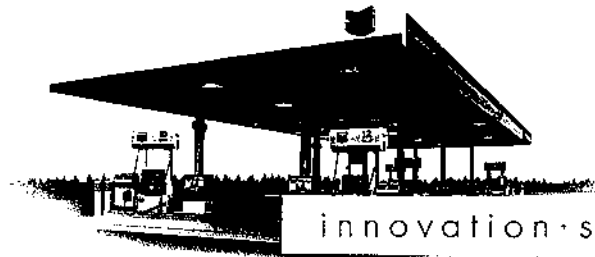
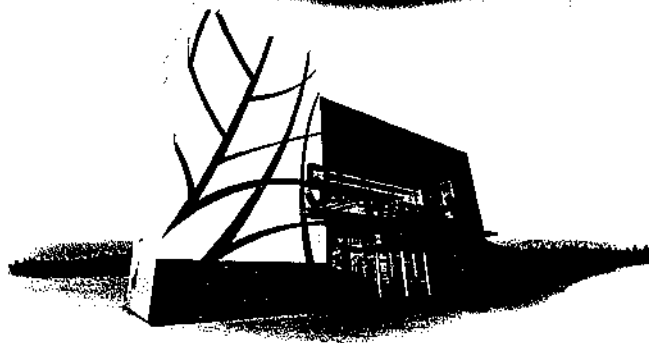


cleaning instructions



innovation • style • performance



ALPOLIC® & ALPOLIC®/fr
MATERIALS

MITSUBISHI PLASTICS COMPOSITES AMERICA, INC.
www.alpolic-northamerica.com

Cleaning and Finish Maintenance Information

ALPOLIC[®] Materials Painted ACM

The painted surfaces of the ALPOLIC[®] ACM panels should be cleaned on a regular basis to prevent the build up of corrosive deposits. The required frequency and method of this cleaning is dependant on the local environment and conditions.

Rinsing the panels with fresh water on a frequent basis can reduce the residue build up on the surface and there by reduce the need for more intensive cleaning. It is suggested to rinse the panels' surfaces at the same time the windows are cleaned.

If the fresh water rinse is not successful in removing surface deposits washing with a mild detergent, using a pressure washer at a low pressure setting and or a lamb's wool mitt or soft cloth, followed immediately by a fresh water rinse, is recommended. It is important that the panels be cleaned when the surfaces are in the shade to prevent quick drying and streaking. Avoid cleaning the ALPOLIC[®] surfaces when they are very hot or very cold. Clean small areas at a time to prevent the drying of the detergent solution on the wall prior to rinsing.

When the residue on the building surface is organic in nature the mild detergent may not be aggressive enough to thoroughly clean the panels. For these situations the following methods are recommended.

For light organic residue and/or hydrocarbon build up:

Miraclean Professional All Purpose Cleaner*

Hand Wipe: Full Strength to 1:1

Stick Goods Cleaning (Squeegees, etc.): 2:1 to 5:1

Pressure Washing: 10:1 to 20:1

For heavier residue and/or hydrocarbon build up:

Mirachem 500 Cleaner/Degreaser Concentrate*

Hand Wipe: Full Strength to 3:1

Stick Goods Cleaning (Squeegees, etc.): 2:1 to 5:1

Pressure Washing: 10:1 to 20:1

Dilutions are indicated as a ratio of parts of water to parts of cleaning product. For example an indicated dilution of 5:1 would use 5 parts of water for one part of cleaner.

As with the mild detergent method, work on small areas at a time to ensure proper rinsing of the surface prior to drying. This will prevent streaking on the cleaned panels.

Always test the cleaning method and products on a small inconspicuous area of the building prior to cleaning the larger building surfaces.

*Cleaning solutions available from The Mirachem Corporation:
602-272-6066.

For additional information, samples or a list of ALPOLIC[®] fabricators,
please call 1-800-422-7270 or visit www.alpolic-northamerica.com

ALPOLIC[®] & ALPOLIC[®]/fr M A T E R I A L S

 MITSUBISHI PLASTICS COMPOSITES AMERICA, INC.

Composite Materials Division

401 Volvo Parkway, Chesapeake, VA 23320

Telephone: 800-422-7270, Facsimile: 757-436-1896

www.alpolic-northamerica.com e-mail: info@alpolic.com



U1AP4C06 Rev. 1

©2010 Mitsubishi Plastics Composites America, Inc. All rights reserved.

ALPOLIC[®] is a registered trademark of Mitsubishi Plastics Inc.

LUMIFLON[®] is a registered trademark of Asahi Glass Co., Ltd.

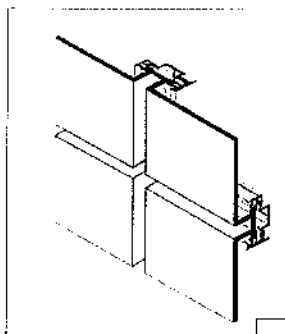


ALPOLIC®/fr MATERIALS

MITSUBISHI PLASTICS COMPOSITES AMERICA, INC.

fr architectural – mica

ALPOLIC®/fr architectural Mica color aluminum composite materials are manufactured with a mineral filled fire resistant core and a 2-coat fluorocarbon paint finish. The Mica finish provides a clean, crisp look for any project.



CONSTRUCTION INFORMATION

PROJECT: Edward Jones Southwest Campus

LOCATION: Arizona

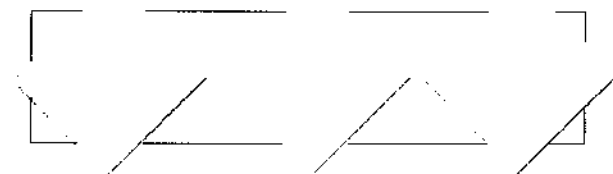
FABRICATOR/INSTALLER: Universe Corp.

PRODUCT: ALPOLIC®/fr Mica Platinum



GENERAL INFORMATION

ALPOLIC®'s extensive selection of Mica finishes enable you to create designs and effects that no other panel system can achieve. They are stocked in two widths – 50 and 62 inches; and two lengths – 146 and 196 inches. These 4mm-thick panels are manufactured to architectural standards with an advanced mineral filled core.



MICA ANODIC CLEAR
4-4MNC-G30

MICA PLATINUM
4-4OPT-G50

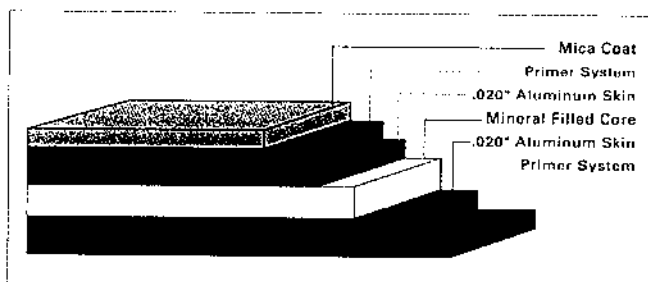
MICA CHAMPAGNE
4-4MCU-G30

ALPOLIC[®]/fr mica

INTERIOR AND EXTERIOR SURFACING
INTERIOR AND EXTERIOR SIGNAGE

SURFACE TREATMENT

ALPOLIC /fr architectural Mica color panels are stocked with a FEVE LUMIFLON[™] finish, a fluorocarbon paint system that features excellent durability and weathering for architectural needs. A PVDF, Kynar finish is available as a custom request. Available stock architectural Mica colors include Mica Platinum, Mica Champagne and Mica Anodic Clear.



STANDARD PANEL SIZE

Standard stock widths are 50" (1270mm) and 62" (1575mm) and lengths of 146" (3708mm) and 196" (4978mm). Panels are stocked in 4mm thickness. Standard crate is 30 pieces. Custom lengths and thickness available. Please contact ALPOLIC Customer Service for current available stock and additional information.

FINISH TOLERANCE

Color: DE 2.5 max from standard
Gloss: Nominal ± 10 units

PRODUCT TOLERANCE

Width: $\pm 0.08"$ (2mm)
Length: $\pm 0.16"$ (4mm)
Thickness: 4mm: $\pm 0.008"$ (0.2mm)
6mm: $\pm 0.012"$ (0.3mm)
Bow: maximum 0.5% of length and/or width
Squareness: maximum 0.2° (5mm)
Peel Strength: >22 in lb/in (ASTM D1781)

ALPOLIC material is trimmed and squared with cut edges to offer the best panel edge conditions in the industry.

FIRE PERFORMANCE

Fire resistant ALPOLIC /fr architectural Mica finish panels with a mineral filled core have been tested by independent testing laboratories using nationally recognized tests.

This material meets all requirements of the International Building Code for non-combustible construction:

IBC Listed

Please visit www.alpolic-northamerica.com or call technical support for complete report listings and additional information.

WARRANTY

Standard panel warranty: 10 Year
Finish warranty: 30 Year*
Call ALPOLIC Customer Service for exclusions and warranty details. *30 year warranty only applies to standard architectural colors.

PRODUCT NOTES

- Panels should be stored flat in a dry, indoor environment
- Fabricate panels at temperatures above 55°F.
- Protective film should be removed from panels soon after installation.
- Please refer to ALPOLIC /fr Painted ACM Fabrication Manual for routing and fabrication recommendations.
- Crating fees apply to orders for less than standard piece crate.
- For best color consistency, ALPOLIC recommends ordering all required Mica paint finish panels at one time and maintaining consistent panel orientation during installation.
- Different lots of Mica finish should not be mixed on building elevation.

FOR TECHNICAL INFORMATION, PLEASE
CALL 1.800.422.7270

U.S. HEADQUARTERS
MITSUBISHI PLASTICS COMPOSITES AMERICA, INC.

401 Volvo Parkway, Chesapeake, VA 23320

Telephone: 800-422-7270, Facsimile: 757-436-1896

www.alpolic-northamerica.com e-mail: info@alpolic.com

ALPOLIC

LEED 2009 CONTRIBUTION DATA SHEET

The following has been developed to provide the information needed by the LEED project team for the determination of the contribution of the ALPOLIC painted ACM fr panels towards specific LEED New Construction and Major Renovation points. In the event further information is required contact ALPOLIC at 1-800-422-7270 ext1.

ALPOLIC PAINTED ACM fr CORE

Materials and Resources

MR Credit 4: 1 to 2 points

One point is awarded if the materials selected for the project have a recycle content of 10% based on total value. A second point can be earned if the recycle value reaches 20%. The recycle content is determined as the sum of the post consumer recycle content plus one half of the pre consumer recycle content. For material assemblies, such as cladding systems, the recycled content value shall be determined by weight.

	% weight of panel	% Post Consumer Recycle Content	% Pre Consumer Recycle Content	Total = 100% Post Consumer + 50% Pre Consumer Recycle Content
4 mm ACM fr				
Aluminum Skins	35.4	12.5	64.2	44.6
fr Core	64.6	0	0	0
4 mm Panel	100	4.4	22.7	15.76
6 mm ACM fr				
Aluminum Skins	24.8	12.5	64.2	44.6
fr Core	75.2	0	0	0
6 mm Panel	100	3.1	15.9	11.1

Note: The total recycle content of the panels should be combined with the other components of the cladding system to determine the contribution of the wall cladding to the overall project point qualification

MR Credit 5: 1 to 2 points

This credit addresses the % of the materials used in the project that were locally extracted and manufactured. One point is available for a 10% regional material content and a second point can be earned if 20% regional materials are used in the project.

The ALPOLIC fr painted ACM panels are produced from several different materials such as aluminum coil, polyethylene, coatings, and protective film. Due to the nature of these materials, specifically their high recycle content it is not possible to identify and quantify the initial extraction location or all of the subsequent processing points. For this reason it is recommended that ALPOLIC painted ACM fr not be included in the calculations for this credit.

Indoor Environmental Quality

EQ Credit 4.2: 1 point. The intent of this credit is to reduce the harmful or irritating indoor air contaminants that the building occupants or installers are exposed to.

All coatings applied to the ALPOLIC Painted ACM fr panels are factory applied using a coating line with an in line regenerative thermal oxidizer, which eliminates the release of the VOC content of the coating. By factory applying the coatings the need for field painting and the accompanying VOCs are eliminated.

Innovation in Design

ID Credit 1.1 to 1.5: 5 points are available in this section for exceptional performance in meeting the requirements in other sections of the LEED New Construction and Major Renovation rating system or for an innovative performance on green building categories which are not addressed in other sections of the rating system. The 2009 standard limits the points for exemplary performance to 3 points

The high recycle content of the ALPOLIC painted ACM fr panels can support the projects exceeding the recycle content required in MR Credit 4, thereby qualifying for an Innovation in Design credit. The ALPOLIC painted ACM fr panels also provide a highly durable and long life time cladding option.



Kingspan / Benchmark**MAINTENANCE INSTRUCTIONS**

Metal wall panels normally require a minimum of maintenance to provide a greater degree of optimum serviceability. The owner's maintenance department should inspect the wall panel surface annually, preferably during the spring and after any severe storm.

1. The owner's agent shall note and do the following:
 - a. File all job records, wall panel shop drawings, project plans, and specifications for reference. Set up a maintenance schedule and reporting system.
 - b. Clean drains and gutters. Observe copings and sealant at coping seams.
 - c. For cleaning instructions, see pages 2 and 3
 - d. Observe any standing water at flashing or against panels and determine the cause.
 - e. Observe and remove any vegetation or debris that has accumulated against the panels.
 - f. Observe any deterioration, pest disturbance, or vandalism at sealant, closures, flashing, and panels.
 - g. Observe wall surfaces at penetrations and exhausts for any localized deterioration.
 - h. Should leaks occur, notify the General Contractor. Note the location and conditions resulting in leakage; magnitude of rain; wind direction; temperature; time required for leaks to appear or cease after rain starts and stops; condition of building openings; status of mechanical equipment; internal condensation at windows, walls, skylights, etc.
 - i. Note the location and nature of any deterioration and keep a log for future reference and yearly comparisons.
2. Except for emergencies or obvious problems, do not perform wall repairs. Consult with the General Contractor for proper remedial action (if any).
3. Any and all servicing of the wall panel system must be completed in compliance with the above or voiding of any and all warranties may occur.



CLEANING GUIDELINES FOR DESIGNWALL PANEL SYSTEMS WITH FLUOROPOLYMER COATINGS

1. GENERAL

Fluoropolymer systems are similar in structure to Teflon®, a product most of us are familiar with through use in our households. 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 airborne dirt.

2. NORMAL PERIODIC CLEANING

Although factory-applied fluoropolymer finishes are extremely durable, a periodic cleaning to remove buildups of resins and other residue is a good idea to extend coating life. A variety of methods for removal of surface deposits are available. Simple washing with plain water using hoses or pressure spray equipment is usually adequate. This type of cleaning should be performed in mild weather if possible. When surfaces are dulled by heavy deposits of dirt or other contaminants, stronger methods may be needed.

3. REMOVAL OF FOREIGN SUBSTANCES ADHERED TO THE PANEL FINISH

In the event that foreign substances cannot be removed with mild detergent and water, it will be necessary to use higher grades of cleaning agents. Under no circumstances should abrasive agents or materials be used. Do not use wire brushes, abrasives, or similar cleaning tools which will mechanically abrade the coatings surface. Mineral spirits are considered to be safe for use on exterior finishes to remove grease, sealant, or caulking compounds and may also be effective at removing sun-baked residue from strippable film which was not properly removed at the time of panel installation.

Certain cleaning agents and stronger solvents listed below should be tested in an inconspicuous area before use on a large scale. They **WILL DULL OR DAMAGE THE PAINT FINISH** if rubbed repeatedly in one spot but can be very effective if used sparingly. It also must be noted that some of these solvents are flammable and may be classified as hazardous materials. It is solely the user's responsibility to comply with any applicable regulations and printed precautions regarding the use of these solvents. It should also be noted that aluminum extrusions which have spray applied finishes will not withstand solvent application to the degree that coil-coated panel surfaces will. Any factory panel adhesive found on the exterior panel surface will break down under ultraviolet rays from the sun and can eventually be scraped off with fingernail pressure.

GROUP A: HOT OR COLD DETERGENT SOLUTIONS

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

GROUP B: SOLVENTS

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

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

ALCOHOLS

- Denatured alcohol (ethanol)
- Isopropyl (rubbing alcohol)
- Methanol (wood alcohol)

Note: methanol is toxic

The above alcohol's have no permanent effect on fluoropolymer surfaces.

GROUP C: PETROLEUM SOLVENTS AND TURPENTINE

- VM&P naphtha
- Mineral spirits
- Kerosene
- Turpentine (wood or gum spirits)

The above solvents have no permanent effect on fluoropolymer surfaces.

GROUP D: AROMATIC AND CHLORINATED

- Xylol (Xylene)
- Toluol (Toluene)
- Perchlorethylene (Perclene)
- Trichlorethylene

Note: Perchlorethylene and Trichlorethylene are toxic.

The above solvents should be used with caution on fluoropolymer surfaces and limit contact with solvent to five minutes maximum and test before using.



GROUP E: KETONES, ESTERS, LACQUER THINNER AND PAINT REMOVER

- Methyl isobutyl ketone (MIBK)
- Ethyl acetate (nail polish remover)
- Butyl acetate
- Lacquer Thinner
- Paint remover (non-flammable)

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

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 and D) then the stronger solvents (Solvent Group E). If none of these give satisfactory results, it may be necessary to resort to touchup, repainting, or replacement, depending on the extent of the damage.

CHEMICAL SOLUTIONS

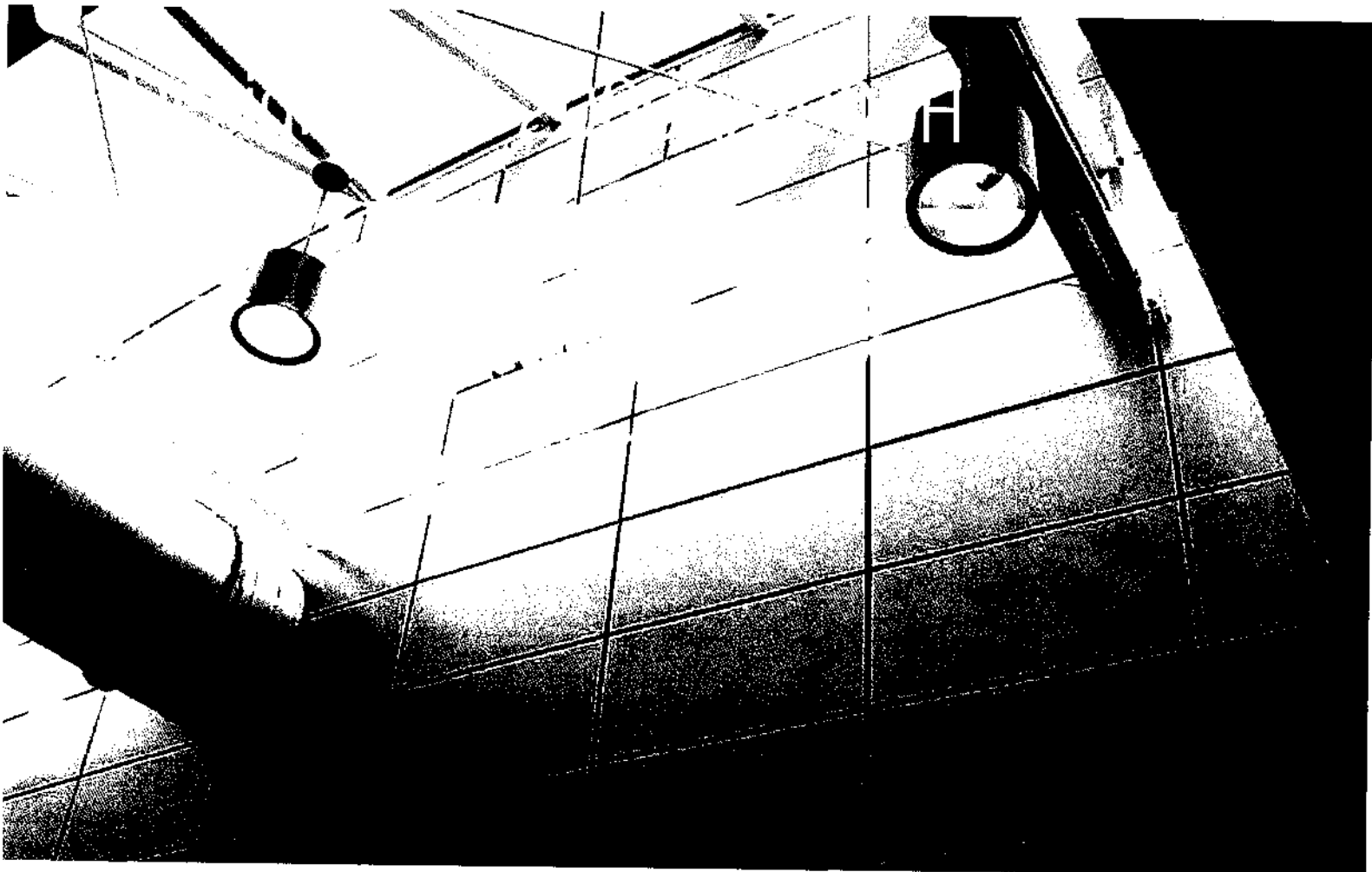
Mildew: In areas subject to high humidity levels, dirt and spore deposits can permit mildew growth to occur. The following solution is recommended to remove mildew when necessary:

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

Rust Stains: Hydrochloric or muriatic acid, diluted with ten volumes of water, may assist in removing rust stains from fluropolymer surfaces. Limit contact to five minutes. Oxalic acid solutions or acetic acid (vinegar) may be used for the same purpose. CAUTION: acid solutions are corrosive and toxic. Flush all surfaces with copious amounts of water after use.

WARRANTY

Kingspan / Benchmark will not accept responsibility for any finish damage resulting from the use of solvents. Misuse or abuse of any of the cleaning agents listed above will result in a voiding of the warranty for the surface affected. These guidelines are intended only as a service to our customers.



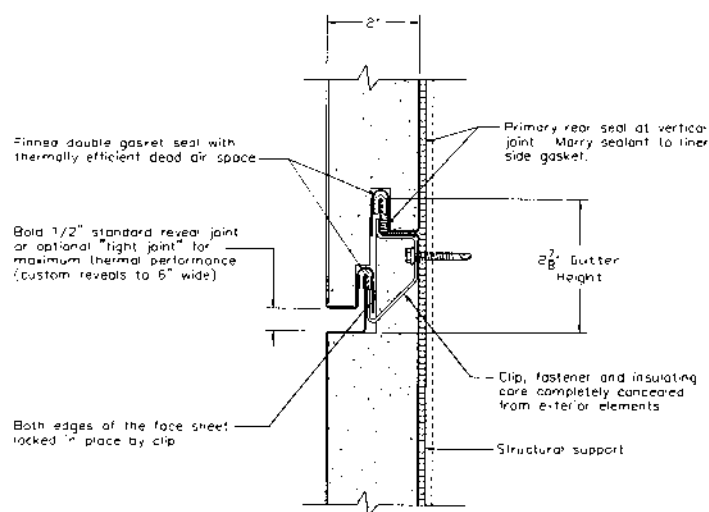
Innovative Field Proven Design in Horizontal Rainscreen Technology

Kingspan Insulated Panels has combined modern research and development with years of field experience to develop its unique horizontal jointery system resulting in the ultimate "rainscreen" design. In the past, the thermally efficient double tongue and groove shiplap joints commonly used in foam panel construction have functioned quite well in vertical applications, but when rotated to a horizontal position, the results were far from desirable. Due to the nature of their design configuration, vertical type joints when installed in a horizontal position naturally created a "water collection trough" on the exterior face side which has directly led to many serious leakage problems. Common solutions to this problem have included filling the horizontal joints with exposed wet sealants, attempting to collect this trapped water

and divert its flow back out to the exterior, or simply inverting the joinery which calls for costly "top to bottom" installation. Kingspan Insulated Panels has chosen a new alternative. Using a specially designed heat-treated steel clip, we have successfully developed a horizontal joint which maintains a thermally efficient double gasket shiplap seal, while eliminating the possibility of water entrapment and allowing for normal "bottom to top" installation. The Designwall 2000H/4000H horizontal joint features the following advantages:

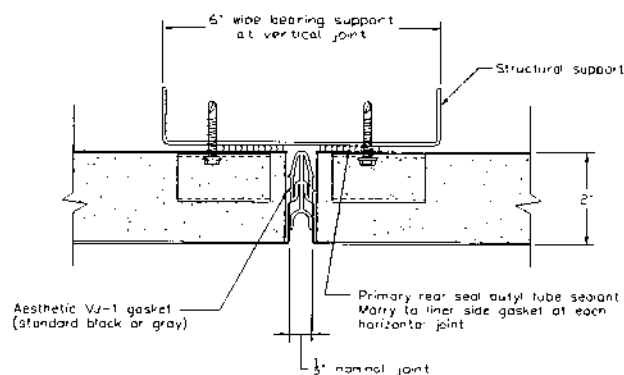
- Dry joint design with no exposed wet sealants required
- Shiplap joint properly oriented for natural water drainage
- Standard "bottom to top" installation
- Tested 15 psf rainscreen rating (liner seal broken)
- Pressure equalized joint

Kingspan.
Insulated Panels



HORIZONTAL JOINT

THICKNESS 2" OR 3"

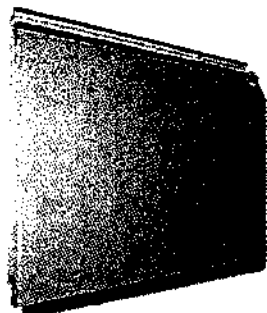


VERTICAL JOINT

THICKNESS 2" OR 3"

The Designwall™ Series

Kingspan Insulated Panels Designwall 2000H/4000H vertical joint uses a proprietary dry gasket seal "VJ-1" gasket. The gasket is easily installed and can accommodate construction tolerances ranging from 3/8" to 3/4" wide joints. Available as a standard in black or gray, this gasket provides the finished appearance of a professionally tooled wet sealant joint. Custom color gaskets are also available on a limited basis (subject to minimum order quantity and lead time coordination). Substitution of traditional backer rod and high grade silicone or urethane tube sealant is also an acceptable procedure that will not affect the panel warranty. These materials, however, are not stocked by Kingspan Insulated Panels. The "VJ-1" gasket is intended for aesthetic purposes and is not to be relied on as a primary weather seal. The Designwall 2000H/4000H panel is a rear seal system which establishes its primary water barrier by wet sealing the back side of the panel to the support system at the vertical joint, and marrying this seal to the liner side horizontal interlock gasket.



Core Material	Laminated polyisocyanurate (polystyrene optional)
Thickness	2" or 3" (51 or 76 mm)
Widths	24", 30" and 36" standard (special widths 8" min. to 46" max.)
Lengths	4'-0" to 24'-0" standard (30'-0" max.)
Exterior Surfaces	Steel: Smooth & non-directional embossed Aluminum: Smooth & non-directional embossed
Std. Metal Gauge	22/24 steel, 0.040"/0.040" aluminum
R-Value	9-20
Core Material	Foamed-in-place polyisocyanurate
Thickness	2" or 3" (51 or 76 mm)
Widths	24", 30" and 36" standard (special widths 20" min. to 44" max.)
Lengths	4'-0" to 24'-0" standard (30'-0" max.)
Exterior Surfaces	Steel: Non-directional embossed Aluminum: N/A
Std. Metal Gauge	22/24 steel
R-Value	14-20



February 21, 2011

To Whom It May Concern,

Please accept this letter as our verification of Kingspan Insulated Panel's contributions to LEED®.

LEED Credit SS 7.2- Heat Island Effect—Roof

Kingspan uses paints from Valspar® Cool Color Pallet. Twenty-eight of Valspar's colors meet LEED standards for steep slope roofs, while three colors meet low slope requirements. By using Valspar, Kingspan also meets standards for the ENERGY STAR qualified roof products for reflectivity.

LEED Energy and Atmosphere Prerequisite 2

Kingspan insulated panels contribute to Prerequisite 2 envelope related required energy efficiency prerequisites and minimum energy requirements as well as optimized energy efficiency. Envelope First™ Energy Efficiency provided by insulated metal panels contribute to designs in optimize the energy efficiency of the building envelope and can effectively reduce the air infiltration rate of typical wall assemblies by 45%.

LEED Credit EA 1- Optimize Energy Performance

Kingspan insulated panels, in a given whole building design, and depending on climate zone, contribute to LEED EA points singularly. Combined with the ECM (Energy Conservation Measures), Kingspan Insulated Panels can exceed LEED's 48% benchmark.

LEED Credit EA 2 Onsite Renewable Energy

To get to the Net-Zero Energy goal set for 2025, renewable energy will be required. Kingspan's PV Power Panel will meet this need.

LEED Credit MRc4.1 & 4.2-Recycled Content (1 or 2 Points)

<i>Assembly Components:</i>	<i>Weight (lbs / sq.ft.)</i>	<i>% PC</i>	<i>% PI</i>
Steel Facings	2.475	25%	15%
Polyisocyanurate Core	0.525	0%	0%
Totals:	3.00	25%	15%

- o Assembly Recycled Content = (Component Wt. x Recycled Content / Total Wt.) x 100 %)
- o Percentages are based on 1 sq.ft. of material at a weight of 3 lbs

LEED Credit IEQ 4.1- Low-Emitting Materials—Adhesives and Sealants

Kingspan Insulated Panels uses Tremco JS-773 containing a VOC content of 151g/L. This satisfies credit IEQ Credit 4.1 as per the Architectural standard of 250g/L.

LEED Credit IEQ 4.2- Low-Emitting Materials—Paints and Coatings

All metal is pre-coated before it is received to Kingspan Insulated Panels.

LEED Credit ID 1: Innovation in Design

Envelope First Energy Efficiency

Using Kingspan's Envelope First™ approach, buildings have the potential to go above and beyond the criteria set by LEED for energy efficiency. Envelope First strategies can also help contribute

towards Net-Zero Energy buildings which will be required by 2025 per the U.S. Department of Energy.

Beyond LEED

Kingspan's insulated metal panels contribute to a sustainable building envelope beyond the LEED program. Because they are a light weight, single component system, insulated metal panels can save time and money during installation. Fewer trades are required and installation can be cut by 50% compared to site assembled multi-part built up systems. Also, our durable panels can be installed in any weather condition.

Ideal for temporary buildings, insulated panels can be easily removed and reinstalled onto future projects. Be sure to ask one of our knowledgeable sales representatives about available warranties that guarantee our panel's thermal performance and aesthetic endurance.

Kingspan Insulated Panels has three U.S. manufacturing locations- Deland, FL, Modesto, CA and Columbus OH as well as two Canadian locations in Langley, BC and Caledon, ON. Before delivery, our quality control team carefully inspects all orders to ensure customer satisfaction. Panels arrive to the job site perfectly trimmed ready to install, leaving little onsite waste.

Numerous tax credits, incentives and grants are available for sustainable buildings on Federal, State, and local levels including the Energy Efficient Commercial Business Deduction and the Energy Investment Tax Credit. A full list of incentives on a state-by-state breakdown can be found at www.dsireusa.org.

The USGBC's mission "to transform the way buildings and communities are designed, built, and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life" will not come just from adhering to the LEED program standards. A total shift in thinking must happen within the entire design team throughout all stages of design and construction. Using an integrated approach like Envelope First™ will catapult buildings to the next level, leading to more energy efficient buildings, quicker and higher ROI and the best part- more satisfied occupants.

To find even more environmental and financial benefits of building with Kingspan Insulated Panels, please see our White Paper which is available for download at www.kingspanpanels.us. If you have need of further information, please feel free to contact me.

Regards,



Paul R Bertram, Jr, FCSI, CDT, LEED AP
Director, Environment & Sustainability
Kingspan Insulated Panels, North America

Kingspan Insulated Panels
726 Summerhill Drive
Deland, FL 32724
tel: (386) 626-6789
fax: (386) 626-6884
toll free: (877) 638-3266

www.kingspanpanels.us

Mobile 386-785-3063
pbertram@kingspanpanels.com

Kingspan Insulated Panels
726 Summerhill Drive
Deland, FL 32724
tel: (386) 626-6789
fax: (386) 626-6884
toll free: (877) 638-3266

www.kingspanpanels.us



Panel Maintenance Manual

Rev. 02.09.11

Dear Customer,

Thank you for your purchase of Kingspan insulated panels. Our product, when properly installed, will provide many years of excellent service. As with any building material, occasional maintenance is required to keep our panels in top condition. Please read this Maintenance Manual for instructions regarding cleaning, paint touch-up, rust and mildew removal, sealants and general repairs. Should you need additional information, please feel free to contact our Customer Service department(s) at the numbers listed below.

Thank you,

Kingspan Insulated Panels

Table of Contents

Section 1 - Roof and Wall Annual Maintenance

Section 2 - Panel Cleaning

Section 3 - Trim

Section 4 - Finish Repairs

Section 5 - Dent or Tear Repairs

Section 6 - Replacement Parts or Service

726 Summerhill Dr., Deland, FL 32724, USA 386-626-6789 p 386-626-6887 f
2000 Morgan Rd., Modesto, CA 95358, USA 209-531-9091 p 209-531-9055 f
720 Marion Road (P.O. Box 07928) Columbus, OH 43207, USA 614-444-0110 p 614-444-7759 f
12557 Coleraine Dr., Caledon, ON L7E 3B5, Canada 905-951-5600 p 905-951-3944 f
5202-272nd St., Langley, B.C. V4W 1S3, Canada 604-607-1101p 604-607-1142 f
www.kingspanpanels.us
www.kingspanpanels.ca

Section 1 – Roof and Wall Annual Maintenance

Roof and Walls – Do not store materials on top of the roof panels, or in contact with the wall panels. To prevent stains and possible corrosion, panels should not come in contact with wood, lead, or copper. Panels should be kept clear of dirt and soil. Air conditioning condensation water should not be allowed to drain onto your roof or wall panels.

Roof Debris - At least once a year, clean the roof and gutters of leaves or other debris which would trap or pond water on the roof. Wash dirt and debris from all panel surfaces. Local conditions should govern the frequency of these cleanings.

Ice and Snow Buildup - Excessive ice and snow should be removed from the roof perimeter areas. This is particularly important in gutter areas (eaves and valleys) and in areas of the roof sheltered from the wind (behind facades, step roof conditions, etc.). Exercise care during removal so as not to scratch the surface of the panels. Adequate fall protection should also be used to prevent injuries.

Roof Traffic - Roof traffic is a leading cause of roof leaks. If routine traffic is unavoidable, a dedicated walkway designed for use with the roof panel should be installed.

When walking on the roof is required:

Avoid stepping on the ridge caps

Avoid stepping on lap joints in roof panels and flashings

Avoid walking near roof curbs or other roof penetrations

Avoid stepping on panel ribs between purlins

Do not step in or on gutters or the gutter hanging system

Do not step on or near skylights or other penetrations

Foliage - While bushes and trees enhance the appearance of buildings, their contact with wall panels can produce scratches in the paint surface. Keep bushes and trees trimmed back from the panel surfaces.

Yearly Roof Check - Once a year, check the joints in the roof panels and associated trims for proper seals and loose fasteners. If any seals are broken, have your contractor remove the fasteners, take the connections apart, remove the existing sealant and closures, install new sealant and closures and reattach using new and/or larger corrosion resistant fasteners as necessary. Care should be taken that all seals are placed within the old screw line, or to the weather side of the screws. On those areas where taking the connections apart are not feasible or cost effective, have your roofing contractor wash the affected area, replace loose fasteners and cover the broken seal with foil-backed tape (such as polykentape) or a suitable elastomeric patch.

Visual Inspection – Twice a year, make a complete visual inspection of the panels and look for any changes in appearance such as creases, bulges or bumps. If any irregularities are observed, please contact Kingspan Customer Service for further assistance.

Section 2 – Panel Cleaning

Always test the cleaning process in a small inconspicuous area before using on a large scale

Routine Washing – Bare Zincalume/Galvalume or painted roofing and siding should be washed with soap and water as necessary to maintain appearance. Carwash soap or a 5% solution of commonly used mild laundry detergent should work well for most cleaning situations. Always rinse thoroughly with water. Do not use wire brushes, steel wool, sandpaper, abrasives or similar cleaning tools which can mechanically abrade the coating surface. Use a cloth, sponge or a soft bristle brush for application. Cleaning should be done in the shade or on a mild cloudy day.

Rust – Panels should be inspected for rust once a year. If rust or rust stains are found, determine the source, such as steel filings from drilling and remove them. Rust stains can generally be cleaned off with one of the following: soap and water, mineral spirits, Soft Scrub, or a mild automotive polishing compound.

Mildew Removal - Mildew can be expected in areas of high humidity. Mildew is more of an appearance problem than an actual threat to the paint finish. Mildew can be removed by using a basic solution of the following:

- 1/3 cup of detergent
- 2/3-cup tri-sodium phosphate
- 1-quart sodium hypo-chloride, 5% solution
- 3 quarts of water

Rinse with clean water immediately after use.

Non-Water Soluble Deposits On Polyester Finishes - Use mineral spirits to remove non-water soluble deposits (tar, grease, oil, paint, graffiti, etc.) from the panel surface.

Non Water Soluble Deposits On Kynar Finishes - Solvents that may be used to remove these items from **Kynar panel finishes** include:

- | | |
|------------------------------|---|
| Alcohols- | No permanent effect on Kynar
Denatured Alcohol (Ethanol)
Isopropyl (Rubbing) Alcohol
Methanol (Wood Alcohol) – Note: Methanol is toxic |
| Petroleum Solvents- | No permanent effect on Kynar
VM & P Naphtha
Mineral Spirits
Turpentine (Wood or Gum Spirits) |
| Aromatic and Others*- | Use with caution on a Kynar surface.
Xylol (Xylene)
Toluol (Toluene) |

* Limit contact time to 5 minutes maximum and test before using.

Ketones, Esters, Lacquer Thinner – (including Methyl Ethyl Ketone, Methyl Isobutyl Ketone). Use very cautiously on Kynar surfaces. Limit contact time to 1 minute maximum and test before using. Continued contact with these products could

result in loss of gloss or other blemishes. Kingspan is not responsible for damage caused by unrestricted use.

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

Sealant Removal - Precautions should be made to prevent sealants from getting on the painted surface as they may be difficult to remove. They should be removed promptly with a solvent such as WD-40, denatured alcohol or mineral spirits. *Caution: It may be possible for solvents to extract materials from sealants, which could stain the painted surface or could prove harmful to sealants. Test a small area first.*

Protective Film Adhesive Residue – For painted panels, bare aluminum and stainless steel, residue may be removed by using “Oil-Flo”, Titan Laboratories, Mountain View, CA (650-965-9900, www.titanlabs.net).

1. Panel cleaning should be performed away from direct sunlight.
2. Using a garden sprayer, apply the “Oil-Flo” solution (full strength) on the panel and let soak for two minutes. As the solution is absorbed, it identifies the residue spots.
3. Lightly scrub affected areas with a soft bristle brush (2” bristles) wet with “Oil-Flo”. If the residue is heavy, you may need to wipe with a rag soaked in the solution.
4. Thoroughly rinse the panels with water until the white colored solution is completely removed.

Section 3 – Trim

Gutter And Downspouts – Clear all debris (leaves, dirt, etc.) from gutters and downspouts as required. The frequency of this cleaning depends on the building’s surroundings. At the minimum, cleanings should be done annually.

Loose Trim – Loose trim should be reattached to the building using stitch fastener or pop rivets as required.

Damaged Trim – Trim at wall openings (such as overhead doors etc.) sometimes gets damaged by vehicle traffic. Replacement trim can be obtained through Kingspan.

Weep Holes – Certain trims, such as head trims located at the top of framed openings may contain weep holes that should be checked annually to make sure they remain open.

Section 4 – Finish Repairs

*This section involves repair methods for **non-warranted items only**. Please contact Kingspan Customer Service for instructions regarding warranted repairs – failure to do so before attempting any repairs will result in forfeiture of factory warranties.*

Minor Paint Scratches - Minor scratches should be repaired with an artist brush or “paint pen”. If the scratched area has not rusted, wipe clean the scratched area using a clean white rag dampened with the appropriate solvent for the panel paint system as indicated in **Section 2 - Cleaning**. Apply the touchup paint without surface preparation. If the area is rusted, remove the rust, prime the affected area then apply the color matched touchup paint. *Use only Kingspan supplied touchup*

paint and primers. Primer and color matched touchup paint with brush applicator is available from Kingspan Customer Service.

Larger Areas Requiring Repainting - For larger repair areas that require spray application, use the procedures outlined below for each type of paint system. Field painting of the pre-painted surfaces on our panels should be attempted only by a *skilled professional using the systems and methods outlined below.*

Note: Color changes may not be uniform on surfaces that are not equally exposed to the sun and elements. In addition, slight shading differences may occur between field applied paint systems and pre-painted, coil applied systems. These differences are more noticeable when using mica or metallic paint colors.

Modified Polyester, Silicone Modified Polyester and Ceramic Polyester Finishes

1. All areas to be repainted should be pressure washed to remove all surface contaminants and to remove poorly adhered paint and clear coats. Washing process shall consist of high pressure washing of 2,000-5,000 psi (may be reduced on softer substrates such as aluminum) using the solution recommended in **Section 2 Panel Cleaning - Mildew Removal**.
2. Mask area to be repaired to eliminate any over spray onto existing structures.
3. Sand entire area to be repaired with fine sandpaper (400 grit) until surface is smooth and all nicks and scratches have been removed.
4. Wipe sanded area clean with a clean, white lint-free cloth dampened with Toluol or other suitable cleaner as identified in **Section 2 – Panel Cleaning**. Follow all instructions on proper handling of cleaning solutions, including use of proper safety gear and disposal.
5. If sanded to bare metal, pre-treat and prime the metal prior to painting to ensure proper adhesion of the air dry system.
6. For best results, primer and paints should only be applied when the temperature of the air and substrate is above 50 degrees F (10°C).
7. Prime entire part uniformly using a good corrosion resistant automotive type primer to achieve a smooth, consistent film with complete hiding of the metal, dry film of 0.40-0.50 mils.
8. Minimum dry film thickness should be measured with a Nordson Microtest Gauge or equal.
9. It is not necessary to prime areas that do not show bare metal. If it is necessary to prime the area, then follow the recommendations of the primer's manufacturer for reduction and application techniques. For large areas, you may choose to use a Binks hand spray gun (or equivalent) with a cup reservoir. For smaller areas, you may use an artist's air brush or Crown spray tool #8010 with #8011 power pack aerosol from Crown Industrial Products, Hebron, IL 60034. HVLP (low pressure, high volume spray) equipment should be used to conserve material and contain paint mist/overspray.
10. If priming is necessary, the primer should be tack-free and ready to topcoat in 4 to 6 hours or as recommended by the manufacturer. If handling is necessary prior to top-coating, overnight dry time is recommended.

11. Top-coat using a good exterior grade acrylic paint of the same gloss range as that of the surrounding area. Correct spray viscosity is dependent upon the application equipment selected and the recommendation of the paint manufacturer. Some degree of trial and error may be necessary to achieve the required appearance depending upon the conditions where the repair is being performed.

Product Sources – Polyester Finishes

Air dry acrylic products may be obtained through Kingspan Customer Service, your local paint store that does custom matching or your local automotive paint store (if you have a color chip for them to match).

Many customers have had success using Sherwin Williams Metalatex Semi-Gloss Coating B42 series.

Kynar (PVDF) Finishes

Primer is required when the Kynar coated surface has less than three (3) years of weather exposure*. “ADS” is a Kynar based air-dry field repair touchup finish. It is supplied as a solution coating ready for on-site application.

ADS has excellent exterior exposure qualities and is the best method for repairs.

1. All areas to be repainted should be pressure washed to remove all surface contaminants and to remove poorly adhered paint and clear coats. Washing process shall consist of high pressure washing of 2,000-5,000 psi (may be reduced on softer substrates such as aluminum) using the solution recommended in **Section 2 Panel Cleaning - Mildew Removal**.
2. Mask area to be repaired to eliminate any over spray of material to existing structures.
3. Sand entire part to be repaired with fine sandpaper (400 grit) until surface is smooth and all nicks and scratches have been removed.
4. Wipe sanded area clean with Toluol dampened lint free cloth. Follow all instructions on proper handling of cleaning solutions, including use of proper safety gear and disposal.
5. If sanded to bare metal, pre-treat the metal prior to painting to ensure proper adhesion of the ADS.
6. For best results, *primer and paints should only be applied when the temperature of the air and substrate is above 50 degrees F (10°C)*.
7. Prime entire area uniformly with Fluoroceram ADS Primer 727 (or equivalent) to achieve a smooth, consistent film with complete hiding of metal (dry film thickness of approximately 0.2-.4 mils).
8. Minimum dry film thickness should be measured with a Nordson Microtest Gauge or equal.
9. For priming large areas, use a Binks (or equivalent) hand spray gun with a cup reservoir or equivalent. For smaller areas, you may use an artist's air brush or Crown spray tool #8010 with #8011 power pack aerosol from Crown Industrial Products, Hebron, IL 60034. HVLP

(low pressure, high volume spray) equipment should be used to conserve material and contain paint mist/overspray.

10. Primer will be tack-free and ready to topcoat in 1 to 2 hours. If handling is necessary prior to topcoating, overnight dry time is needed.
11. Topcoat with Fluoroceram ADS, using the same type(s) of equipment that was used for the primer, to a dry film thickness of 1.0-1.5 mils. To spray Fluoroceram ADS, you may need to thin slightly with Methyl Isobutyl Ketone (MIBK).
12. If this spray is too wet, use Methyl Ethyl Ketone (MEK) as a quicker dry alternative. If cob webbing of spray occurs, reduce viscosity approximately one third more with additional solvent.
13. Correct spray viscosity is dependent upon the application equipment, therefore, some degree of trial and error may be necessary. Improper reduction will result in unacceptable appearance. Dry time is 1 to 2 hours tack free, overnight to handle.

Product Sources – Kynar (PVDF) Finishes

Fluoroceram Ads and suitable primer may be purchased directly from Kingspan Customer Service.

Graffiti Removal:

The following procedure should be used with care to minimize the potential for further damage to the finish:

1. Thoroughly wet a clean white cotton rag with the proper solvent for the paint system being cleaned (see **Section 2 – Panel Cleaning**). Wring out rag to prevent dripping.
2. Using moderate hand pressure, rub area to be cleaned with cloth to remove graffiti. Rinse rag often to prevent contamination of unaffected areas.
3. Do NOT use abrasive material or excessive pressure as damage to the finish may result.
4. Depending on the nature of the graffiti paint, as well as the amount of time the graffiti has remained on the panels, removal may be unsuccessful. For these situations, total repainting of the affected area(s) may be required.
4. Follow all safety procedures when using solvents, including proper ventilation, eye and skin protection, and proper disposal.

Section 5 – Dent or Tear Repairs

There are three main methods of dent or metal facing damage repairs. The first two involve patching or overlays, the third involves repair to the existing metal panel surface.

Patching method:

1. Field fabricate a patch from a section of matching metal skin.
2. If metal facing is torn and foam is damaged, repair foam by injecting two part urethane into the void and let fully cure.
3. Seal the patch to the panel face with matching silicone sealant and pop-rivet into place.

Overlay method:

Panels that become damaged from dents, large or multiple dings or irreparable scratches may be field-repaired by using an overlay sheet of the appropriate profile. *Please contact Kingspan Customer Service for more specific instructions regarding this repair method.*

Panel surface repair method:

1. *We strongly recommend that the services of a local qualified automotive body shop be used for this repair method.*
2. Determine the type of paint system on the panel to be repaired (polyester or Kynar).
3. Mask off area to be repaired.
4. If metal facing is torn and foam is damaged, repair foam by injecting two part urethane into the void and let fully cure.
4. Remove paint and primer by sanding down to bare metal around area to be repaired.
5. Repair damage to face of panel with automotive body filler.
6. Use separate piece of matching metal skin to imprint proper embossing texture into filler (if required to match existing).
7. Prime and repaint over repaired area using proper touch-up procedures outlined in **Section 4**.
8. "Dentless repair" methods may also be attempted depending on the shape and size of the damage. Consult with a qualified automotive body shop to determine applicability of this repair method.

Note: Large areas of damage may require complete panel replacement.

Section 6 – Replacement Parts or Service

Replacement panels, trim pieces and accessories may be obtained through your local Kingspan panel contractor, or may be ordered directly through Customer Service at the plant where the product was initially manufactured. When calling to place an order, please reference the original Kingspan job number (if available), project name, year built, original panel contractor and jobsite address.

726 Summerhill Dr., Deland, FL 32724, USA 386-626-6789 p 386-626-6887 f
2000 Morgan Rd., Modesto, CA 95358, USA 209-531-9091 p 209-531-9055 f
720 Marion Road (P.O. Box 07928) Columbus, OH 43207, USA 614-444-0110 p 614-444-7759 f
12557 Coleraine Dr., Caledon, ON L7E 3B5, Canada 905-951-5600 p 905-951-3944 f
5202-272nd St., Langley, B.C. V4W 1S3, Canada 604-607-1101 p 604-607-1142 f
www.kingspanpanels.us
www.kingspanpanels.ca

LEED Green Building Rating System

Sealant Information Pertaining to LEED

Credit 4.1: Low-Emitting Materials, Adhesives & Sealants

Intent: Reduce the quantity of indoor air contaminants that are odorous, potentially irritating and/or harmful to the comfort and well being of installers and occupants.

Requirements: The Volatile Organic Compounds content of adhesives and sealants used must be less than the current VOC content limits of South Coast Air Quality Management District (SCAQMD) Rule #1168, and all sealants used as fillers must meet or exceed the requirements of the Bay Area Air Quality Management District Regulation 8, Rule 51.

For Credits: VOC content must be at or below 250 g/L

VOC content of GE silicone sealants

	g/L	mg/m ³		g/L	mg/m ³
SilPruf* LM SCS2700	27		SCS2350	37	
SilPruf* SCS2000	20		Infinity	49	
SilPruf* NB SCS9000	37		IGS3703	31	
UltraGlaze* SSG4000	31		IGS3713-D1	37	
UltraGlaze* SSG4000AC	37		IGS3723A/IGS3723B (mixed)	27	
UltraGlaze* SSG4800J	31		IGS3743A/IGS3743B (mixed)	46	
UltraGlaze* SSG4400 (mixed)			IGS3103	23	
SSG4400A/SSG4400B	26		IGS3103	23	
SSG4400A/SSG4713B	20		Tosseal* 817		
SSG4400A/SSG4710B	26		Tosseal* 811		
UltraGlaze* SSG4600 (mixed)			SWS	21	
SSG4600A/SSG4603B	21		UltraPruf* II SCS2900	30	
SSG4600A/SSG4607B					
RapidStrength* RGS7700 (mixed)			Contractors-NSCS1800	32	
RGS7700A/RGS7700B	17		Contractors SCS1000	20	
RGS7700A/RGS7703B	25		Sanitary SCS1700	20	
RCS20	53		Paintable SCS7000	39	
Silglaze N10			Construction SCS1200	23	
SilGlaze*II SCS2800	33		SilShield* SEC2400	70	



Exclusive Licensee

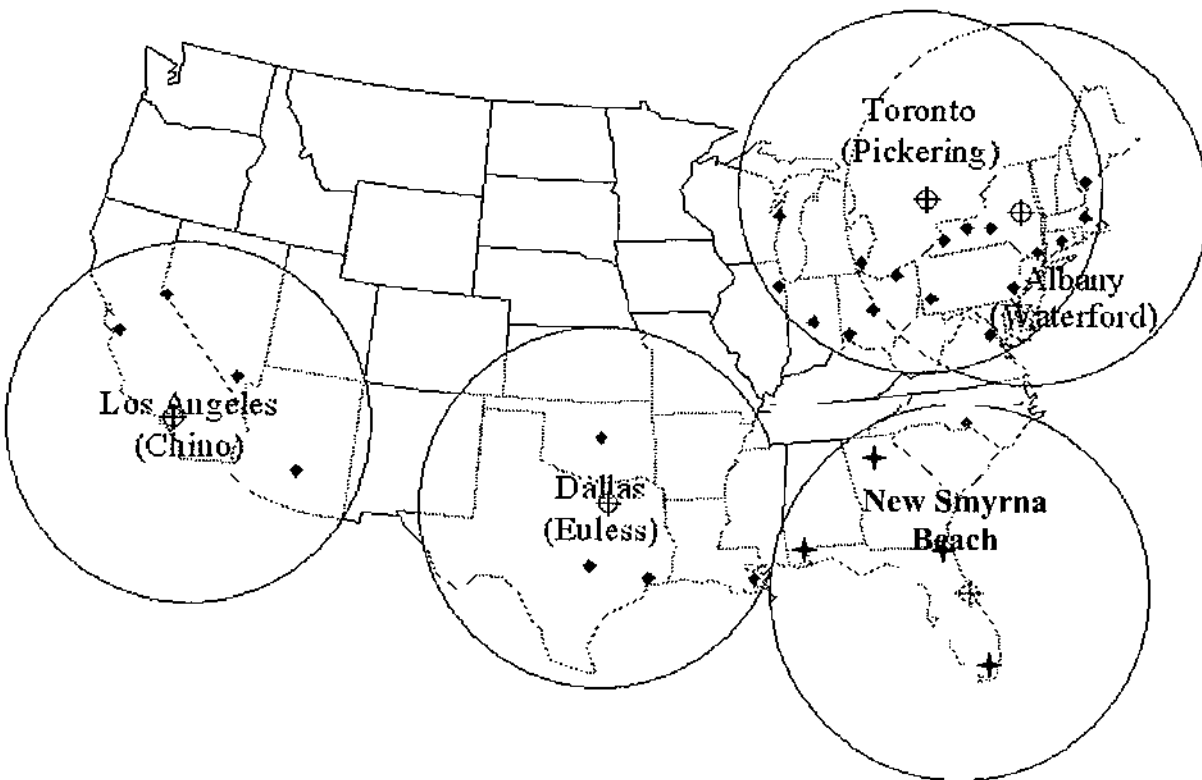
260 Hudson River Road, Waterford, New York 12188 USA momentive.com

Credit 5.1: Local/Regional Materials

Intent: Increase demand for building products that are manufactured locally, thereby reducing the environmental impacts resulting from their transportation and supporting the local economy.

Requirements: Specify a minimum of 20% of building materials that are manufactured regionally within a radius of 500 miles.

Map of North American manufacturing facilities with superimposed 500-mile radius shown





MOMENTIVE

performance materials

The science behind the solutions.

SCS2000 SilPruf*

silicone sealant & adhesive

Product Description

GE SCS2000 SilPruf is a primerless adhesion sealant designed for weathersealing and structural glazing applications. Supplied as a paste, SCS2000 is a one-component, medium-modulus, neutral cure silicone useful on a wide variety of materials in new or remedial applications.

Typical Performance Properties

Performance

- **Silicone Durability** - cured silicone rubber exhibits excellent long term resistance to natural weathering including: extreme temperatures, ultraviolet radiation, rain and snow, with negligible change in elasticity.
- **Adhesion** - primerless adhesion to many substrates and finishes. May be considered a candidate for use with numerous construction-related materials, including: glass, polycarbonate, vinyl, numerous plastics, treated and untreated wood, fluoropolymer and powder coated paints, conversion-coated and anodized aluminum, EIFS, brick, terra-cotta, ceramic and porcelain materials, concrete and natural stones. Some finishes or substrates may require a primer.
- **±50% Movement Capacity** - can accommodate 50% movement in both extension and compression and has excellent recovery after cycling.
- **Low VOC** - significantly lower than the U.S. Green Building Council's Leadership in Energy and Environmental Design (L.E.E.D.) program's requirements. Neutral cure byproduct with low odor.
- **Strength Properties** - SilPruf's combination of high tensile strength, high tear strength and the capacity to absorb high deformations (elongation) make this product an outstanding candidate for protective glazing designs and seismic applications.
- **Thermal Stability (cured state)** - once cured, the material remains elastic over a range of -55°F (-48°C) to 300°F (149°C) and up to 400°F (204°C) under intermittent short-term exposure.

continued

Momentive Performance Materials is an exclusive licensee of General Electric. Momentive Performance Materials provides versatile materials as the starting point for its creative approach to ideas that help enable new developments across hundreds of industrial and consumer applications. We are helping customers solve product, process, and performance problems; our silanes, fluids, elastomers, sealants, resins, adhesives, urethane additives, and other specialty products are delivering innovation in everything from car engines to biomedical devices. From helping to develop safer tires and keeping electronics cooler, to improving the feel of lipstick and ensuring the reliability of adhesives, our technologies and enabling solutions are at the frontline of innovation.



Licensed
Products

Typical Performance Properties (continued)

Application

- Stable Consistency (uncured state) - supplied as a lightweight paste, the consistency of which remains relatively unchanged over a wide temperature range. The paste is able to be easily gunned and tooled under hot and cold conditions.
- Extended Work Life - designed to allow the user sufficient time for placement and tooling.
- Low Sag or Slump - useful for application to horizontal, vertical or overhead surfaces.

Product Compatibility

- Full adhesive and chemical compatibility with GE sealants' silicone elastomeric coating (SilShield* SEC2400) and silicone pre-cured weatherstrip (UltraSpan* US1100).
- Compatible with these GE sealants insulating glass products: IGS3703, IGS3713-D1, IGS3729, IGS3723, IGS3733, IGS3743.
- Compatible with these GE sealants weatherproofing product lines: SCS2700, SCS9000, SCS2800, US1100, SEC2400.
- Compatible with these GE sealants structural products SSG4000, SSG4000AC, SSG4800J, SSG4400.

Basic Uses

SCS2000 is recommended for the following applications:

Weatherproofing

- Between dissimilar or similar materials in either new or remedial glazing and sealing applications
- Around window perimeters and punched openings

Structural Glazing

- With sufficient project review

Protective Glazing

- Successfully tested in protective glazing designs, may be considered a candidate for such applications

Adhesive

- Applied in panel stiffener applications
- Useful for adhering GE UltraSpan US1100 pre-cured silicone weatherstrip product line



Packaging

SCS2000 is available in the following configurations:

- 10.1 fl oz (299 ml) plastic caulking cartridges
 - ☐ Cartridges are packed in cardboard boxes (24 qty)
 - ☐ Cartridges are dispensed using a single component hand or air-pressured caulking gun
- 20 fl oz (591.5 ml) foil sausage packs
- 2 gallon (7.6 L) plastic pails
- 5 gallon (18.9 L) plastic pails
- Cartridges & pails are designed for convenience in shipping and are easily handled by warehouse workers and mechanics on scaffolds and staging.
- Sausage packs are designed to reduce volume of used containers compared to conventional sealant cartridges, resulting in reduced waste
- Sausage packs also boost productivity by cutting typical reload time in half.

Colors

SilPruf SCS2000 sealant & adhesive is available in 8 standard colors, 6 special colors, and can be custom colored.

<u>Grade</u>	<u>Color</u>
SCS2002.....	White
SCS2003.....	Black
SCS2004	Limestone
SCS2008.....	Light Grey
SCS2009	Aluminum Grey
SCS2010.....	Dark Grey
SCS2020.....	Precast White
SCS2097	Bronze
SCS2040	Earth Tone
SCS2041	Red Brick
SCS2046	Champagne
SCS2006	Antique Pink
SCS2100.0322	Blue Spruce
SCS2100.0148	Sandy Beige

Limitations

SCS2000 sealant & adhesive is not recommended:

- For use underwater or in other applications where the product will be in continuous contact with water.
- For use in food contact applications.
- When painting of the cured sealant is desired (unless appropriate specialized paint products are used).
- For structural adhesion on bare metals or surfaces subject to corrosion (i.e., mill aluminum, bare steel, etc.).
- When using colors other than black for structural glazing applications, contact Momentive Technical Services prior to use.

SCS2000 sealant & adhesive should not be applied or used:

- In structural glazing applications unless Momentive Performance Materials has reviewed shop drawings for applicability and has performed adhesion and compatibility tests on project substrates, spacer materials and all accompanying accessories. Review and testing is done on a project-by-project basis. No blanket approval is given by Momentive Performance Materials for structural glazing applications. Structural glazing industry guidelines (ASTM C1401) suggest that drawings and details are to be reviewed by all parties involved in the manufacture of an SSG system and for each building project.
- Under exceedingly hot or cold conditions (see Sealant Application section for additional information).
- On wet, damp, frozen or contaminated surfaces.
- On excessively basic or acidic substrates.
- In exceedingly large structural cavities (see Sealant Application section for additional information).

Precautions

- This material requires atmospheric moisture to cure from paste to rubber and may not attain its listed final cured rubber properties when used in designs or applications where the silicone is encapsulated and lacks access to atmospheric moisture.
- When sealing against natural stones, Momentive Performance Materials recommends that stain testing be performed prior to use to ascertain the visual acceptability of the sealant-stone combination. Momentive Performance Materials recommends evaluation of SCS2000 when sealing to natural stones.
- Some materials that bleed plasticizers or oils can cause a discoloration on the surface of sealants. When sealing to or over items such as rubberized gaskets, bituminous-based materials, butyl or oil-based products, oily woods, tapes, etc., Momentive Performance Materials recommends that compatibility testing be performed prior to use to confirm the suitability of the use of these materials when in contact with each other.
- Silicone materials are hydrophobic in nature and if inadvertently over-applied onto adjacent joint surfaces (even if removed immediately), can create a waterproofing effect on some substrate types when the substrate is wet. See section on Masking.

Technical Services

Complete technical information and literature are available from Momentive Performance Materials. Laboratory facilities and application engineering are available upon request from Momentive Performance Materials.

SCS2000 SilPruf* silicone sealant & adhesive

Specifications

Typical property values of SCS2000 sealant & adhesive as supplied and cured are set forth in the tables below. Typical product data values should not be used as specifications. Assistance with specifications is available by contacting Momentive Performance Materials at 1-800-255-8886.

Typical Properties – Supplied

Property	Value ⁽¹⁾	Test Method
Consistency	Paste	
Polymer	100% silicone	
VOC	20 g/l	WPSTM C1454
Work Life (tooling time)	20-30 minutes	
Tack Free Time	3-4 hours (@ 72°F, 50% RH)	ASTM C679
Sag/Slump	0.1" max.	ASTM D2202

Typical Properties – Cured

Property	Value ⁽¹⁾	Test Method
Hardness, Durometer (Type A Indentor)	24	ASTM D2240
Ultimate Tensile Strength	341 psi (2.35 MPa)	ASTM D412
Ultimate Elongation	715%	ASTM D412
Tensile at 50% Elongation	47.0 psi (0.32 MPa)	ASTM C1184
Tensile at 100% Elongation	73.2 psi (0.50 MPa)	ASTM C1184
Ultimate Tensile Strength	140.5 psi (0.97 MPa)	ASTM C1135
Ultimate Elongation	353%	ASTM C1135
Tear Strength; die B	76.8 pli	ASTM D624
Shear Strength (@ 1/4" thickness)	121.4 psi (0.84 Mpa)	ASTM C961
Peel Strength (average) (21-day cure @ 75°F (21°C) 50% RH)	56.6 pli	ASTM C794
Joint Movement Capability	±50%	ASTM C719
Service Temperature Range (after cure)	-55°F to +250°F (-48°C to 121°C)	
Fire Endurance	2 hours (with backer)	UL723, ASTM E814
Weathering and U.V. Resistance	Excellent	GE 20 yr. study
Cure Time (1/4" or 6 mm deep section) @ 75°F (24°C) 50% RH	3-4 days	
Full Cure (most common bead sizes)	10-14 days	

(1) Average value. Actual value may vary.

Applicable Standards

SCS2000 meets or exceeds the requirements of the following specifications:

American Society for Testing & Materials International

- ASTM C920 Standard Specification for Elastomeric Joint Sealants;
Type S, Grade NS, Class 50, Use A, G, M, O
- ASTM C1184 Standard Specification for Structural Silicone Sealants;
Type S, Use G & O

U.S. Federal Specifications:

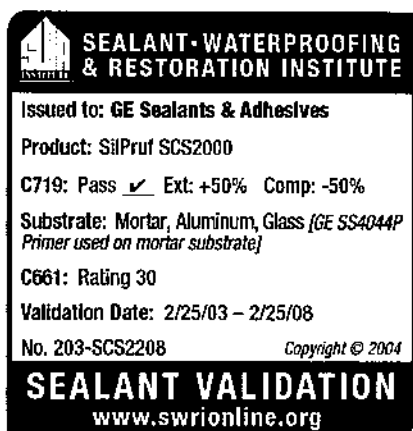
(widely referenced but cancelled Sept. 1996)

- TT-S-001543A Sealing Compound: Silicone Rubber Base (for Caulking, Sealing & Glazing in Buildings and Other Structures)
- TT-S-00230C Sealing Compound: Elastomeric Type, Single Component (for Caulking, Sealing & Glazing in Buildings and Other Structures)

Canadian General Standards Board (currently inactive)

CGSB-19.13-M87 Sealing Compound, One-Component, Elastomeric, Chemical Curing

SilPruf SCS2000 sealant & adhesive carries SWR Institute validation @ $\pm 50\%$ movement.



Suggested References

In addition to the guidelines provided on this datasheet, Momentive Performance Materials recommends that designers and users of SCS2000 familiarize themselves with the latest editions of following industry guidelines and best practices:

- 1.) ASTM C1193 Standard Guide for Use of Joint Sealants.
- 2.) ASTM C1481 Standard Guide for Use of Joint Sealants with Exterior Insulation & Finish Systems (EIFS).
- 3.) ASTM C1472 Standard Guide for Calculating Movement and Other Effects When Establishing Sealant Joint Width.
- 4.) ASTM C1401 Standard Guide for Structural Sealant Glazing
- 5.) SWR Institute's Applying Liquid Sealants Applicator Training Program.

Joint Designs and Dimensions - Weathersealing Applications

Joint Movement - The dimensions of joints in typical construction applications change daily as a result of solar heat gain and building sway, and throughout the year due to seasonal changes. The movement in a sealant bead installed on the sun-side of a building or during the hottest portion of the day will be almost entirely in extension during the cold season or cycle; while the movement of a bead installed during the coldest condition will be almost entirely in compression during the hotter season or cycle. In addition to these above movements, the designer should consider the effect of construction tolerances in his/her project to minimize the occurrence of over-sized or under-sized joints during construction. All moving (dynamic) joints must be designed so as not to allow three-sided adhesion of the sealant to occur (reference ASTM C1193). Three-sided adhesion hinders the ability of the sealant to extend and compress freely as desired and can lead to early joint failure.

Joint Width - When using SCS2000, the designed joint width must be at least twice the total anticipated joint movement. For example, if the total anticipated movement in an expansion joint in which SCS2000 is to be installed is $\frac{1}{4}"$, the designed joint width must be at least $\frac{1}{2}"$. The designer may want to consider additional width to accommodate construction tolerances (reference ASTM C1472). Large panels or lites should allow a minimum width of $\frac{1}{4}"$ for the sealant bead, mostly to allow for a proper installation (very small/narrow beads become difficult to install and can accommodate less movement). Glazing of plastic or larger-sized metal panels may require larger than usual joint widths due to the greater movement potential (higher coefficients of thermal expansion). Consult with Momentive Performance Materials Technical Services for recommendations on large or unusual applications.

Joint Designs and Dimensions - Weathersealing Applications (continued)

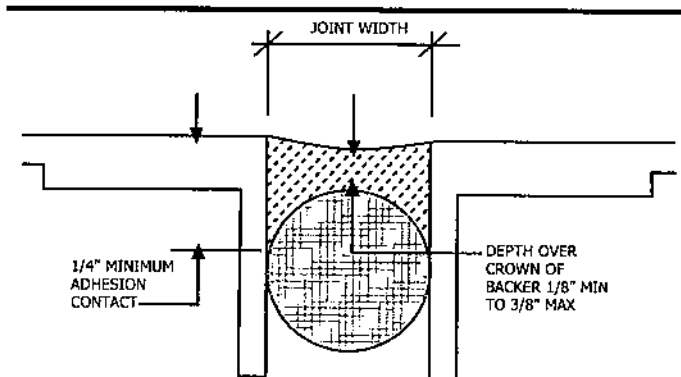
Butt Jointing - A thin installation of silicone sealant can better accommodate more movement than a deep installation, as the deeper bead will result in additional stress being imposed on both the sealant and the bonding surfaces during joint movement. Figure 1 illustrates the general guidelines for installation of SilPruf SCS2000 sealant & adhesive into a typical butt joint configuration of widths up to 2".

- 1.) The recommended sealant profile is an hourglass shape with the depth of the sealant over the crown of the backer rod to be no thinner than $\frac{1}{8}$ " and no thicker than $\frac{3}{8}$ ", and
- 2.) A minimum of $\frac{1}{4}$ " of adhesive bonding contact must be made to all surfaces to which the sealant is intended to adhere.

When used in joints exceeding 2" in width:

- 3.) The recommended sealant profile is an hourglass shape with the depth of the sealant over the crown of the backer rod to be no thinner than $\frac{1}{4}$ " and no thicker than $\frac{3}{8}$ ", and
- 4.) A minimum of $\frac{3}{8}$ " of adhesive bonding contact must be made to all surfaces to which the sealant is intended to adhere.

Figure 1



Joint Backer Materials

Backer materials, typically backer rod, provide the following benefits to aid in the correct application of SCS2000.

- 1.) To control and provide the desired sealant depth.
- 2.) Create a formed joint cavity that allows for the desired hourglass sealant shape.
- 3.) Provide a firm backup which helps attain full wetting of the substrates when the sealant is tooled.
- 4.) Act as a bond breaker to eliminate adhesion on the backside of a joint (three-sided adhesion).

Non-gassing polyethylene, polyolefin or polyurethane foam rod is the recommended back-up material for use with SilPruf SCS2000 sealant & adhesive. If the joint is too shallow to allow foam rod, use a polyethylene tape (as a bond breaker to eliminate three-sided adhesion). On EIFS and porous substrate applications, a closed cell backer rod is recommended (open cell backer materials absorb and hold water which can affect long-term sealant adhesion on these materials). Backer rod should be 25-50% greater (confirm with manufacturer of backer rod as to type selected) than the width of the joint, thereby providing continuous pressure against the joint walls, and expanding and contracting with the joint movement without pushing the sealant out of the joint during the compression cycle or falling away during the extension cycle. Rubber backup materials may stain the sealant and are not recommended, unless tested and verified for compatibility.

Joint Designs and Dimensions - Structural Glazing Applications

- Silicone contact width and thickness (see Figure 2) will vary by project with the design wind load and glass size.
- **Contact Width** can be calculated using the following formula: [Design Wind Load (PSF) x Longest Short Span of Glass or Panel (Ft.)] divided by 480.
- A minimum sealant **thickness** of $\frac{1}{4}$ " (7mm) between substrates is required to accommodate thermal expansion and contraction (see Figure 3) of most systems and should be used in order to assure that sealant can be injected into the structural cavity obtaining full contact with both the glass and metal surfaces while remaining free of air voids. Greater joint thickness may be required to accommodate movement in some larger-sized SSG systems. Momentive Performance Materials¹ can be contacted to assist in determination of proper joint thickness to accommodate expected movement in structurally glazed applications.

Soliciting Manufacturers Suggestions

Required materials for submission:

- Architectural and shop drawings for review and comment
- Design wind load requirement(s) for project
- Glass or panel sizes
- Production samples of metal, glass, gaskets, spacers and setting blocks with type and manufacturer identified
- Specification and/or identification of paint or finish to which SCS2000 is intended to adhere (i.e., 215-R1 anodized or if paint; manufacturer, finish system and ID#)

Joint Designs and Dimensions - Structural Glazing Applications (continued)

Recommendations & information provided after review:

- Determination as to whether the submitted joint dimensions meet the minimum design criteria necessary for the use of SCS2000.
- Short-term adhesion data using (typically) the ASTM C794 and/or ASTM C1135 test method. Other test methods may be employed.
- Short-term compatibility test results on gaskets, spacers and setting blocks and other accessories per ASTM C1087 or GE sealants test method for compatibility.
- Information regarding suggested primers, when required.

Momentive Performance Materials will not:

- Design sealant joints.
- Provide comments on the structural integrity of overall framing system(s).
- Provide long-term performance data.

The design professional has final responsibility for the determination of structural sealant joint dimensions based on project conditions, design wind load(s), glass or panel sizes, anticipated thermal, seismic or other movement of the system.

The ASTM C1401 Standard Guide for Structural Sealant Glazing provides a thorough overview of design topics and information for use in SSG systems.

Figure 2

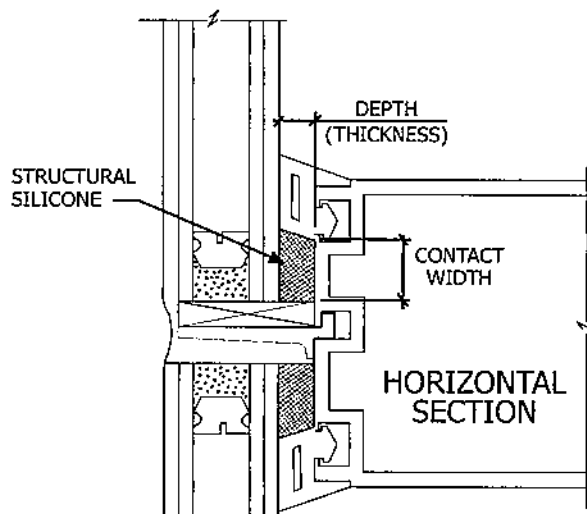
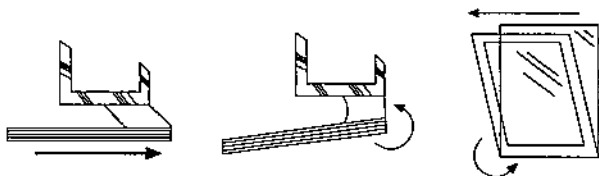


Figure 3: Movement from thermal expansion and contraction and/or glass rotation



Installation

Sealants may not adhere or maintain long-term adhesion to substrates if the surface is not prepared and cleaned properly before sealant application. Using proper materials and following prescribed surface preparation and cleaning procedures is vital for sealant adhesion. IN ALL CASES IT IS IMPORTANT TO CONFIRM THE ACCEPTIBILITY OF EACH SEALANT-SUBSTRATE COMBINATION WITH A LAB OR SITE ADHESION TEST PRIOR TO PROCEEDING WITH PROJECT INSTALLATION. Momentive Performance Materials can provide lab and field adhesion testing information and suggestions to user upon request.

Surface Preparation

Porous Materials (concrete, masonry, brick, stone, etc.)

- Joints must be clean, dry and sound prior to application of the sealant. All contaminants, impurities, or other adhesion inhibitors (such as moisture/frost, oils, concrete form release agents, old sealants, asphalt and other surface treatments, etc.) must be removed from the surfaces to which the sealant is intended to adhere.
- Clean where necessary by wire brush, mechanical abrading, grinding, sanding, saw cutting, blast cleaning (sand or water), or a combination of these methods to provide a stable clean surface for sealant application.
- Remove dust and other remaining loose particles with a soft bristle brush or by using an oil-free air blow.
- Polished stone surfaces and smooth sawn edges can be cleaned using a solvent dampened rag (allow sufficient time for solvent to evaporate prior to application of the sealant). When handling solvents, refer to manufacturer's MSDS for information on handling, safety and personal protective equipment.
- Cleaning of surfaces should be done within 1 to 2 hours of when the sealant is to be applied.
- Since porous materials can absorb and retain moisture, it is important to confirm that substrates are dry prior to application of the sealant.

Non-Porous Materials

(glass, metals, plastics, ceramics, etc.)

- Clean by using a two-rag wipe technique → wet one rag with solvent and wipe the surface with it, then use the second rag to wipe the wet solvent from the surface BEFORE it evaporates (allowing the solvent to dry on the surface without immediately wiping with a second cloth can negate the cleaning procedure because the contaminants may simply be re-deposited as the solvent dries). In all cases where used, solvents should be wiped dry with a clean, white cloth or other lint-free wiping materials. Change the cleaning rags frequently, as they become dirty. It is easier to see the dirt accumulating on the rag if white rags are used. Do not dip used cleaning rags into the cleaning solvent as this can contaminate the solvent (cleaning with contaminated solvent can result in sealant adhesion issues). Always use clean solvent-resistant containers for solvent use and storage.
- When cleaning deep, narrow structural glazing cavities, wrap the cleaning cloth around a clean, narrow-blade putty knife. This permits force to be applied to the cleaned surface.
- Isopropyl Alcohol (IPA) is a commonly-used solvent and has proven useful for most non-porous substrates encountered in architectural construction applications. Xylene and Toluene have also been found useful on many substrates. When handling solvents, refer to manufacturer's MSDS for information on handling, safety and personal protective equipment.
- Architectural coatings, paints and plastics should be cleaned with a solvent approved by the manufacturer of the product or which does not harm or alter the finish.
- Cleaning of surfaces should be done within 1 to 2 hours of when the sealant is to be applied.
- Difficult or nearly impossible to see on a joint substrate, frost is likely to develop on substrates when temperatures drop near the freezing point. Since frost and moisture will interfere with proper sealant adhesion, it is important to confirm that substrates are dry prior to application of the sealant.

Surface Preparation (continued)

Exterior Insulation and Finish Systems (EIFS)

- The use of an appropriate silicone primer is required on all EIFS substrates. Consult Momentive Performance Materials Technical Services for sealant-primer-substrate recommendations.
- Confirm with the EIFS supplier which finish the sealant should be applied to (i.e., base coat or base coat with EIFS primer).
- All EIFS surfaces must be clean, dry and sound and in an acceptable condition to receive sealant. Confirm with the EIFS supplier or project architect or consultant, what joint conditions are considered acceptable for sealant installation to proceed. If unacceptable conditions are found, cease installation of sealant until corrections are made.
- To clean EIFS, lightly abrade the joint surfaces using a synthetic brush or pad and then remove dust and other remaining loose particles with a soft bristle brush or using an oil-free air blow.
- Cleaning of surfaces should be done within 1 to 2 hours of when the sealant is to be applied.
- Since EIFS materials can absorb and retain moisture, it is important to confirm that the EIFS materials are dry prior to application of the sealant.

Priming

SCS2000 attains primerless adhesion to many commonly encountered construction materials. However, some materials with variable surface characteristics may require the use of a primer to help obtain durable long-term adhesion. Prior to use, trial applications should be made to check adhesion to the specific materials to be used on the project. See the GE sealants primer datasheets for product specific information on use and priming instructions. PRIMER APPLICATION IS NOT A SUBSTITUTE FOR SURFACE PREPARATION. Consult Momentive Performance Materials¹ Technical Services for sealant-primer-substrate recommendations.

CAUTION: Primers may contain solvents. When handling solvents, refer to manufacturer's MSDS for information on handling, safety and personal protective equipment.

Masking

The use of masking tape is recommended where appropriate to ensure a neat job and to protect adjoining surfaces from over-application of sealant. Masking tape can prevent contact of sealant with adjoining surfaces that otherwise would be permanently marred or damaged by such contact or by cleaning methods required to remove sealant systems. When tooling, use care not to spread the sealant over the face of the substrates adjacent to the joint or masking as the silicone can be extremely difficult to remove on rough or porous substrates. Do not allow masking tape to touch clean surfaces to which the silicone sealant is to adhere (adhesive on masking tape can interfere with adhesion of silicone). Masking tape should be removed immediately after tooling the sealant and before the sealant begins to skin over (tooling time).

Sealant Application - WEATHERSEALING

- Apply sealant in a continuous operation, horizontally in one direction and vertically from the bottom to the top of the joint opening, applying a positive pressure adequate to properly fill and seal the joint width.
- Tool or strike the sealant with a concave tool applying light pressure to spread the material against the back-up material and the joint surfaces to ensure a void-free application.
- In glazing applications, tool the sealant at the sill so that precipitation and cleaning solutions will not pool.
- Excess sealant should be cleaned from glass, metal and plastic surfaces while still uncured. On porous surfaces the excess sealant should be allowed to progress through the initial cure or set-up. It should then be removed by abrasion or other mechanical means.
- Due to the smooth consistency of SCS2000, tooling agents such as water, soap, or detergent solutions are not necessary or recommended. Dry tooling is recommended.
- Sealant application is not recommended when the temperature is below 40°F (4°C) or if frost or moisture is present on the surfaces to be sealed.
- Application of SCS2000 is not recommended to surfaces above 122°F (50°C).
- The cure rate of this product is dependent upon temperature and the availability of atmospheric moisture. Under Standard Conditions (relative humidity of 50 ±5% at an air temperature of 73.4 ±2°F [23 of ±1°C]) this material can attain a cured thickness of 2-3 mm per 24 hours (assuming ample access to atmospheric moisture). As temperature decreases, the cure rate slows down (and vice versa). Low moisture environments will also reduce the cure rate. Near-confined spaces which limit the overall access to atmospheric moisture will cure only from that surface which has access to the atmosphere. Colder temperatures can significantly increase cure times and can open the possibility of sealant irregularities if joint movement occurs while sealant is not fully cured. The following reference provides additional information on Movement-During-Cure of sealant joints: ASTM C1193 - Standard Guide for Use of Joint Sealants; section 12.5.

Sealant Application - STRUCTURAL GLAZING

- Apply the sealant by pushing the bead ahead of the nozzle and making sure that the entire cavity is filled. Tooling should be done neatly, forcing the sealant into contact with the sides of the joint, thus helping to eliminate any internal voids and assuring good substrate contact. AIR POCKETS OR VOIDS WITHIN THE STRUCTURAL CAVITY ARE NOT ACCEPTABLE.
- Due to the smooth consistency of SCS2000, tooling agents such as water, soap or detergent solutions are not necessary or recommended. Dry tooling is recommended.
- Sealant application is not recommended when the temperature is below 40°F (4°C) or if frost or moisture is present on the surfaces to be sealed.
- SCS2000 works best when applied to surfaces below 122°F (50°C).
- SCS2000 should not be applied in totally confined spaces since the sealant requires exposure to air to cure properly and develop typical properties. In a typical SSG cavity, cure depths up to 3/4" from an air interface will generally cure satisfactorily and reach maximum properties within several days. Cure depths > 3/4" may take significantly longer time to cure and when applied in a single application may not cure satisfactorily. Consult Momentive Performance Materials Technical Services for additional information on depth of cure for this product.

Method of Application

SCS2000 is easily dispensed directly from cartridges and foil sausage packs using standard caulking guns or from 2 gallon pails using standard bulk caulking gun equipment. The sealant may also be dispensed from 55 gallon drums with pumping equipment.

Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

Technical subject matter in this publication is described and protected by one or more pending US patent applications and foreign counterparts.

Product Safety, Handling and Storage

Customers considering the use of this product should review the latest Material Safety Data Sheet and label for product safety information, handling instructions, personal protective equipment if necessary, and any special storage conditions required. Material Safety Data Sheets are available at www.ge.com/silicones or, upon request, from any Momentive Performance Material representative. Use of other materials in conjunction with Momentive Performance Materials sealants products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Emergency Service

Momentive Performance Materials maintains an around-the-clock emergency service for its products. The American Chemistry Council (CHEMTREC) and CareChem24 International also maintain an around-the-clock emergency service for all chemical products:

Location	Momentive Performance Materials Products	All Chemical Products
Mainland U.S., Puerto Rico	+1.518.233.2500	CHEMTREC: 800.424.9300
Alaska, Hawaii	+1.518.233.2500	CHEMTREC: 800.424.9300
Canada	+1.518.233.2500	CHEMTREC: 800.424.9300
Europe	+1.518.233.2500 (Albanian, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Lithuanian, Norwegian, Polish, Portuguese, Romanian, Russian, Serbo-Croatian, Slovak, Spanish, Swedish, Turkish, Ukrainian)	+44.(0)208.762.8322 (UK)
Middle East, All countries, except Israel	+1.518.233.2500	+961.3.487.287 (Lebanon)
Middle East, Israel	+1.518.233.2500	+44.(0)208.762.8322 (UK)
Latin America, Asia/Pacific, all other locations worldwide	+1.518.233.2500	CHEMTREC: +1-703.527.3887 (collect)
At sea	Radio U.S. Coast Guard, which can directly contact Momentive Performance Materials at +1.518.233.2500 or CHEMTREC at +1.800.424.9300.	

DO NOT WAIT. Phone if in doubt. You will be referred to a specialist for advice.

CUSTOMER SERVICE CENTERS

North America	E cs-na.silicones@momentive.com		
	• Specialty Fluids	T +1.800.523.5862	F +1.304.746.1654
	• UA, Silanes and Specialty Coatings	T +1.800.334.4674	F +1.304.746.1623
	• RTVs and Elastomers	T +1.800.332.3390	F +1.304.746.1623
	• Consumer Sealants & Construction Sealants and Adhesives	T +1.877.943.7325	F +1.304.746.1654
Latin America	E cs-la.silicones@momentive.com		
	• Argentina & Chile	T +54.11.4862.9544	F +54.11.4862.9544
	• Brazil	T +55.11.4534.9650	F +55.11.4534.9660
	• Mexico & Central America	T +52.55.2169.7670	F +52.55.2169.7699
	• Venezuela, Ecuador, Peru Colombia & Caribbean	T +58.212.285.2149	F +58.212.285.2149
Europe, Middle East, Africa and India	E cs-eur.silicones@momentive.com	T +00.800.4321.1000 T +31.164.225350	
Pacific	E cs-ap.silicones@momentive.com	T +1.800.820.0202 T +0.81.276.20.6182	F +81.276.31.6259
Worldwide Hotline		T +1.607.786.8131 T +1.800.295.2392	F +1.607.786.8309
Visit us at Momentive.com			

THE MATERIALS, PRODUCTS AND SERVICES OF MOMENTIVE PERFORMANCE MATERIALS INC., MOMENTIVE PERFORMANCE MATERIALS USA INC., MOMENTIVE PERFORMANCE MATERIALS ASIA PACIFIC PTE. LTD., MOMENTIVE PERFORMANCE MATERIALS WORLDWIDE INC., MOMENTIVE PERFORMANCE MATERIALS GmbH, THEIR SUBSIDIARIES AND AFFILIATES DOING BUSINESS IN LOCAL JURISDICTIONS (collectively "SUPPLIERS"), ARE SOLD BY THE RESPECTIVE LEGAL ENTITY OF THE SUPPLIER SUBJECT TO SUPPLIERS' STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SUPPLIERS MAKE NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (I) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (II) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING SUPPLIERS' PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. AFOREMENTIONED EXCLUSIONS OR LIMITATION OF LIABILITY ARE NOT APPLICABLE TO THE EXTENT THAT THE END-USE CONDITIONS AND/OR INCORPORATION CONDITIONS CORRESPOND TO THE RECOMMENDED CONDITIONS OF USE AND/OR OF INCORPORATION AS DESCRIBED BY SUPPLIER IN ITS PRODUCT DATA SHEET AND/OR PRODUCT SPECIFICATIONS. EXCEPT AS PROVIDED IN SUPPLIERS' STANDARD CONDITIONS OF SALE, SUPPLIERS AND THEIR REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN.

Each user bears full responsibility for making its own determination as to the suitability of Suppliers' materials, services, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating Suppliers' products, materials, or services will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of Suppliers' Standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Suppliers. No statement contained herein concerning a possible or suggested use of any material, product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Suppliers or any of its subsidiaries or affiliates covering such use or design, or as a recommendation for the use of such material, product, service or design in the infringement of any patent or other intellectual property right.

*SilPruf, SilShield, UltraGlaze and UltraSpan are trademarks of Momentive Performance Materials Inc.

GE is a registered trademark of General Electric.

Momentive and M-design logo are trademarks of Momentive Performance Materials Inc.

*The science behind the solutions is a trademark of Momentive Performance Materials Inc.

Copyright 2003-2010 Momentive Performance Materials Inc. All rights reserved.

161-005-10E-GL

CDS- DataSCS2000 (02/10)

valspar

paintandcolor.com

The molecules on the surface of Valspar's fluoropolymer coating systems 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 airborne dirt.

Although Valspar 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. A variety of methods for removal of surface deposits are available. Simple washing with plain water using hoses or pressure spray equipment is usually adequate. When heavy deposits of dirt or other contaminants dull surfaces, stronger methods may be needed.

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.

GROUP A: 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 a cloth or sponge for application.

GROUP B: SOLVENTS

Most organic solvents are flammable and/or toxic, and must be handled accordingly. Read the manufacturer's Material Safety Data Sheets (MSDS). 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 such as tar, grease, oil, paint, and graffiti from fluoropolymer surfaces include:

Alcohols

- Denatured alcohol (ethanol)
- Isopropyl (rubbing alcohol)
- Methanol (wood alcohol)

Note: methanol is toxic

The above alcohols have no permanent effect on fluoropolymer surfaces.

GROUP C: PETROLEUM SOLVENTS AND TURPENTINE

- VM&P naphtha
- Mineral spirits
- Kerosene
- Turpentine (wood or gum spirits)

The above solvents have no permanent effect on fluoropolymer surfaces.

GROUP D: AROMATIC AND CHLORINATED

- Xylol (Xylene) Toluol (Toluene)
- Perchlorethylene (Perclene)
- Trichlorethylene (Triclene)

Note: Perchlorethylene and Trichloroethylene are toxic.

The above solvents should be used with caution on a fluoropolymer surface. Limit contact with solvent to five minutes maximum and test before using.

GROUP E: KETONES, ESTERS, LACQUER THINNER AND PAINT REMOVER

- Methyl isobutyl ketone (MIBK)
- Ethyl acetate (nail polish remover)
- Butyl acetate
- Lacquer thinner
- Paint remover (non-flammable)

The above solvents should be used cautiously on a fluoropolymer surface. Limit contact to fluoropolymer surface and test before using. Note: There are many formulations of paint remover on the market. It is possible that some will 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.

GRAFFITI

Graffiti presents a special problem because of the many possible agents used, generally aerosol paint. It is best to try soap and water first. If needed, try the less active solvents from Groups B, C, and D. Next, try the stronger solvents in Group E. If none of these are satisfactory, it may be necessary to resort to touchup, repaint, or replacement.

CHEMICAL SOLUTIONS

Mildew: In areas subject to high humidity levels, 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 sodium hypochlorite 5% solution (such as Clorox®)
- 3 quarts water

Rust Stains: Hydrochloric, citric, or muriatic acid, diluted with ten volumes of water, may assist in removing rust stains from fluoropolymer surfaces. Limit contact to five minutes. Oxalic acid solutions or acetic acid (vinegar) may be used for the same purpose. Flush with water. **Caution:** Acid solutions are corrosive and toxic. Flush all surfaces with copious amounts of water after use.

WARRANTY

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

Valspar fluoropolymer coatings include Acroflur®, Acrodize®, Fluoropon®, Fluoropon Classic®, Fluoropon Classic II, Fluoropon Premiere, Flurothane® II, Flurothane IV, and Valflon® coatings.

For more information, contact Valspar's Coil or Extrusion Coatings Division:

KENTUCKY
347 Central Avenue
Bowling Green, KY USA 42101
Telephone: 270.843.4831
Facsimile: 270.746.6815

TEXAS
701 South Shiloh Road
Garland TX USA 75042
Telephone: 972.276.5181
Facsimile: 972.487.7245

ILLINOIS
901 North Greenwood Avenue
Kankakee, IL USA 60901
Telephone: 815.933.5561
Facsimile: 815.936.7811

C O I L A N D E X T R U S I O N C O A T I N G S

MEXICO
Avenue Central 223
Los Lermas
Guadalupe, N.L. Mexico 67190
Telephone: 52.81.8360.2020
Facsimile: 52.81.8360.5350

CHINA
No. 838 Jia Xin Road
Jiading District
Shanghai 201818
People's Republic of China
Telephone: 86.21.5990.1345

CANADA
645 Coronation Drive
West Hill, Ontario
Canada, M1E 4R6
Telephone: 416.284.1681
Facsimile: 416.284.7217

BRAZIL
Estrada dos Casa, 5050 - Portco B
09840-900 São Bernardo do Campo
São Bernardo do Campo
Telephone: 55.11.4358.9244
Facsimile: 55.11.4358.9228

valspar
paintandcolor.com

Val#48
010828
©The Valspar Corporation
All Rights Reserved

Morin and LEED®

Morin's Single Element Metal Wall and Roof Panel Systems meet the requirements as specified in the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) Green Building Rating System®. Our commitment to energy efficiency, environmental responsibility and sustainability is evident through our products and services offered at manufacturing facilities located in Connecticut, California and Florida.

Morin's Green-Build Mission:

- Offer single element metal wall and roof panel systems that contribute points to the LEED® Green Building Rating System.
- Deliver metal panel systems with paints and finishes that are fundamental to attaining a LEED® green building.
- Assist architects/engineers, designers, building owners and metal panel contractors in achieving a LEED® certified building by supplying energy efficient products that will have a positive impact on the environment and community.

Meeting LEED® requirements with Morin:

In the LEED® Rating System Product Portfolio, designers will choose LEED® for New Construction (NC) when utilizing products manufactured by Morin. This portfolio is appropriate for new commercial construction and major renovation projects.

Morin products are relevant in either LEED for New Construction Version 2.2 or Version 2.1. These versions may be viewed at www.leadbuilding.org

Morin and LEED-NC MR Credit 4.1 and 4.2 (Recycled Content of 1 or 2 pts): Morin is committed to partnering with steel suppliers who are likewise looking to reduce the harmful effects of extraction and processing of virgin materials. Morin's Concealed Fastener Wall, Exposed Fastener Wall, Standing Seam Roof, and Exposed Fastened Roof Panels contain an average post industrial recycled content of 5% and an average post consumer recycled content that varies from 20% to 25% for Galvalume, and a total recycled content of approximately 60% for stainless steel. Aluminum recycled content varies up to approximately 27%.

Morin and LEED-NC MR Credit 5.1 (Regional Materials 1 point) **and 5.2** (1 point in addition to MR Credit 5.1): In our continuing support of "locally sourced materials" Morin has three manufacturing facilities thereby aiding our clients in their efforts to also reduce the impact on the environment due to needless transportation of product. Our wall and roof panels are manufactured in Bristol, CT; Fontana, CA; and DeLand, FL and may contribute to LEED-NC MR Credit 5.1 and possibly LEED-NC MR Credit 5.2 if the project is within 500 miles of these manufacturing plants.

An additional 1-4 points may be earned at **Innovation & Design Process ID Credit 1-1.4.**

The points necessary for the four levels of certification are as follows: Certified: 26-32; Silver: 33-38;

Gold: 39-51; Platinum: 52-69

1/2010

Morin East

685 Middle Street
Bristol, CT 06010
tel: (860) 584-0900
fax: (860) 582-7503
toll free: (800) 640-9501

Morin West

10707 Commerce Way
Fontana, CA 92337
tel: (909) 428-3747
fax: (909) 428-6433
toll free: (800) 700-6140

Morin South

1975 Eidson Street
DeLand, FL 32724
tel: (386) 626-6789
fax: (386) 626-6884
toll free: (877) 638-3266

TECHNICAL DATA

Acryl-R® SM5430

Non-Skinning, Non-Sag SSR Sealant

PRODUCT DESCRIPTION:

SM5430 Acryl-R® is a non-skinning, non-drying sealant based on a unique elastomer that provides a non-stringy consistency and excellent resistance to severe environmental conditions of heat, cold and moisture. It has excellent cut-off characteristics and is not stringy or messy to apply. It has excellent adhesion to GALVALUME®, GALVALUME PLUS®, ACRYLUME®, ZINCALUME®, KYNAR 500®, siliconized and polyvinyl fluoride painted metals. It has excellent webbing characteristics.

TYPICAL USES:

SM5430 is designed for factory sealing the female lip of a concealed standing seam roof (SSR) rib, as well as wall panels and polyurethane foam panel joints where a positive seal is required in mechanically fixed joints.

- Specifically formulated for precise application into concealed panel joints for roll forming lines
- Excellent for factory sealing standing seam roof panels and end laps
- Excellent for sealing between dissimilar metals to prevent electrolysis
- Excellent for use as an acoustical sealant
- Excellent surface wetting over a wide temperature range
- Excellent for sealing hidden details in window and door installations; bedding of mounting fins and flashing and sealing end dams and receptor pans
- Excellent for sealing base plates to concrete slabs before anchoring

ADVANTAGES:

- Excellent adhesion to GALVALUME®, GALVALUME PLUS®, ACRYLUME® and KYNAR 500®
- Will not corrode GALVALUME® or copper
- Not stringy or messy to apply
- Excellent pumpability provides a smooth, clean application
- Panels can be erected in the field for up to six months after being factory caulked
- Panels can be easily separated after extended periods for repair and maintenance
- Good gunnability during field application to end laps

INSTALLATION:

SM5430 can be applied from 10.1 oz. (300 ml) and 30 oz. (888 ml) cartridges using standard hand or air caulking guns. For bulk applications it can be extruded from either straight-sided plastic 5-gallon pails or 50-gallon (with poly liner) drum using a Graco 55:1 ratio pump and fluid pressure of 30-50 psi.

Graco mastic regulator, part #903-958 is required.

SPECIFICATION COMPLIANCE:

Federal Specification:
Meets TT-C-1796A, Type 1, Class A

AAMA 809.2:
Sealant meets this specification

U.S.D.A. Acceptability:
USDA Acceptable

Freight Classification:
Caulking Compound, NOIBN,
NMFC #149610, Class 55

Acryl-R is a registered trademark of Schnee-Morehead®, Inc.
KYNAR 500 is a registered trademark of Atofina Chemicals, Inc.
GALVALUME is a registered trademark of BIEC International.
GALVALUME PLUS is a registered trademark of Bethlehem Steel Corporation.
ZINCALUME is a registered trademark of BHP Steel.
Acrylume is a registered trademark of USX Corporation.

PACKAGING:

10.1 oz. (300 ml) plastic cartridges, 30 cartridges per case
30 oz. (888 ml) cartridges, 12 cartridges per case
5 gallon (18.95 liters) straight side plastic pails
50 gallon (189.25 L) drums with polyliner.

PRECAUTIONS:

Avoid skin and eye contact. On contact, uncured sealant could cause irritation to the skin and eyes. In case of eye contact, flush eyes with warm water for 15 minutes, call a physician. For skin contact remove sealant with a paper towel. If swallowed, do not induce vomiting, call a physician. **KEEP OUT OF REACH OF CHILDREN.** This product is manufactured for industrial use only.

TYPICAL PROPERTIES

Color:	Off White
Extrudability (ASTM D 2452):	30 to 50 sec. per 20 grams through a 0.104" orifice @50 psi
Total Solids (ASTM C 681):	85% (by wt.)
Volume Shrinkage (ASTM D 2453):	Less than 15%
Weight per U.S. Gallon (ASTM D 1475):	10.75 lbs. ±0.25 lbs.
Coverage Range:	1500 lineal ft. per gallon at 1/8" bead 695 lineal ft. per gallon at 3/16" bead 392 lineal ft. per gallon at 1/4" bead
Drying Time:	Non-Skinning, remains permanently soft and tacky
Engageability:	Sealant will easily engage and transfer to male joint at 10°F
Vehicle Bleedout (ASTM C 772):	No visible exudation of vehicle from sealant after three weeks at 158°F (70°C) on painted or unpainted metal surface
Flexibility (ASTM C 711):	No loss of adhesion at -60°F (-51°C)
Service Temperature Range:	-60°F to 200°F (-51°C to 93°C)
Application Temperature Range:	10°F to 120°F (-12°C to 49°C)
Sag (ASTM D 2202):	0.20" Max (5.08 mm) Full Button
Non-Corrosive:	No darkening, etching or salt deposits on GALVALUME®, GALVALUME PLUS®, ZINCALUME®, ACRYLUME®, KYNAR 500®, aluminum, aluminized steel or galvanized metal
Staining (ASTM D 925 Method A):	Sealant will not stain a painted surface
Adhesion (ASTM C 794):	Excellent adhesion to oily GALVALUME®, GALVALUME PLUS®, ZINCALUME®, KYNAR 500®, ACRYLUME®, aluminum, aluminized steel or galvanized metal
Resistance to fungus/mildew growth:	Will resist fungal attack and not support mildew growth
Heat Aging:	No loss of surface tack or adhesion
Weatherability (ASTM G 154, 1000 hrs. QUV exposure):	No cracking, bleeding or loss of rubbery characteristics
Chemical Resistance:	Excellent to water, ozone, water vapor, alcohols; fair to weak for acids and bases. Poor to organic solvents
Proposed ASTM Static Water Pressure Head Test:	Sealant passes 6 inches of static water pressure head, no water leakage
Rate of Air Leakage Through Exterior Metal Roof Panel Systems (ASTM E 1680):	Air infiltration @1.57 psf pressure 0.0510 cfm/sq. ft. and 0.0680 cfm/ft. Air Infiltration @ 6.24 psf pressure 0.1024 cfm/sq. ft. and 0.1365 cfm/ft.
Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference (ASTM E 1646):	Sealant passed, no water leakage
Wet Flammability (ASTM D 56):	110°F flash point
Toxicity:	Contains no carcinogenic ingredients. Dispose of in accordance with regulations of locale.
Shelf Life:	18 months minimum in unopened container when stored at or below 90°F (32°C)

EXCLUSION OF WARRANTIES:

AS TO THE HEREIN DESCRIBED MATERIALS, SCHNEE-MOREHEAD®, INC. MAKES NO WARRANTIES WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SINCE THE USE OF THE HEREIN DESCRIBED MATERIALS INVOLVES MANY VARIABLES IN METHODS OF APPLICATION, HANDLING AND/OR USE, THE USER IN ACCEPTING AND USING THESE MATERIALS ASSUMES ALL RESPONSIBILITY FOR THE END RESULT. THE PURCHASE OF THIS SCHNEE-MOREHEAD®, INC. PRODUCT IS SUBJECT TO THE TERMS AND CONDITIONS OF AN "AS IS" SALE, AND IF THE PRODUCT IS PROVED TO BE DEFECTIVE, THE EXCLUSIVE REMEDY, AT SCHNEE-MOREHEAD®, INC.'S OPTION, SHALL BE TO REPLACE THE DEFECTIVE SCHNEE-MOREHEAD®, INC. PRODUCT. SCHNEE-MOREHEAD®, INC. SHALL NOT OTHERWISE BE LIABLE FOR LOSS OF DAMAGES, WHETHER DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL, REGARDLESS OF THE LEGAL THEORY ASSERTED, INCLUDING NEGLIGENCE, WARRANTY OR STRICT LIABILITY.

Complete technical information is available from Schnee-Morehead®, Inc. For technical assistance, customer service and general information call:

1-800-TRUSTSM
1-800-878-7876

SCHNEE-MOREHEAD®, INC.

111 N. Nursery Road
Irving, TX 75060
972-438-9111 Fax: 972-554-3939
www.trustsm.com