite insulation. DensDeck Roof Board has scored a 10, the highest level of performance for mold resistance per the ASTM D3273 test method.

Primary Uses

Roof system manufacturers and designers have found DensDeck Roof Board to be compatible with many types of roofing systems, including: built-up, modified bitumen, single ply, metal systems, wood shingle and shake, tile, slate, as well as a recovery board and overlayment protection board for polyisocyanurate and polystyrene insulation. DensDeck Roof Board can also be used as a form board for poured gypsum concrete deck in roof applications as well as a substrate for spray foam roofing systems. 1/2" (12.7 mm) and 5/8" (15.9 mm) DensDeck Roof Board may also be used in vertical applications as a backer board or liner for the roof side of parapet walls.

Some membrane manufacturers have hot mop asphalt or torch applications directly to DensDeck Roof Board without using a primer or base sheet. Consult with the system manufacturer for their recommendations with this application. DensDeck Roof Board is the preferred substrate for vapor retarders.

Standards and Code Approvals

DensDeck Roof Boards are manufactured to meet ASTM C1177 and have the following approvals:

- Florida Product Approved
- Miami-Dade County, Product Control Approved

Recommendations and Limitations

DensDeck Roof Boards are manufactured to act with a properly designed roof system following good roofing practices. The actual use of DensDeck Roof Board as a roofing component in any system or assembly is the responsibility of the roofing system's design authority. Consult with the appropriate system manufacturer and/or design authority for system and assembly specifications and instructions on applying other products to DensDeck Roof Board. Georgia-Pacific does not warrant and is not responsible for any systems or assemblies utilizing DensDeck Roof Board or any component in such systems or assemblies other than DensDeck Roof Board.

The need for a separator sheet between the DensDeck Roof Board and the roofing membrane must be determined by the roof membrane manufacturer or roofing system designer.

Confirm any priming requirements with the membrane manufacturer. When applying solvent-based adhesives or primers, allow sufficient time for the solvent to flash off to avoid damage to roofing components.

DensDeck Roof Boards should not be subjected to abnormal or excessive loads or foot traffic, such as, but not limited to, use on plaza decks or under steel-wheeled equipment that may fracture or damage the panels. Provide suitable roofing system protection when required.

When using DensDeck Roof Boards for hot-mopped applications, Georgia-Pacific recommends maximum asphalt application temperatures of 425°F (218°C) to 450°F (232°C). Application temperatures above these recommended temperatures may adversely affect roof system performance. Consult and follow the roofing system manufacturer's specifications for full mopping applications and temperature requirements.

Conditions beyond the control of Georgia-Pacific, such as weather conditions, dew, leaks, application temperatures and techniques may cause adverse effects with roofing systems.

Moisture Management

DensDeck Roof Boards, like other components used in roofing systems, must be protected from exposure to moisture before, during and after installation.

Remove the plastic packaging from all DensDeck Roof Board immediately upon receipt of delivery. Failure to remove the plastic packaging may result in entrapment of condensation or moisture. DensDeck Roof Board stored outside must be stored level and off the ground and protected by a breathable waterproof covering. Provide means for air circulation around and under stored bundles of DensDeck Roof Board. DensDeck Roof Board must be covered the same day as installed.

Avoid application of DensDeck Roof Boards during rain, heavy fog and any other conditions that may deposit moisture on the surface, and avoid the overuse of non-vented, direct-fired heaters during winter months. When roofing systems are installed on new poured concrete or light weight concrete decks or when re-roofing over an existing concrete deck, a vapor barrier should be installed above the concrete to limit the migration of water from the concrete into the roof assembly. Always consult the roofing system manufacturer or design authority for specific instructions for applying other products to DensDeck Roof Boards.

Moisture vapor movement by convection must be eliminated, and the flow of water by gravity through imperfections in the roof system must be controlled. After a leak has occurred, no condensation on the upper surface of the system should be tolerated, and the water introduced by the leak must be dissipated to the building interior in a minimum amount of time.

Although DensDeck Roof Boards are engineered with fiberglass facings and high density gypsum cores, the presence of free moisture can have a detrimental effect on the performance of the product and the installation of roofing membranes. For example, hot asphalt applications can blister; torched modified bitumen may not properly bond; and adhesives for single ply membranes may not dry properly. Moisture accumulation may also significantly decrease wind uplift and vertical pull resistance in the system or assembly. DensDeck Roof Boards containing excessive free moisture content may need to be evaluated for structural stability to assure wind uplift performance.

Submittal Approvals

Job Name _____

Contractor _____

Date _____

continued →

Stamps / Signatures

Fire Resistance Classifications

DensDeck® Roof Boards are excellent fire barriers over combustible and noncombustible roof decks, including steel decks.

UL 790 Classification. DensDeck Roof Boards have been classified by Underwriters Laboratories (UL) for use as a fire barrier over combustible and noncombustible decks in accordance with the ANSI/UL 790 and ULC CAN-S114 test standard. The UL classification includes a comprehensive Class A, B or C rating. For additional information concerning the UL 790 classification, consult the UL Certification Directory.

UL 1256 Classification. DensDeck Roof Boards have also been classified by UL in roof deck constructions for internal (under deck) fire exposure in accordance with the ANSI/UL 1256 Steiner Tunnel test. For additional information concerning the UL 1256 classification, consult the UL Certification Directory.

FM Class 1 Approvals. DensDeck Roof Boards are included in numerous roofing assemblies with a Factory Mutual (FM) Class 1 fire rating. 1/4" (6.4 mm) DensDeck Roof Boards have passed testing under the FM Calorimeter Standard 4450 and have been approved by FM as such for insulated steel deck roofs when installed according to the conditions identified by FM. For more information concerning FM Approvals and FM Class 1 assemblies with DensDeck Roof Boards, consult FM or RoofNav®.

Type X. 5/8" (15.9 mm) DensDeck® Fireguard® Roof Boards are manufactured to meet the "Type X" requirements of ASTM C1177 for increased fire resistance beyond regular gypsum board.

UL Fire Resistance Ratings. 5/8" (15.9 mm) DensDeck Fireguard Roof Boards are designated as **Type DD** by UL and included in assembly designs investigated by UL for hourly fire resistance ratings. 5/8" (15.9 mm) DensDeck Fireguard Roof Boards may also replace any unclassified 5/8" (15.9 mm) gypsum board in an assembly in the UL Fire Resistance Directory under the prefix "P".

Flame Spread and Smoke Developed. When tested in accordance with ASTM E84, DensDeck Roof Boards had Flame Spread 0, Smoke Developed 0.

Wind Uplift

DensDeck Roof Boards are included in numerous assemblies evaluated by FM or other independent laboratories for wind uplift performance. For information concerning such assemblies, please visit www.roofnav.com.

Handling and Use–CAUTION

This product contains fiberglass facings which may cause skin irritation. Dust and fibers produced during the handling and installation of the product may cause skin, eye and respiratory tract irritation. Avoid breathing dust and minimize contact with skin and eyes. Wear long sleeve shirts, long pants and eye protection. Always maintain adequate ventilation. Use a dust mask or NIOSH/MSHA approved respirator as appropriate in dusty or poorly ventilated areas.

Physical Properties

Properties	1/4" (6.4 mm)	1/2" (12.7 mm)	5/8" (15.9 mm)
Thickness, nominal	1/4" (6.4 mm) ± 1/16" (1.6 mm)	1/2" (12.7 mm) ± 1/32" (.8 mm)	5/8" (15.9 mm) ± 1/32" (.8 mm)
Width, standard	4' (1219 mm) ± 1/8" (3 mm)	4' (1219 mm) ± 1/8" (3 mm)	4' (1219 mm) ± 1/8" (3 mm)
Length, standard	8' (2438 mm) ± 1/4" (6.4 mm)	8' (2438 mm) ± 1/4" (6.4 mm)	8' (2438 mm) ± 1/4" (6.4 mm)
Weight, nominal, lbs./sq. ft. (Kg/m^2)	1.2 (5.9)	2.0 (9.8)	2.5 (12.2)
Surfacing	Fiberglass mat	Fiberglass mat	Fiberglass mat
Flexural Strength[1], parallel, lbf. min. (N)	≥40 (178)	≥80 (356)	≥100 (444)
Flute Spanability[2]	2-5/8" (67 mm)	5" (127 mm)	8" (203 mm)
Permeance[3], Perms (ng/Pa•S•m^2)	>50 (2850)	>35 (1995)	>32 (1824)
R Value[4], ft^2•°F•hr/BTU (m^2•K/W)	.28	.56	.67
Linear Variation with Change in Temp., in/in °F (mm/mm/C°)	8.5 x 10^{-6} (15.3 x 10^{-6})	8.5 x 10^{-6} (15.3 x 10^{-6})	8.5 x 10^{-6} (15.3 x 10^{-6})
Linear Variation with Change in Moisture	6.25 x 10^{-6}	6.25 x 10^{-6}	6.25 x 10^{-6}
Water Absorption[5], % max	<10	<10	<10
Compressive Strength[6], psi nominal	900	900	900
Surface Water Absorption, grams, nominal	<2.5	<2.5	<2.5
Mold Resistance per ASTM D3273	10	10	10
Flame Spread, Smoke Developed (ASTM E84)	0/0	0/0	0/0
Bending Radius	5' (1524 mm)	8' (2438 mm)	12' (3658 mm)

1. Tested in accordance with ASTM C473 method B.
2. Tested in accordance with ASTM E661.
3. Tested in accordance with ASTM E96 (dry cup method).
4. Tested in accordance with ASTM C518 (heat flow meter).
5. Tested in accordance with ASTM C1177.
6. Tested in accordance with ASTM C473.

Georgia-Pacific Gypsum

U.S.A. GP Gypsum LLC
Canada Georgia-Pacific Canada LP

SALES INFORMATION AND ORDER PLACEMENT

U.S.A.	West:	**1-800-824-7503**
	Midwest:	**1-800-876-4746**
	South Central:	**1-800-231-6060**
	Southeast:	**1-800-327-2344**
	Northeast:	**1-800-947-4497**
CANADA	Canada Toll Free:	**1-800-387-6823**
	Quebec Toll Free:	**1-800-361-0486**
DENSDECK		**1-855-647-3325**

TECHNICAL INFORMATION
U.S.A. and Canada: **1-800-225-6119,** www.gpgypsum.com

FEATURES & BENEFITS

- Meets ASTM D226 Types I & II and D4869 Types II & IV
- Fiber grip slip-resistant walking surface
- Enhanced UV - 60 days exposure
- 12 x stronger than #30 felt
- 8 squares more per roll compared to #30 felt
- 17% more coverage per lap (42" width as compared to 36" for felt)
- Ease of installation – wider, lighter, more coverage per lap
- Synthetic construction inert to mold growth
- Lays flat and does not absorb water and wrinkle
- No oil leaching - no hazardous material content
- Class A Fire - ASTM E108 (as part of a system)
- Contributes to LEED® points
- Texas Department of Insurance
- Advanced backside non-slip coating
- Low temperature flexibility

Intertek Intertek

MIAMI-DADE COUNTY APPROVED

CAN/CSA A123.3
CCRR-1015
FBC #FL15216

SCScertified™ MINIMUM 20% RECYCLED CONTENT PRE-CONSUMER

NATIONAL ROOFING CONTRACTORS ASSOCIATION MEMBER

TECHNICAL DATA

*TEST & STANDARD	RHINOROOF® U20 TYPICAL VALUE	ASTM #30 FELT TYPICAL VALUE
Permeability ASTM E96	.05 Perms	1.75 Perms
Water Transmission ASTM D4869	Pass	Pass
Tear Strength ASTM D4533	MD 33 lbs (15 kg) | CD 24 lbs (11 kg)	MD 4 lbs (1.8 kg) | CD 2 lbs (0.9 kg)
Tensile Strength ASTM D751	MD 88 lbs (40 kg) | CD 70 lbs (32 kg)	MD 70 lbs (32 kg) | CD 38 lbs (17 kg)
Burst Strength ASTM D751	158 psi (1089 kPa)	62 psi (430 kPa)
Elongation ASTM D751	MD 20% CD 20%	MD 2% CD 2%
Weight per Square ASTM D5261	2.25 lbs (1.02 kg)	27.5 lbs (12.5 kgs)
Nominal Thickness ASTM D1777	7 mils (0.18 mm)	60 mils (1.5 mm)
Service Temperature Range	-40 °F to 240 °F (-40 °C to 115 °C)	

SPECIFICATIONS

LENGTH PER ROLL:	**286' / 87 m**
WIDTH PER ROLL:	**42" / 1.1 m**
WEIGHT PER ROLL:	**23.5 lbs / 10.6 kg**
ROLL SIZE:	**10 sq / 93 m²**
ROLLS PER PALLET:	**67**
PALLET WEIGHT:	**1,626 lbs / 738 kg**

*Test data is based on average taken over several production runs and should not be considered or interpreted as minimum or maximum values. Values are typical data and not limiting specifications. Vertical and horizontal laps reduce the net coverage. All values ± 10 %. RhinoRoof U20 is manufactured in accordance with national standards which allow for non-critical variances in weights and measurements.
RR-U20 23Dec2015

InterWrap® Inc. Roofing Products Division
Charleston, SC • Vancouver, BC • Mission, BC • Montréal, QC
www.InterWrap.com/RhinoRoof
Toll Free: 888 713 7663 | Tel: 778 945 2888
E-mail: info@interwrap.com

INSTALLATION INSTRUCTIONS

RhinoRoof® U20 is an air, water and vapor barrier and therefore must be installed above a properly ventilated space(s). Follow ALL building codes applicable to your geographical region and structure type as it is considered a vapor barrier.

DECK PREP: All protrusions from the deck area must be removed and ensure the deck has no voids, damaged or unsupported areas. Deck surface should be free of debris, dry and moisture free.

USE: RhinoRoof U20 must be covered by primary roofing within 60 days of application. U20 is designed for use under asphalt shingles, synthetic shingles, residential metal roofing and cedar shakes.

APPLICATION: For slopes from 4:12 and higher RhinoRoof U20 is to be laid out horizontally (parallel) to the eave with the printed side up. Horizontal laps should be 4" and Vertical laps should be 6"and anchored approximately 1" in from the edge. For low slope (less than 4:12) applications it is recommended to overlap 50% plus 1", for complete definition of low slope and guidelines consult authorities having jurisdiction. U20 product is not recommended for slopes less than 2:12. The use of roofing hammer, pneumatic air or gas driven fastener tools is acceptable. The use of straight edge cutting knives is recommended.

FASTENERS: For **same day** coverage with primary roofing RhinoRoof U20 can be anchored with corrosive resistant 3/8" head x 1" leg roofing nails (ring shank preferred, smooth leg acceptable). The use of every other anchoring location printed on the product is also acceptable. **DO NOT USE STAPLES:** the use of staples to penetrate RhinoRoof U20 will void warranty.

ANCHORING: All anchoring nails must be flush, 90 degrees to the roof deck, and tight with the underlayment surface and the structural roof deck. Where seams and joints require sealant or adhesive use a low solvent plastic roofing cement meeting ASTM D-4586 Type 1, or Federal Spec SS-153 Type 1 such as Karnak, Henry, DAP, MB, Geocel or equivalent. Acceptable alternatives are butyl rubber, urethane, and EDPM based caulk or tape sealant.

EXTENDED EXPOSURE: If RhinoRoof U20 product will be exposed longer than 24 hours and up to 60 days then product must be attached to the structural roof deck using a minimum 1" diameter plastic or metal cap roofing nails (ring shank preferred but smooth leg acceptable). Miami-Dade approved tin tags or metal caps are also acceptable, and it is recommended for best performance to use with the rough edge facing up. For extended exposure it is always recommended to anchor on every printed position on the facer. RhinoRoof U20 is not designed for indefinite outdoor exposure. For extended exposure conditions where driving rain or strong winds are expected it is recommended to take additional precautions such as doubling the lap widths. Alternately or in addition to a compatible sealant could be used between the laps or a peel and stick tape could be applied to the overlaps.

CAUTION - READ GOOD SAFETY PRACTICES BELOW

Good safety practices should be followed on steep slope roofs, such as use of tie-offs, toe boards, ladders and/or safety ropes and personal body harnesses. Follow OSHA guidelines. Slip resistance may vary with surface conditions from debris that accumulates, weather, footwear and roof pitch. Failure to use proper safety gear can result in serious injury. Depending on roof pitch and surface conditions, blocking may be required to support materials on the roof and is good safety practice. Remember to seal the nail holes after removing blocking.

For use under Asphalt Shingles, Synthetic Shingles, Residential Metal Roofing and Cedar Shakes

Say goodbye to traditional asphalt saturated felt paper - Break free from felt™ with RhinoRoof® U20 synthetic roofing underlayment!

RhinoRoof U20 is a highly engineered, mechanically attached, coated woven synthetic roofing underlayment for sloped roofs. RhinoRoof's durable and high strength design along with its fiber grip walking surface provides a considerable improvement over asphalt saturated felt. The fiber grip textured walking surface can also be chalked just like felt.

Gain an edge in productivity and profits; RhinoRoof's light weight, 42" width and 286 ft run length allows for fewer laps, cuts, and easier roll handling compared to felt. This means you can do more jobs in less time, use less labor, and inventory fewer rolls.

Gone are the days of blow-offs and call backs! RhinoRoof U20 is 12 times stronger than #30 felt and therefore offers superior wind resistance and durability through heavy roof traffic and adverse weather conditions. Stay on track, take on more jobs and sleep assured your U20 projects will remain intact and dried-in. RhinoRoof U20 will save you time and money with less material damage and fewer post-install repairs.

Unlike traditional asphalt saturated felts, RhinoRoof U20 can be used in extremely low temperatures without becoming stiff and difficult to unroll. It also does not dry out, crack, or leach oils in the heat like felt. RhinoRoof U20 is 100% synthetic and will not absorb water and wrinkle like felt. It lays flat and will remain 100% impervious to mold.

RhinoRoof U20 can also be used in conjunction with RhinoRoof RSA or Titanium® PSU30 self-adhered underlayments for ice damming protection along the eaves and in the valley areas.

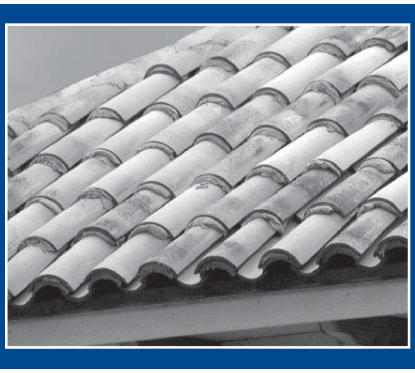
RhinoRoof U20 will continue to protect your long life primary roofing long after felt has turned to dust! Unlike felt, RhinoRoof U20 is also backed by a 20 year manufacturer's limited warranty.

Break free from felt, choose RhinoRoof U20 synthetic roofing underlayment from InterWrap.

InterWrap®
weaving a better world™

LeakBarrier® PS 200HT Ice and Water Armor

LeakBarrier PS 200HT Ice and Water Armor is a self-adhering underlayment composed of a high tack SBS modified asphalt reinforced with a glass fiber mat and protected by a split-back release film for easy installation. New Cool Diamond Sure Grip Surface allows for maximum walkability and cooler work surface, and is specifically designed for the demands of metal and tile roofing.



LeakBarrier PS 200HT Ice and Water Armor has a skid resistant smooth poly film surface and is specifically formulated to provide High Temperature Stability up to 260°F. It is ideal for use below metal, tile, slate and asphalt shingle applications.

Usage

LeakBarrier PS 200HT Ice and Water Armor helps to protect a building's deck or internal structure against leaks caused by ice and water damming and wind-driven rain. It is highly effective in critical roofing areas such as valleys, ridges, coping joints, chimneys, vents, dormers, skylights and low-slope sections.

Features and Benefits

- New White "Cool Diamond Sure-Grip Surface" allows for better walkability and cooler surface temperatures.
- Specifically designed for the demands of metal and tile roofing systems, with high temperature stability of 260 degrees and "Cool Diamond Sure-Grip Surface" for maximum walkability. Non skid surface also helps prevent tile from sliding off the roof.
- Split-back release film peels off for easy installation and handling
- 90 day exposure limitation allows for long term dry in.
- Adheres directly to concrete, plywood, wood composition board and gypsum sheathing decks
- Self-sealing around nails preventing moisture penetration
- Product available for multi climates with superior adhesion to plywood.
- "Cool Diamond Sure-Grip Surface" provides improved footing
- Functions as a vapor barrier for commercial roofing applications
- Meets ASTM D-1970
- ICC-ESESR-1329
- FL 2783
- UL Prepared Roofing Accessory

Storage

LeakBarrier PS 200^{HT} requires protection from damage and the weather. Constantly store membranes upright, in a dry location and never install when wet.

Application

- Warm weather conditions are ideal for good adhesion. Application should be made when ambient temperatures are 40°F (5°C) or higher.
- Deck must be clean, dry and free of voids.
- For re-roofing applications, all old roofing and other loose materials must be removed. Do not install directly on old roof coverings.
- Prime concrete/masonry and fiberglass faced gypsum surfaces.
- Cut PS 200^{HT} into manageable lengths before installation.
- Peel back one to two feet of the release film and stick the membrane directly over the roof deck, aligning it with the gutter edge and extending coverage at least three feet inside the exterior wall or the highest point of damming.
- Side laps must be a minimum of three inches and end laps a minimum of six inches.
- When covering the entire roof deck with PS 200^{HT}, the roof system must include proper ventilation, including both ridge and soffit venting.
- All installed Ice and Water Armor must be covered and not left exposed for more than 30 days.

Properties

Property	Typical Values	Reference Test
Approx. Thickness	40 mils	ASTM D-1970
Tensile Strength (lbf/in.)	MD=32-38,CD=26-30	ASTM D-1970
Adhesion to Plywood @ 75°F	30 lbf/ft. of width	ASTM D-1970
Adhesion to Plywood @ 40°F	18 lbf/ft. of width	ASTM D-1970
Slip Resistance	Pass	ASTM D-1970
Low Temp. Flexibility °F	-20 Pass	ASTM D-1970
Water Vapor Permeability	0.1 U.S. Perms or less	ASTM D-1970
Compound Stability	260°F	ASTM D-5147

Product Data

Roll Width	36 Inches	**Roll Length**	66.8 Ft.
Coverage per Roll	200 Sq. Ft.	**Approx. Roll Wt.**	42 Lbs.
Boxes per pallet	25		

Warranty

PS 200^{HT} Ice and Water Armor is warranted to be free from manufacturer's defects.

Note:

All statements information and data given herein are believed to be accurate and reliable, but are presented without guaranty, warranty or responsibility of any kind, expressed or implied, except as may be indicated otherwise in this literature. Statements or suggestions concerning possible use of our products are made without representation

Tarco

One Information Way, Suite 225
Little Rock, AR 72202
Voice: 501-945-4506 • 800-365-4506
Fax: 501-945-7718 • www.tarcoroofing.com

#14-13 DP1 DRILL POINT TRUSS HEAD CARBON STEEL

Uses: Wood, concrete or steel (16 ga. - 22 ga.).
Material: Carbon Steel

Corrosion Protection: Epoxy coating (black) meets or exceeds FM4470 corrosion standards and withstands 15 cycles of the Kesternich DIN 50018 SFW 2.0 test.

Head Height: .095" - .105"
Head Diameter: .425" - .440"

FM APPROVED

ATTACHMENT TIPS
Metal Deck: Fastener must penetrate the deck by a minimum of 3/4".

Concrete and Wood: Fastener embedment of 1" or a minimum of 1" penetration through wood decking.

SIZES AND PERFORMANCE SPECIFICATIONS

Screw Length	Thread Length	Pieces/Box	Weight/Box
1-1/2"	FULL	1000	14#
2"	FULL	1000	18#
3"	FULL	1000	26#
4"	3-7/8"	1000	31#
5"	3-7/8"	1000	42#
6"	3-7/8"	1000	47#
7"	3-7/8"	500	27#
8"	3-7/8"	500	30#
9"	3-7/8"	500	34#
10"	3-7/8"	500	38#
11"	3-7/8"	500	43#
12"	3-7/8"	500	45#

Property	Standard	Average Ultimate Value
Tensile Strength	ASTM F606-10	2500 Lb.
Shear Strength:	NASM 1312-20	2200 Lb. (thread zone)
Corrosion Resistance:	FM 4470, ASTM D6294, DIN 50018	<15% Red Rust after 30 cycles

#14 HD STAINLESS STEEL BI-METAL

316 stainless steel alloy with a hardened carbon steel drill point. This all purpose roofing fastener is engineered to secure insulation, coverboards, base sheets and single-ply roof membrane systems to corrugated steel (18-24ga.) and wood substrates. The #2 self-drilling point and exclusive tapered entry thread design penetrates steel quickly.

Uses: Wood or steel (24 ga. - 18 ga.).
Material: 316 Stainless Steel with a hardened carbon steel drill point.
Coating: Electro-Zinc

Head Height: .095" - .105"
Head Diameter: .425" - .440"

FM APPROVED

ATTACHMENT TIPS
Metal Deck: Fastener must penetrate the deck by a minimum of 3/4".

Concrete and Wood: Fastener embedment of 1" or a minimum of 1" penetration through wood decking.

SIZES AND PERFORMANCE SPECIFICATIONS

Screw Length	Thread Length	Pieces/Box	Weight/Box
1-1/2"	FULL	1000	12.9#
2"	FULL	1000	15.5#
3"	2-7/8"	1000	23.7#
4"	3-7/8"	1000	30.9#
5"	3-7/8"	1000	37.3#
6"	3-7/8"	1000	44.0#
7"	3-7/8"	500	25.9#
8"	3-7/8"	500	29.7#
10"	3-7/8"	250	17.6#
12"	3-7/8"	250	21.3#

Property	Standard	Average Ultimate Value
Tensile Strength	ASTM F606-10	2000 Lb.
Shear Strength	AISI S904	1400 Lbf. (thread zone)
Corrosion Resistance	FM 4470, DIN 50018	<15% Red Rust after 30 cycles

Pullout for #14 Carbon Steel and Stainless Steel SENTRY PLUS FIVE®

Thickness	24 ga.	22 ga.			20 ga.			18 ga.			16 ga.		
Yield Strength	36.5 ksi	33.0 ksi	80.0 ksi	102.0 ksi	33.0 ksi	80.0 ksi	102.0 ksi	33.0 ksi	80.0 ksi	102.0 ksi	33.0 ksi	80 ksi	102.0 ksi
Pullout (lbf.)	255	315	480	560	420	615	710	675	885	985	850	1115	1240

*Average Ultimate in Pounds

	APA Rated OSB				APA Rated Plywood			SPF #2	
Thickness	7/16"	15/32"	19/32"	23/32"	15/32"	19/32"	23/32"	Including tip	Excluding tip
Pullout (lbf.)	270	290	310	410	360	410	730	600	795

*Loads are average ultimate

Drill Bit Size - Concrete
• 3/16" Carbide Tip

NOTE: Drill hole at least 1/2" deeper than screen embedment

Average Ultimate in Pounds
**Carbon Steel Only*

	3000 PSI Concrete		
Embedment	1"	1-1/2"	2"
Pullout (lb.)	450	675	900

(Loads are average ultimate)

BLAZER® STAINLESS CAP HEAD WITH EPDM SEALING WASHER

Blue colored sizes denotes popular DC items

U.S. Pat. No. 8,360,701
Taiwan Pat No. I50140
Europe Pat No. 2286067

- **304 stainless steel cap head for exceptional corrosion resistance.**
- **TRI-SEAL® long life coated shank for superior corrosion protection.**

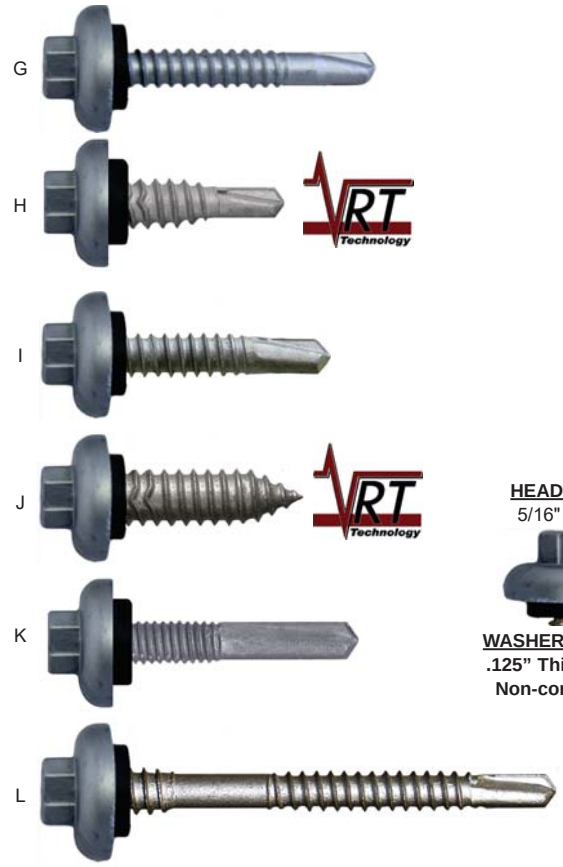
SIZES AND PERFORMANCE SPECIFICATIONS

	Size & Point	Drilling Thickness	Load Bearing Length (MAX)	Box Qty
A	#12-14 x 1" BLAZER 2/3	.036" - .210"	.250"	3.5M
	#12-14 x 1-1/4" BLAZER 2/3 LP		.625"	2.5M
	#12-14 x 1-1/2" BLAZER 2/3		.750"	2.5M
	#12-14 x 2" BLAZER 2/3		1.250"	2M
B	1/4-14 x 7/8" BLAZER 1/VRT	.018" -.090"	.250"	2.5M
	1/4-14 x 1-1/8" BLAZER 1/VRT		.750"	2M
C	1/4-14 x 1-1/4" BLAZER 3	.036" - .250"	.625"	2M
	1/4-14 x 3" BLAZER 3		2"	500
	1/4-14 x 4" BLAZER 3		3"	500
D	#17-14 x 1" TYPE AB W/VRT	20ga or less	.750"	2.5M
E	#12-24 x 1-1/4" BLAZER 5	.250" - .500"	.500"	2.5M
	#12-24 x 2" BLAZER 5		.625"	2.5M
F	#12-14 | 1/4-14 x 1-7/8" BLAZER 3	.036"-.210"	.875"-1.125"	2M
	#12-14 | 1/4-14 x 2-3/8" BLAZER 3		1.125"-1.625"	1M
	#12-14 | 1/4-14 x 3-1/4" BLAZER 3		1.750"-2.437"	1M
	#12-14 | 1/4-14 x 4" BLAZER 3		2.500"-3.187"	500

LP denotes long-pilot design for metal roofing and siding

Specifications
Washer: .100" Thick EPDM. Non-conductive
Head Type: 5/16" HWH
Material: HEAD - 304 Stainless Steel; BODY - Carbon Steel
Plating: HEAD - Passivated; BODY - TRI-SEAL® Long-life Coating
Corrosion: HEAD- >2,000hrs Salt Spray; BODY - 1,000hrs Salt Spray

BLAZER® ZINC CAP HEAD WITH EPDM SEALING WASHER



Blue colored sizes denotes popular DC items

HEAD TYPE
5/16" HWH

WASHER DETAILS
.125" Thick EPDM.
Non-conductive

- **ZAMAC 5 zinc alloy cap head for premium corrosion resistance WILL NOT RED RUST!**
- **TRI-SEAL® long life coated shank for superior corrosion protection.**

SIZES AND PERFORMANCE SPECIFICATIONS

	Size & Point	Drilling Thickness	Load Bearing Length (MAX)	Box Qty
G	#12-14 x 1" BLAZER 2/3	.036" - .210"	.250"	3.5M
	#12-14 x 1-1/4" BLAZER 2/3 LP		.625"	2.5M
	#12-14 x 1-1/2" BLAZER 2/3		.750"	2.5M
	#12-14 x 2" BLAZER 2/3		1.250"	2M
	#12-14 x 2-1/2" BLAZER 3		1.5"	1M
	#12-14 x 3" BLAZER 3		2.000"	500
H	1/4-14 x 7/8" BLAZER 1/VRT	.018" -.090"	.250"	2.5M
	1/4-14 x 1-1/8" BLAZER 1/VRT		.750"	2M
I	1/4-14 x 1-1/4" BLAZER 3	.036" - .250"	.250"	2M
	1/4-14 x 1-1/2" BLAZER 3		.750"	2M
	1/4-14 x 2" BLAZER 3		1"	2M
	1/4-14 x 3" BLAZER 3		2"	500
	1/4-14 x 4" BLAZER 3		3"	500
J	#17-14 x 1" TYPE AB W/VRT	20ga or less	.750"	2.5M
K	#12-24 x 1-1/4" BLAZER 5	.250" - .500"	.500"	2.5M
	#12-24 x 2" BLAZER 5		.625"	2.5M
L	#12-14 | 1/4-14 x 1-7/8" BLAZER 3	.036"-.210"	.875"-1.125"	2M
	#12-14 | 1/4-14 x 2-3/8" BLAZER 3		1.125"-1.625"	1M
	#12-14 | 1/4-14 x 3-1/4" BLAZER 3		1.750"-2.437"	1M
	#12-14 | 1/4-14 x 4" BLAZER 3		2.500"-3.187"	500

LP denotes long-pilot design for metal roofing and siding

Specifications
Material: HEAD - Zamac 5 Zinc Alloy; THREAD - Carbon Steel
Plating: BODY - TRI-SEAL® Long-life Coating.
Corrosion Resistance: HEAD - No Red Rust; BODY - 1,000hrs Salt Spray

Need a 3/8" Hex Washer Head? Contact us for available sizes.

SUPERIOR CORROSION RESISTANCE & LONG-LIFE PERFORMANCE

PANEL-TITE® SCH
Stainless Cap Head with Flange Sealer

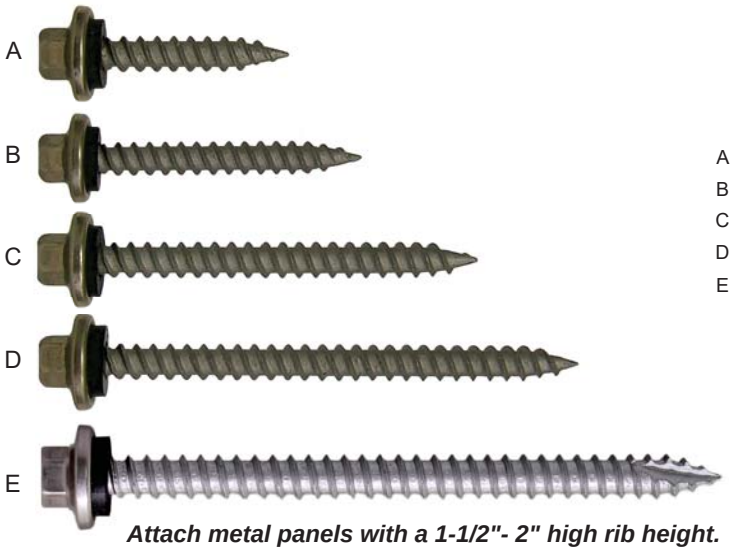
- Use on 20yr warranty roof systems.
- Carbon steel shank with TRI-SEAL® coating.
- Provides outstanding corrosion protection.

PANEL-TITE® SS
Stainless Steel with Stainless Steel Washer

- 304 stainless steel.
- Used in aluminum applications.
- Preferred screw for treated lumber.

Penetrates Steel up to 20 ga.

SIZES



PANEL-TITE® SCH
Stainless Cap Head w/Flange Sealer

	Description	Drilling Thickness	Part No.	Carton Quantity	Box Wt.
A	#10-12 x 1" GP	20ga. max	10100HWGCSTSSC	2,500 pcs.	30 lbs.
B	#10-12 x 1-1/2" GP	20ga. max	10150HWGCSTSSC	2,000 pcs.	25 lbs.
C	#10-12 x 2" GP	20ga. max	10200HWGCSTSSC	2,000 pcs.	33 lbs.
D	#10-12 x 2-1/2" GP	20ga. max	10250HWGCSTSSC	1,000 pcs.	29 lbs.
E	#14-10 x 3-1/2"	20ga. max	14350HW17CSTSSC	1,000 Pcs	38 lbs.

Diameter & Point: #10-12 Gimlet Point
Material: Carbon Steel Shank, 304 Stainless Steel Cap Head
Plating: TRI-SEAL™ Coating
Head Style: 1/4" HWH
Thread: #10-12 Double Lead
Salt Spray: 1,000 hrs.

Attach metal panels with a 1-1/2"- 2" high rib height. Great for replacing screws that are stripped!

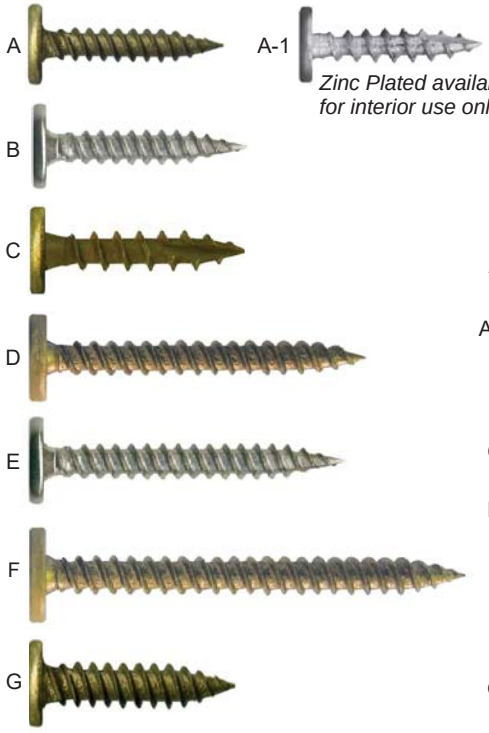
PANEL-TITE® SS
Stainless Steel w/ Stainless Steel Washer

	Description	Drilling Thickness	Part No.	Carton Quantity	Box Wt.
F	#9-15 x 1" GP	.040 AL	09100HWGS34BW	3,000 pcs.	26 lbs.
G	#9-15 x 1-1/2" GP	.040 AL	09150HWGS34BW	2,500 pcs.	26 lbs.
H	#9-15 x 2" GP	.040 AL	09200HWGS34BW	2,000 pcs.	26 lbs.
I	#9-15 x 2-1/2" GP	.040 AL	09250HWGS34BW	1,500 pcs.	25 lbs.
J	#9-15 x 3" GP	.040 AL	09300HWGS34BW	1,000 pcs.	18 lbs.

Diameter & Point: #9-15 Gimlet Point
Material: 304 Stainless Steel
Plating: Passivated
Head Style: 1/4" HWH
Thread: #9-15 Double Lead

WOOD OR THIN METAL

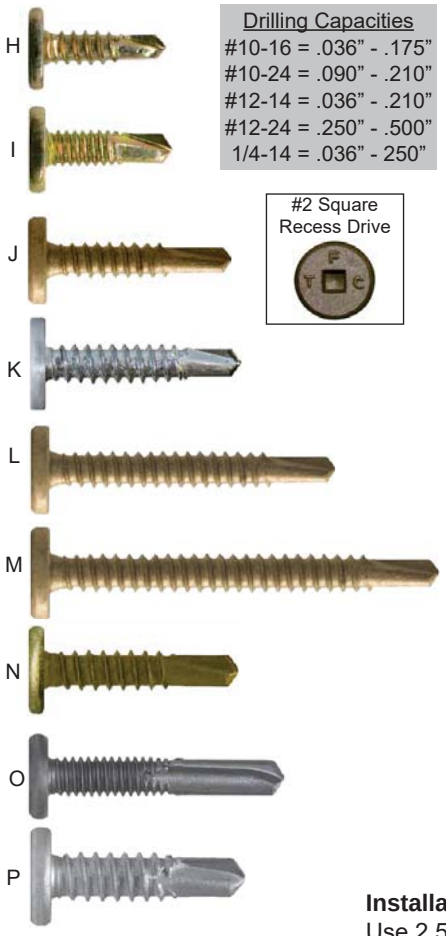
Piercing Capacity: CS & 410SS <=20 ga



Zinc Plated available for interior use only.

METAL SUBSTRATES

Drilling Capacities
#10-16 = .036" - .175"
#10-24 = .090" - .210"
#12-14 = .036" - .210"
#12-24 = .250" - .500"
1/4-14 = .036" - 250"



#2 Square Recess Drive

Army Corps of Engineers

#10, #12, & 1/4" PIERCING POINTS AND DRILL POINTS

CONCEALOR® low profile head fasteners are engineered to perform in a variety of applications. They are specified in many metal roofing systems to attached SSR clips to metal or wood. They are easy to install and provides optimal strength.

Sizes

	Description	Load Bearing Length (Max)	Part Number	Box Quantity	WT Per Box
A	#10-13 X 1" GP Long-life TRI-SEAL® coated	1"	10100SPCGCSTS	5,000 pcs	36.0 lbs.
A-1	#10-9 X 1" Type 17 Zinc Plated | Interior Use Only	1"	10100SPC17CSCZ	5,000 pcs	36.0 lbs.
B	#10-13 X 1" GP 302 Stainless Steel	1"	10100SPCGS3	5,000 pcs	39.0 lbs.
C	#10-9 X 1-1/8" TYPE 17 Long-life TRI-SEAL® coated	1-1/8"	10112SPC17CSTS	5,000 pcs	40.0 lbs.
D	#10-13 X 1-1/2" GP Long-life TRI-SEAL® coated	1-1/2"	10150SPCGCSTS	3,000 pcs	31.0 lbs.
E	#10-13 X 1-1/2" GP 302 Stainless Steel	1-1/2"	10150SPCGS3	3,000 pcs	32 lbs.
F	#10-13 X 2" GP Long-life TRI-SEAL® coated	2"	10200SPCGCSTS	1,500 pcs	19.0 lbs.
G	#12-11 X 1" GP Long-life TRI-SEAL® coated	1"	12100SPCGCSTS	5,000 pcs	44.0 lbs.
H	#10-16 X 5/8" DP3 .0003" Zinc and Yellow	.125"	10062SPC3CS	5,000 pcs	27.0 lbs.
I	#10-24 X 5/8" DP3 .0003" Zinc and Yellow	.125"	10062PPC3CSYZ	5,000 pcs	27.0 lbs.
J	#10-16 X 1" DP3 Long-Life TRI-SEAL® coated	.500"	10100SPC3CSTS	5,000 pcs	37.0 lbs.
K	#10-16 X 1" DP3 410 Stainless Steel	.500"	10100SPC3S4	5,000 pcs	37.0 lbs.
L	#10-16 X 1-1/2" DP3 Long-Life TRI-SEAL® coated	1"	10150SPC3CSTS	3,000 pcs	32.0 lbs
M	#10-16 x 2" DP3 Long-Life TRI-SEAL® coated	1.5"	10200SPC3CSTS	1,500 pcs	21.0 lbs.
N	#12-14 X 1" DP3 Long-Life TRI-SEAL® coated	.375"	12100SPC3CSTS	5,000 pcs	43.0 lbs.
O	#12-24 X 1-1/4" DP5 Long-Life TRI-SEAL® coated	.500"	12125SPC5CSTS	4,000 pcs	52.0 lbs.
	#12-24 X 1-1/2" DP5 Long-Life TRI-SEAL® coated	.625"	12150SPC5CSTS	4,000 pcs	43.8 lbs.
P	1/4-14 X 1" DP3 Long-Life TRI-SEAL® coated	.325"	14100SPC3CSTS	2,500 pcs	27.0 lbs.

Bagged 250 pcs. per bag for your convenience!

SPECIAL APPLICATIONS

We can assemble CONCEALOR® with a bonded sealing washer that locks out weather and looks appealing!

We can color match to your exact requirements in three days or less!

Installation: Do not use impact drivers!
Use 2,500 RPM max variable speed screw drivers with torque control or depth sensing nosepiece.

Kalida-Kote™ In-House Painting Available For Custom Color Matching, Fast!

In-Stock Colors #42 - #43 - #44 Call for Sizes

- Aged Copper
- Almond
- Ash Gray
- Aztec Gold
- Banner Red
- Bone White
- Burnish Slate
- Cape Clue
- Charcoal Gray
- Cherokee Blue
- Classic Green
- Cocoa Brown
- Colonial Red
- Colony Green
- Copper Penny
- Cordovan
- Country Red
- Dark Bronze
- Desert Sand
- Emerald Green
- Fern Green
- Hartford Green
- Hawaiian Blue
- Light Stone
- Mansard Brown
- Matte Black
- Medium Bronze
- Musket Gray
- Pacific Blue
- Polar White
- Red Clay
- Roman Bronze
- Royal Blue
- Rustic Red
- Sage
- Sahara Tan
- Sierra Tan
- Seaport
- Slate Blue
- Slate Gray
- Snow White
- Snowdrift White
- Stone White
- Teal Green
- Terra Cotta
- Winter Blue

Buttonhead Material	D Rivet Dia. Inch (mm)	Drill No. & Hole Size (mm)	H Head Dia. Nom. Inch (mm)	E Head Height Max. Inch (mm)	L Rivet Length Max. Inch (mm)	Grip Range Inch (mm)	Typical Ultimate Strength (Lbs.) (newtons) Shear	 Tensile
Plated-Steel Rivet Steel Mandrel Open End	1/8" (.125) 3.2	#30 (.129-.133) 3.3 (3.28-3.38)	.250 6.35	.040 1.02	.212 (5.4) .275 (7.0) .337 (8.6) .400 (10.2) .462 (11.7) .525 (13.4) .650 (16.5) .775 (19.7)	.032-.062 (0.8-1.6) .063-.125 (1.7-3.2) .126-.187 (3.3-4.8) .188-.250 (4.9-6.4) .251-.312 (6.5-7.9) .313-.375 (8.0-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9)	280 1240	410 1820
	3/16" (.187) 4.8	#11 (.192-.196) 4.9 (4.88-4.98)	.375 9.53	.055 9.53	.325 (8.3) .450 (11.5) .575 (14.6) .700 (17.8) .825 (21.0) .950 (24.2) 1.075 (27.3) 1.200 (30.5)	.062-.125 (1.6-3.2) .126-.250 (3.3-6.4) .251-.375 (6.5-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9) .626-.750 (16.0-19.1) .751-.875 (19.1-22.2) .876-1.000 (22.3-25.4)	600 2665	870 3870
5056 ***Aluminum Rivet Steel Mandrel*** Open End	1/8" (.125) 3.2	#30 (.129-.133) 3.3 (3.28-3.38)	.250 6.35	.040 1.02	.212 (5.4) .275 (7.0) .337 (8.6) .400 (10.2) .462 (11.7) .525 (13.4) .650 (16.5) .775 (19.7)	.032-.062 (0.8-1.6) .063-.125 (1.7-3.2) .126-.187 (3.3-4.8) .188-.250 (4.9-6.4) .251-.312 (6.5-7.9) .313-.375 (8.0-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9)	180 800	270 1200
	3/16" (.187) 4.8	#11 (.192-.196) 4.9 (4.88-4.98)	.375 9.53	.055 1.40	.325 (8.3) .450 (11.5) .575 (14.6) .700 (17.8) .825 (21.0) .950 (24.2) 1.200 (30.5)	.062-.125 (1.6-3.2) .126-.250 (3.3-6.4) .251-.375 (6.5-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9) .626-.750 (16.0-19.1) .751-1.00 (19.1-25.4)	440 1950	700 3110
Aluminum Rivet Aluminum Mandrel Open End	1/8" (.125) 3.2	#30 (.129-.133) 3.3 (3.28-3.38)	.250 6.35	.040 1.02	.212 (5.4) .275 (7.0) .337 (8.6) .400 (10.2) .462 (11.7) .525 (13.4) .650 (16.5) .775 (19.7)	.032-.062 (0.8-1.6) .063-.125 (1.7-3.2) .126-.187 (3.3-4.8) .188-.250 (4.9-6.4) .251-.312 (6.5-7.9) .313-.375 (8.0-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9)	150 660	180 800
	3/16" (.187) 4.8	#11 (.192-.196) 4.9 (4.88-4.98)	.375 9.53	.055 1.40	.325 (8.3) .450 (11.5) .575 (14.6) .700 (17.8) .825 (21.0) .950 (24.2) 1.075 (27.3) 1.200 (30.5) 1.450 (36.8)	.062-.125 (1.6-3.2) .126-.250 (3.3-6.4) .251-.375 (6.5-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9) .626-.750 (16.0-19.1) .751-.875 (19.1-22.2) .751-1.00 (19.2-25.4) 1.125-1.250 (28.6-31.8)	280 1240	430 1910
Stainless Rivet Stainless Steel Mandrel IFI Grade 51 Open End	1/8" (.125) 3.2	#30 (.129-.133) 3.3 (3.28-3.38)	.250 6.35	.040 1.02	.212 (5.4) .275 (7.0) .337 (8.6) .400 (10.2) .462 (11.7) .525 (13.4) .650 (16.5)	.032-.062 (0.8-1.6) .063-.125 (1.7-3.2) .126-.187 (3.3-4.8) .188-.250 (4.9-6.4) .251-.312 (6.5-7.9) .313-.375 (8.0-9.5) .376-.500 (9.6-12.7)	520 2310	600 2660
	3/16" (.187) 4.8	#11 (.192-.196) 4.9 (4.88-4.98)	.375 9.53	.055 1.40	.325 (8.3) .450 (11.5) .575 (14.6) .700 (17.8) .825 (21.0) .950 (24.2) 1.120 (30.5)	.062-.125 (1.6-3.2) .126-.250 (3.3-6.4) .251-.375 (6.5-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9) .626-.750 (16.0-19.1) .751-1.000 (19.2-25.4)	1150 5110	1300 5780
#110 Copper Rivet Brass Mandrel IFI Grade 20 Open End	1/8" (.125) 3.2	#30 (.129-.133) 3.3 (3.28-3.38)	.125 6.35	.040 1.02	.275 (7.0) .400 (10.2)	.063-.125 (1.7-3.2) .188-.250 (4.9-6.4)	215 950	300 1330
#5056 Aluminum Rivet Steel Mandrel Closed End	1/8" (.125) 3.2	#30 (.129-.133)	.236	.035	.296 (7.52) .355 (9.02) .414 (10.52) .473 (11.10) .532 (13.51) .591 (15.06)	.032-.062 (0.8-1.6) .063-.125 (1.7-3.2) .126-.187 (3.3-4.8) .188-.250 (4.9-6.4) .251-.312 (6.5-7.9) .313-.375 (8.0-9.5)	240 1060	280 1240

Industry

SikaLastomer®-95

Isobutylene Tripolymer Tape

Technical Product Data (typical values)

Chemical base	Butyl
Color	Gray
Specific Gravity (ASTM D 792)	1.44 to 1.56
Total solids (ASTM C 771)	100%
Penetration (ASTM D 217) cone at 77°F / 300 gr.	70 to 90 (7.0 – 9.0 mm)
Flexibility (AAMA 800-92) (ASTM C 734)	No cracking or loss of adhesion at -60°F (-51°C)
Elongation[1] (ASTM C 908)	1100% min
Staining (ASTM D 925)	Will not stain painted or unpainted surfaces
Vehicle bleed out (ASTM C 771) 158°F (70°C) for 21 days	No exudation of vehicle on Whatman No. 40 filter paper
Crazing to acrylic plastics	Will not craze plastics
Application temperature product	-5°F to 120°F (-20°C to 49°C)
Tensile adhesive strength[1] (ASTM C 907)	17 to 20 psi min (cohesive failure)
Peel adhesion (ASTM D 3330 –modified 90° peel)	8 lbs/in. min (cohesive failure)
Corrosivity	No darkening, etching or salt deposits on GALVALUME®, KYNAR 500®, ZINCALUME®, aluminum, aluminized steel or galvanized metal
Weatherability (ASTM G 53) (1000 h exposure)	No cracking, bleeding or loss of rubbery characteristics
Static water head test (MBMA ice damming)	Sealant passes 8 in. water head in an erected interlocked panel joint
Service temperature permanent	-60°F to 212°F (-51°C to 100°C)
Shelf life (storage below 80°F (27°C))	18 months

1) 77°F (25°C)

Description

SikaLastomer® -95 Isobutylene Tripolymer Tape is a high performance, tacky elastic butyl tape which is designed to bond through oily GALVALUME®, KYNAR 500®, aluminized steel, ZINCALUME®, galvanized metal, aluminum, siliconized polyester and polyvinyl fluoride painted metals, glass, wood, concrete, fiber-reinforced plastics (FRP) and similar substrates. Its superior surface tack affords tenacious adhesion to these substrates without pre-wiping the surface even at temperatures as low as 5°F. Where superior tensile strength and extensibility (webbing/elongation) are critical, in both hot and cold climates, use SikaLastomer Isobutylene Tripolymer Tape rather than general purpose butyl tapes. SikaLastomer is formulated without asbestos fillers. SikaLastomer®-95 contains a special additive which inhibits a broad spectrum of microbial activity. SikaLastomer®-95 is manufactured in accordance with ISO 9001 / 14001 quality assurance system and the responsible care program.

Product Benefits

- Resistance to fungus / Mildew growth
- Almost odorless
- Paintable
- Will not stain painted or unpainted surfaces

Areas of Application

Specifically developed for sealing critical Standing Seam Roof (SSR) endlaps and lap joints for metal building roofs, skylights, roof curbs, smoke vents, air conditioning equipment, curtain wall joints and perimeter areas around windows and doors. Sealing exterior lap joints of grain storage bins and sealing the base to the concrete pad. Designed for sealing polyethylene sheeting and metal sewer pipes. Sealing exposed, concealed exterior lap joints of aluminum, steel, coated metals, wood, roof rails and door hinges in transport equipment. Waterproofs rivet seams and lap seams in truck trailers and RVs.

Excellent for sealing between dissimilar metals to prevent electrolysis.

This product is suitable for experienced professional users only. Tests with actual substrates and conditions have to be performed to ensure adhesion and material compatibility.

Chemical Resistance

Excellent resistance to water, water vapor, ozone and alcohols. Fair to good resistance to weak acids and bases (including silage juice). Poor resistance to aliphatic, aromatic and keytone solvents and oils. The above information is offered for general guidance only. Advice on specific applications will be given on request.

Method of Application

Surface preparation

Advice on specific applications is available from the Technical Service Department of Sika Industry.

Removal

SikaLastomer®-95 may be removed from tools and equipment with mineral spirit or another suitable solvent.

Following use wash hands with soap and water. Do not use solvents on hands!

Meets following qualifications

MIL-C-18969B, Type II, Class B
TT-C-1796A, Type II, Class B
AAMA 804-92 and AAMA 807-92
FDA for packaging and transporting food as listed in CFR Title 21
USDA Approved for incidental food contact
Freight class.: Caulking Compound, NOIBN, NMFC #149610, Class 55

HMIS

Health	0
Flammability	1
Reactivity	0
Personal Protection	A

Further Information

Copies of the following publications are available on our website www.sikaindustry.com:

-Material Safety Data Sheets
-Product Data Sheet
-Sika Primer Chart
-General guidelines for bonding and sealing with Sika products

In case of emergency call:
Chemtrec: 800-424-9300
International: 703-527-3887

For further information and advice regarding transportation, handling, storage and disposal of chemical products, users should refer to the actual Material Safety Data Sheets containing physical, ecological, toxicological and other safety related data. It is highly recommended to read the actual Material Safety Data Sheet before using the product.

-KEEP OUT OF REACH OF CHILDREN
-NOT FOR INTERNAL CONSUMPTION
-FOR INDUSTRIAL USE ONLY

Packaging Information

Rolls	Multiple sizes
Endlap pads	Multiple sizes

Value Basis

All technical data stated on this Product Data Sheet are based on the results of laboratory tests only. Actual measured data in the field may vary due to site specific conditions which are not known to Sika and beyond our control.

Clean Up

Dispose of in accordance with current, applicable local, state and federal regulations.

Limited Material Warranty

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. **NO OTHER WARRANTIES IMPLIED OR EXPRESS SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

Legal Notes/Disclaimer

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Further information available at:
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Industry

SikaLastomer®-511

Non-Skinning Butyl Sealant for Standing Seam Roofs

Technical Product Data (typical values)

Chemical base	Butyl
Color	Off-white
Density (uncured)	10.9 +/- 0.05 lbs/gal
Total solids	85% minimum
Flexibility (AAMA 800-92 (ASTM C 734)	No cracking and or loss of adhesion at -60°F (-51°C)
Staining (ASTM D 925)	No deterioration of painted surface to Galvalume, Galvanized, SPE, and Kynar 500
Slump (ASTM D 2202)	0.1" @ 122°F 0.2" @ 158°F
Skin formation time[1]	Soft, tacky, and engageable for up to 6 Months after initial application
Shrinkage (ASTM D 2453)	16%
Corrosivity	No darkening, etching, or salt deposits on metal
Heat aging (ASTM C-792-75, C-661-91, D 2240-92)	No cracking / chalking
Static water head test (MBMA ice damming)	Passed up to 6" after 24 hours using a double lok or triple lok panels
Water Penetration (ASTM E 1646)	No water leakage (on a triple lok or double lok panels)
Service temperature permanent	-60°F to 220°F (-51°C to 104°C)
Shelf life (storage below 80°F (25°C))	12 months from date of manufacture in unopened container

[1] 73°F (23°C) / 50% r.h.

Description

SikaLastomer®-511 is a high solids, non-hardening, non-drying, non-oxidizing, butyl rubber-based sealant designed for factory sealing the female lip of standing seam roof and wall panels, and concealed endlaps. It has excellent adhesion to oily Galvalume®, Galvalume®Plus, KYNAR 500®, aluminized metal, ZINCALUME®, siliconized polyester and polyvinyl fluoride painted metals. It will not corrode Galvalume®, Galvalume® Plus, or copper. Its permanent surface tack allows factory caulked panels to be bonded in the field up to six (6) months after initial application, depending upon the temperature at which the panels are stored. Metal panels can be easily separated after extended periods for repair and maintenance. It has excellent pumpability and gunnability at low temperatures, as well as clean "cut-off" properties, eliminating stringing from application by extrusion. It is formulated without asbestos fillers. Unopened cartridges, pails and drums of SikaLastomer® 511 have a 12 month shelf life from data of manufacture. SikaLastomer®-511 is manufactured in accordance with ISO 9001 / 14001 quality assurance system and the responsible care program.

Product Benefits

- Passes AAMA 800-92 Sec. 1.5.4.4
- Excellent adhesion to oily to Galvalume®, Galvalume®Plus, KYNAR 500®, aluminized metal, AINCALUME®, siliconized polyester and polyvinyl fluoride painted metals.
- Excellent pumpability and gunnability.
- Permanent surface tack allows factory caulked panels to be bonded in field up to 6 months after initial application.
- No presence of voids, cracks, separation or breakdown of the compound.

Areas of Application

SikaLastomer®-511 will adhere to the mating surface and flow into the panel joint at erection temperatures ranging from -10°F to 140°F (60°C). Excellent for sealing between dissimilar metals to prevent electrolysis. SikaLastomer®-511 contains a special additive which inhibits a broad spectrum of microbial activity. It is capable of application speeds of 200 feet per minute in a 3/16 inch diameter bead using standard production pumping equipment. We recommend using a Graco 55:1 (minimum) ratio pump.

Method of Application

Surface preparation

Advice on specific applications is available from the Technical Service Department of Sika Industry.

Application

For advice on selecting and setting up a suitable pump system please contact the System Engineering Department of Sika Industry.

Removal

SikaLastomer®-511 may be removed from tools and equipment with mineral spirit or another suitable solvent.

Following use wash hands with soap and water. Do not use solvents!

CAUTION: IRRITANT.

May cause skin/eye/respiratory irritation. Vapors may cause respiratory tract irritation. Avoid breathing vapors. Use with adequate ventilation. Avoid skin and eye contact. Safety goggles and rubber gloves are recommended.

HMIS

Health	1
Flammability	2
Reactivity	0
Personal Protection	C

First Aid Measures

In case of skin contact, wash thoroughly with soap and water. Remove contaminated clothing. For eye contact, flush immediately with plenty of water for at least 15 minutes, and consult a physician. For respiratory problems, remove person to fresh air. If breathing has stopped, institute artificial respiration. Consult with a physician. If swallowed do not induce vomiting. Call a physician immediately.

Further Information

Copies of the following publications are available on our homepage or through SikaFax:

- Material Safety Data Sheets

In case of emergency call:
Chemtrec: 800-424-9300
International: 703-527-3887

Important

For information and advice regarding transportation, handling, storage and disposal of chemical products, users should refer to the actual Material Safety Data Sheets containing physical, ecological, toxicological and other safety-related data. It is highly recommended to read the actual Material safety data sheet before using the product.

- Keep out of reach of children
- For industrial use only
- Not for internal consumption
- Keep container tightly closed

Packaging Information

Cartridge	10.5 fl. oz.
Pail	5 gal
Drum	51 Gal

Clean Up

In case of spill, collect with absorbent material, ventilate closed area, and place material in suitable container for disposal. Dispose of in accordance with current, applicable local, state and federal regulations.

LIMITED WARRANTY

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Technical Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor.

NO OTHER WARRANTIES IMPLIED OR EXPRESS SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE OR ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.

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SONOLASTIC® NP1™

Polyurethane joint sealant

DESCRIPTION

Sonolastic NP 1 is a versatile moisture-curing high performance polyurethane sealant with permanent elasticity.

COMPLIANCES

- Federal Specification TT-S-00230C, Type II, Class A
- Corps of Engineers CRD-C-541, Type II, Class A
- ASTM C 920, Type S, Grade NS, Class 25, Use NT, M, A, G and I
- Canadian Specification CAN/CGSB-19 13-M87, Classification MCG-2-25-A-N, No.81026
- USDA approved for use in meat and poultry areas
- Canadian approval for use in establishments that handle food
- SWRI validated
- ISO 11600 F-25LM

RECOMMENDED FOR

Active, vertical and horizontal interior, exterior joints. Including expansion wall joints, floor and pavement joints, curtain walls, panel walls, precast walls, window frames, structural components, dams, spillways and stormwater drains. Substrates include concrete, masonry, aluminium and wood.

FEATURES AND BENEFITS

- *Joint movement capability ± 25%*
  Excellent flexibility for keeping moving joints tight
- *Available in pro-pack sausages*
  Reduces job-site waste, lowers disposal costs
- *Easy to gun and tool*
  Speeds application and makes neater joints
- *Variety of colours*
  Matches common substrates
- *Bonds to most construction materials without a primer*
  Lowers installation costs
- *One component*
  No mixing, less labour
- *Weather resistant*
  Long-lasting weathertight seals
- *Wide temperature application range*
  Suitable for all climates
- *Paintable polyurethane sealant*
  Best choice for structures that may be repainted
- *Low VOC content*
  User friendly for applicators
- *Suitable for non-chlorinated water immersion*

PERFORMANCE DATA

Property	Test Method	Value (Average)
Movement capability (MAF)	ASTM C 719	± 25%
Tensile strength	ASTM D 412	2.4 MPa
Ultimate elongation at break	ASTM D 412	800%
Hardness at standard conditions (Shore A)	ASTM C 661	25-30
Hardness after heat aging, max. Shore A:50	ASTM C 661	25
Tack-free time (maximum 72 hrs.)	ASTM C 679	Passes
Stain and colour change	ASTM C 510	None
Service temperature range (°C)		-40 to 82

The above data represents the information typically required to verify performance. For the full and comprehensive list of performance data, refer to "Application Guide & Performance Data for Sonolastic® Polyurethane Sealants" available from your local BASF Construction Chemicals representative.

APPLICATION DIRECTIONS

For information on joint design, surface preparation and priming, refer to Technical Note 17 "Application Guide & Performance data for Sonolastic Polyurethane Sealants" available from your local BASF Construction Chemicals representative.

Application

- Sonolastic NP 1 comes ready to use. Apply by professional caulking gun. Do not open sausages until preparatory work has been completed.
- Fill joints from deepest point to the surface by holding a properly sized nozzle against the back of the joint.
- Dry tooling is recommended. DO NOT use soapy water when tooling. Tooling results in the correct bead shape, a neat joint, and maximum adhesion.

For Best Performance

- Protect unopened containers from heat and direct sunshine.
- In cool or cold weather, store container at room temperature for at least 24 hours before using.
- Do not apply over freshly treated wood; treated wood must have weathered for at least 6 months.
- UV exposure may cause white Sonolastic NP 1 to discolour – this does not effect sealant performance; where maintaining a true white appearance is critical, use Sonolastic Ultra Sealant.
- Sonolastic NP 1 can be applied below freezing temperature (>-5°C) only if substrates are completely dry, free of moisture, and clean. Temperatures below 5°C will extend curing times.
- Sonolastic NP 1 should not come in contact with oil-base caulking, silicone sealants, polysulfides, fillers impregnated with oil, asphalt, or tar.

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SONOLASTIC® NP1™

- Sonolastic NP1 can be painted over provided it is fully cured and cleaned. When painting over any elastomeric sealant, use a paint that is also elastomeric.
- Do not allow uncured Sonolastic NP1 to come into contact with alcohol-based materials or solvents.
- When Sonolastic NP1 is to be used in areas subject to continuous water immersion, cure for 21 days at 23°C and 50% relative humidity. Allow longer cure times at lower temperatures and humidities. Always use Primer 733.
- Do not use in swimming pool or other submerged conditions where the sealant will be exposed to strong oxidizers.
- Avoid submerged conditions where water temperatures will exceed 50°C.

CURING

The cure of Sonolastic NP 1 varies with temperature and humidity. The following times assume 24°C, 50% relative humidity, and a joint 12mm width by 6mm depth.

- Skins overnight or within 24 hours.
- Functional within 3 days,
- Full cure in approximately 1 week.

Note: Deeper joints require longer curing period.
Lower temperatures and humidities will extend curing times.

CLEANING

- Immediately after use, clean equipment with Sonoshield Thinner. Use proper precautions when handling solvents.
- Remove cured sealant by cutting with a sharp-edge tool.
- Remove thin films by abrading.

COLOURS

A complete line of standard colours is available including white, limestone, tan, aluminium grey, and black.

PACKAGING

Sonolastic NP 1 is packaged in 590 mL ProPack sausages, 20 sausages to a carton.

ESTIMATING DATA

Joint Size (mm)	Metres per litre
5 x 5	40
10 x 10	10
12 x 12	6.95
15 x 7.5	8.88
20 x 10	5.00
25 x 12.5	3.20
30 x 15	2.22

SHELF LIFE

Shelf life is 12 months when stored away from heat and direct sunshine.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN. Use only with adequate ventilation. Prevent contact with skin, eyes, and clothing. Wash thoroughly after handling. Use impervious gloves, eye protection and if used in a poorly ventilated area, use approved respiratory protection.

First Aid

In case of eye contact, flush thoroughly with water at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, seek medical attention. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION. Refer to Material Safety Data Sheet (MSDS) for further information.

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valspar
if it matters, we're on it.®

Fluropon® Air Dry Touch-Up

Fluropon PVDF 100% trusted

Fluropon® Air Dry Touch-Up is a two component system that incorporates Valspar Fluropon topcoats with an air dry additive (920x346). The components are mixed then applied to small damaged areas and air dryed. The applied touch-up is tack free in 30-45 minutes at 70° F and dry to handle after 24 hours. The touch-up system is designed for use in field application to repair scratches and confined areas of factory coated Fluropon products. Recommended application methods include fine air brush or small art brush.

Fluropon Air Dry Touch-Up is not designed for large surface areas. On large areas we recommend, when possible, replacing the building part with a factory coated part or removing the part and recoating in the factory with a baked on Fluropon coating.

Prior to touch-up, an assessment of the damaged area will need to be conducted. If the scratch or nick has penetrated both the topcoat and primer, and there is exposed metal, pre-treatment and primer of the affected area needs to be considered. If the damage is superficial, the touch-up can be applied direct to the factory applied Fluropon coating.

"Fluropon coatings have been the first choice among architects & builders for over 40 years. Whether your project is a long-life monumental high-rise, or a pre-engineered building, Fluropon is the most trusted name in PVDF coatings."

Touch-Up End Uses

Recommended for use in touch-ups where an air dry system is needed. This system is designed for small, damaged areas such as scratches and nicks. It is not warranted nor is it intended for restoration use.

- Touch-up of factory applied Fluropon building components
- Touch-up of Fluropon coated pre-engineered building
- Touch-up of residential and architectural windows, doors, skylights and access systems

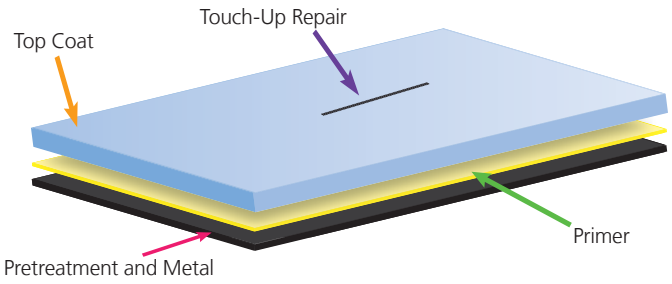
Fluropon Air Dry Touch-Up

Application Temperature:	50° F
Application Reduction for Air Dry:	50/50 by Volume with 920x346
Dry Film Thickness:	1.0 - 1.3 mils DFT
Tack Free Time:	30 - 40 Minutes @ 70° F
Dry Handling Time:	24 Hours @ 70° F
Clean Up Solvent:	Xylene or MEK

Field Touch-Up Process

- Surface Preparation
  - Surface must be dry and free from debris
  - Clean affected area with an isopropyl alcohol clean cloth, remove all contaminants

- Application of Touch-Up
  - Apply only if ambient and surface temperatures are above 50° F
  - Allow at least 30 - 45 minutes for tack free and 24 hours dry to handle at 70° F
  - Apply with small art brush for fine air brush directly in the scratch or affected area
  - Multiple coats or passes will likely be required to achieve desired dry film thickness (DFT).
  - Mica/Metallic touch-up is much more sensitive to color and appearance differences versus the factory applied coating color



Fluropon is a two coat PVDF resin system with a total Dry Film Thickness (DFT) of 1.2 mils minimum.

Color Coat: 1.0-1.3 mils

Primer: 0.2-0.4 mils

valspar
if it matters, we're on it.®

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