

KOROLITE[®]

INSULATED METAL PANELS

HANDLING INSTRUCTIONS



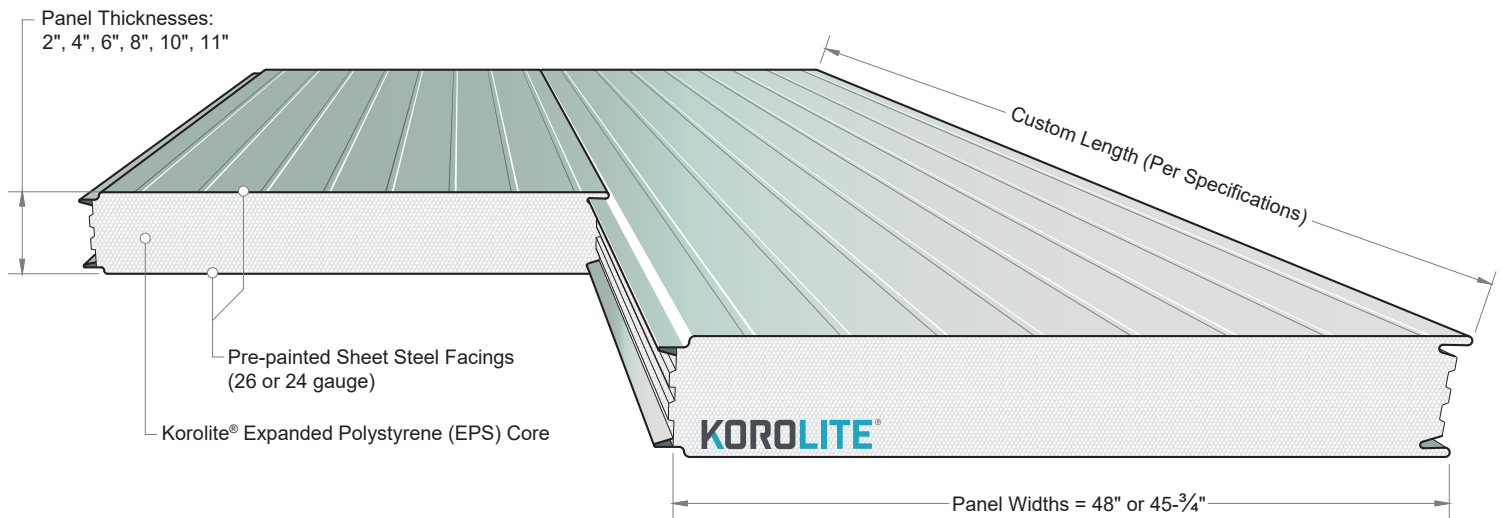
INTRODUCTION

Korolite® Insulated Metal Panels offer high performance building solutions that lower emissions, reduce lifetime costs and enhance indoor environmental quality. Energy-efficient and airtight insulated metal panels help create advanced building envelopes and cold-storage units using environmentally responsible, continuous insulation cores sandwiched between pre-painted steel facings. Build attractive, sustainable, and budget-friendly facilities in record times by combining insulation, finishes, air, vapour & water-resistive barriers.

Korolite® Insulated Metal Panels are highly versatile, available with various finished looks, and fast to install onto structural framing. Custom-manufactured to the specified lengths and thicknesses, the lightweight modular panels arrive at the jobsite ready to place. Unique interlocks help ensure continuous insulation and minimal air leakage with sealant applied between panels at the jobsite.

The product line is complete with a full range of ancillary products including a variety of metal flashings/trims, fasteners, clips, caulking, sealants doors and windows.

The panels are 2-11" thick [50-280mm], 48" [1219mm] or 45-¾" [1162mm] wide and custom-cut to lengths per approved designs. The panels' facings are pre-painted, AZ50 aluminum-zinc coated or G90 galvanized steel in 26 or 24 gauge. They are bonded to the closed cell, expanded polystyrene (EPS) insulation core with a specially formulated adhesive.



Korolite® Insulated Metal Panels have the following R-values and weights:

Metal Panel Thickness	2"	4"	6"	8"	10"	11"
R-value at 75°F	8.08	15.4	23	31	39	42
R-value at 25°F	9.2	17.4	26	35	44	48
Weight (psf)	2.18	2.35	2.54	2.72	2.91	3

CAUTION

EPS products are combustible and must not be exposed to excessive heat, sparks, open flames, or any other sources of ignition. A protective barrier or thermal barrier is required as specified in the appropriate building code. If stored/used in closed containers, confined, or low-lying areas, ensure adequate ventilation to prevent accumulation of flammable pentane vapours. Prevent inhalation of smoke, fumes or dust from burning or fabrication activities.

LIMITED WARRANTY

Airfoam Components Limited Warranty. Airfoam warrants that its Products comply with their published specifications and are free from manufacturing defects ("Defects"). If the customer believes that the Products have Defects, the customer will return samples of the defective Products to Airfoam and upon Airfoam being satisfied that the Products have Defects, Airfoam will replace the defective Products or refund the purchase price, at Airfoam's option.

Third-Party Products' Limited Warranty. Products supplied by and manufactured for third parties and resold by Airfoam are warranted to comply with the warranty and specifications of the original manufacturer or producer of the third-party Products. Should any third-party Product sold hereunder be found not to meet the foregoing warranty, Airfoam will take such action as is specified in the warranty of the original manufacturer or producer, or, at Airfoam's election, make a fair allowance therefore. Written notice of any claim under this warranty must be given to Airfoam within the time specified in the warranty of the original manufacturer or producer not to exceed one (1) year after delivery of Products, and the Buyer must afford Airfoam a reasonable opportunity to inspect the Products in unaltered condition and evaluate the claims in accordance with procedures specified in the original manufacturer's or producer's warranty.

INSTALLER QUALIFICATIONS

Airfoam requires that our panels be installed under the direct supervision of an experienced installer or contractor trained in the proper installation of our panels and ancillary products.

SAFETY

In Canada Occupational Safety and Health (OSH) and in USA Occupational Safety and Health Act (OSHA) must be recognized and complied with as job site requirements. Safe installation practices may also be defined by local provincial or state jurisdictions and should be fully complied with. All safety requirements are the responsibility of the panel installation contractor.

DELIVERY

Korolite® Insulated Metal Panels are typically delivered to jobsites on flatbed trailers for easy off-loading. The panels are packed in bundles which are strapped, corner protected and shrink wrapped. Each bundle sits on 1/2" sheets of EPS on two pieces of 4'x8' plywood with EPS spacers glued to underside to protect the panels from telehandler or forklift damage while being moved during offloading, storage or on-site handling.

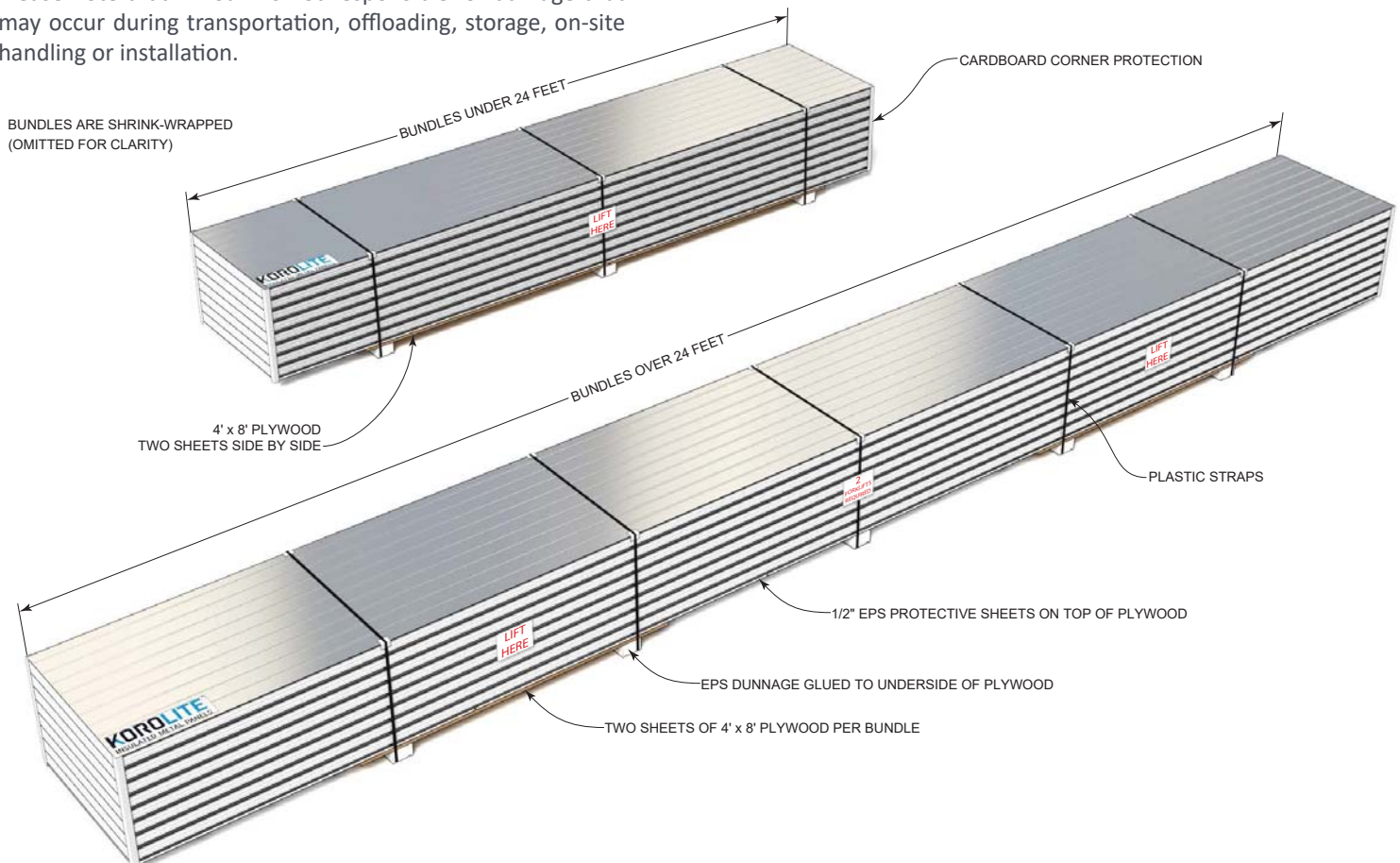


INSPECTION

Immediately upon arrival, when the order is received:

- Check the items against the Bill of Lading for discrepancies in quantities, lengths, thickness, color etc. Check for freight or forklift damage, strap and shrink-wrap damage, or bundle/crate/pallet damage.
- Take digital evidence of any discrepancies or damage.
- Note any discrepancies or damage on the Bill of Lading and have the truck driver sign the document.
- Immediately make any damage or discrepancy claims.

Please note that Airfoam is not responsible for damage that may occur during transportation, offloading, storage, on-site handling or installation.

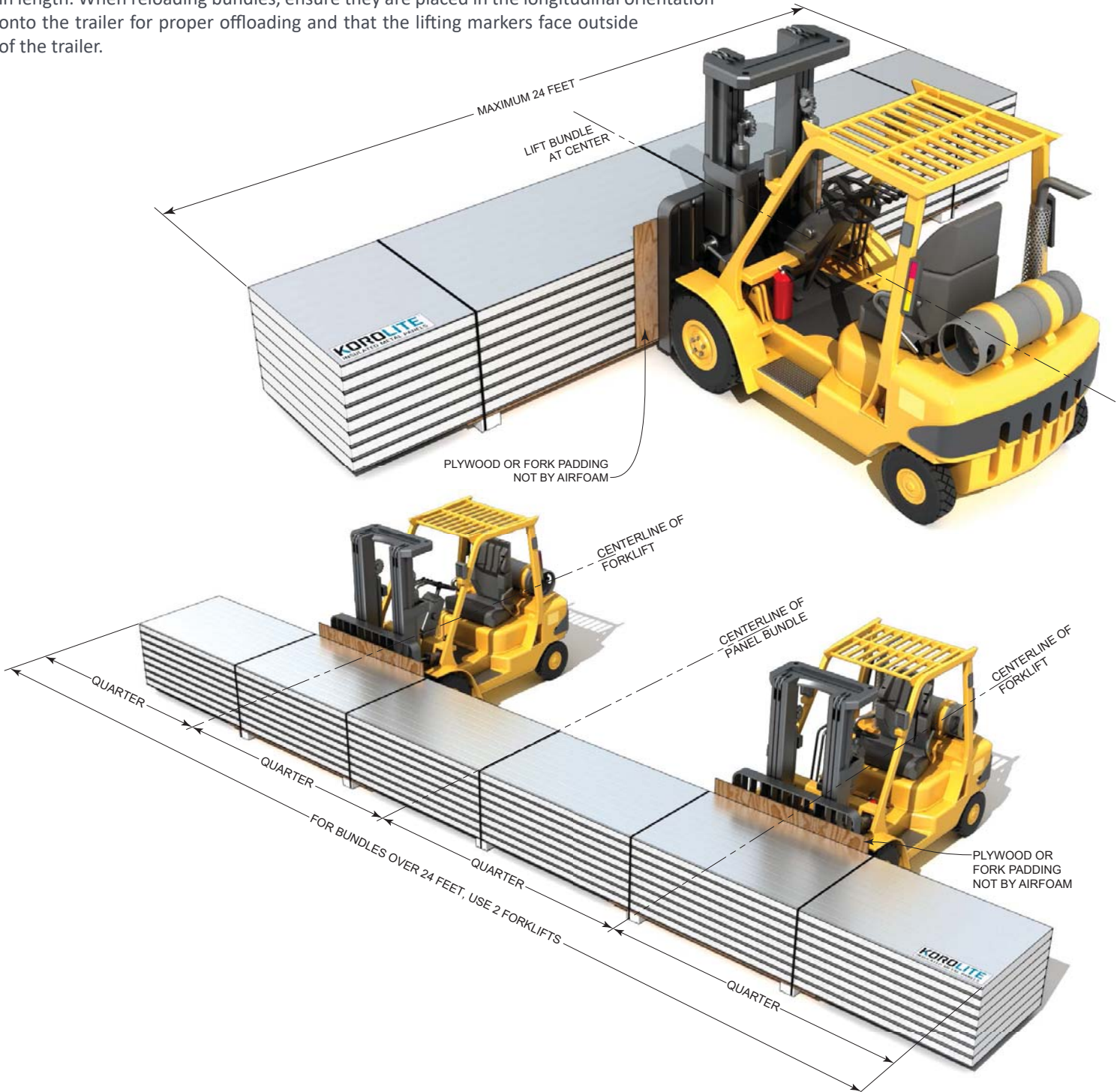


RECEIVING

All panel bundles are packaged for side unloading by forklift, telehandler or crane. Bundles are packed as to not exceed 7,000 pounds. Ensure offloading equipment with adequate reach and capacity is on site prior to order arrival. Unloading area should be identified prior to delivery - it should be reasonably level, well drained and positioned for efficient installation.

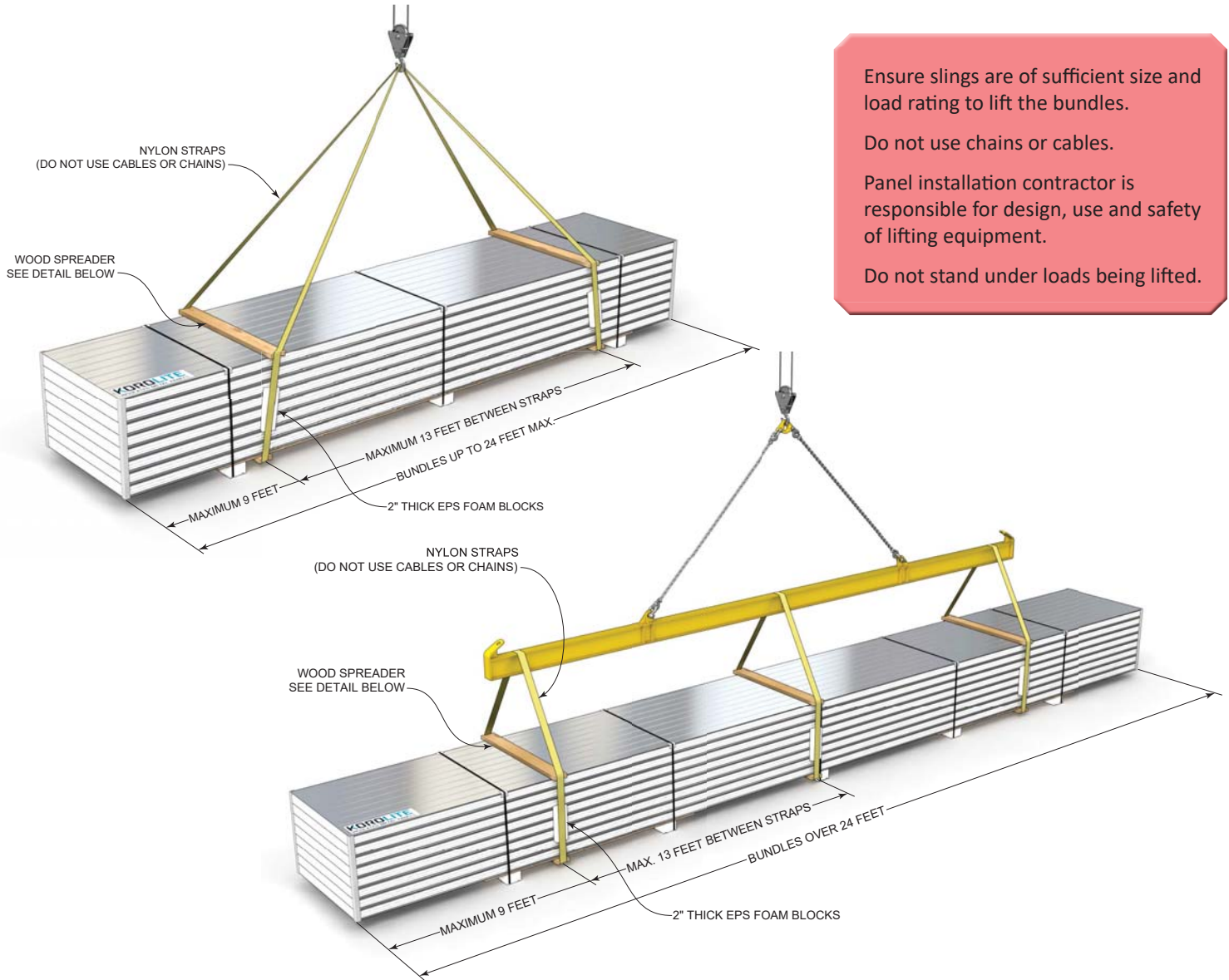
PANEL HANDLING BY FORKLIFT

Ensure forklift front end masts have either foam or plywood padding to protect the panel interlocking ends from damage. Forklift blades should be level and spread apart as far as possible. Lift one bundle at a time. Moving bundles under 24ft in length requires a single forklift. Moving bundles over 24ft in length requires two synchronized forklifts. In each case the bundles are clearly marked for forklift engagement. Each lifting marker requires one forklift. Bundles opened on site should be secured with straps prior to moving. Carefully transport panel bundles to prevent excessive deflection by avoiding bumpy terrain. Use extreme care when handling 2" or 4" thick panels that are over 20ft in length. When reloading bundles, ensure they are placed in the longitudinal orientation onto the trailer for proper offloading and that the lifting markers face outside of the trailer.



PANEL HANDLING BY CRANE

Always lift one bundle at a time. Use wood spreaders at top and bottom at every sling location. The 2x6 or 2x8 spreaders should be long enough to accommodate 2" thick EPS foam blocking on either side of the bundle. Refer to diagrams below. The foam blocks are to be placed at each sling location to keep the bundle securely in place preventing damage to interlocking panel ends. Bundles under 24 feet may be picked up with 2 sling lifting points. Bundles over 24 feet require 3 sling lifting.

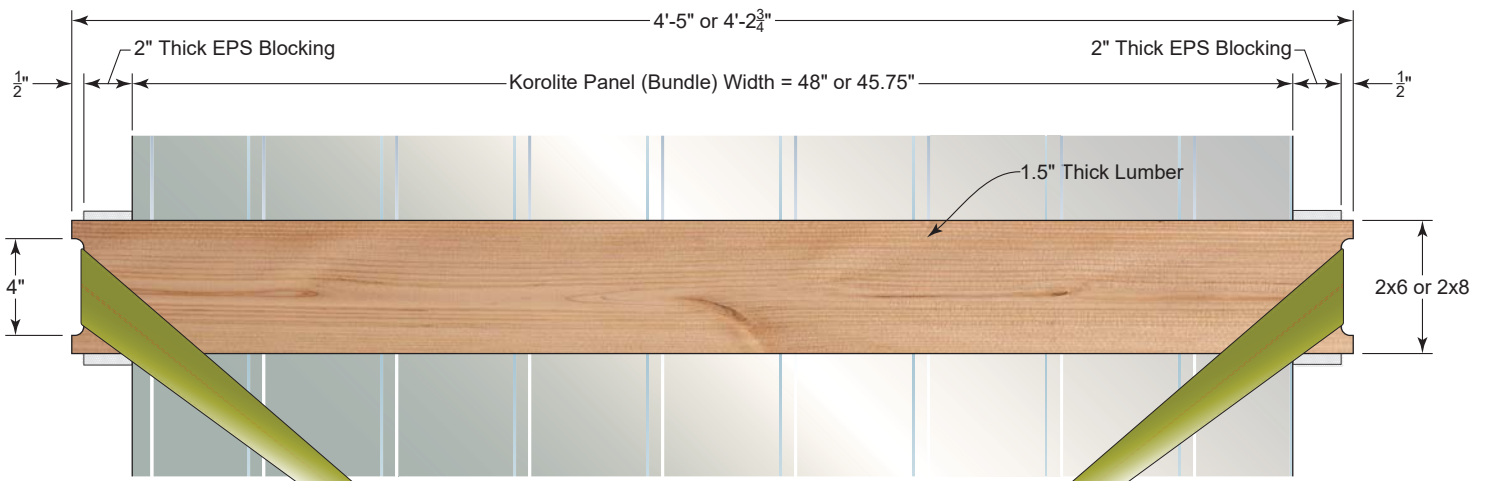


Ensure slings are of sufficient size and load rating to lift the bundles.

Do not use chains or cables.

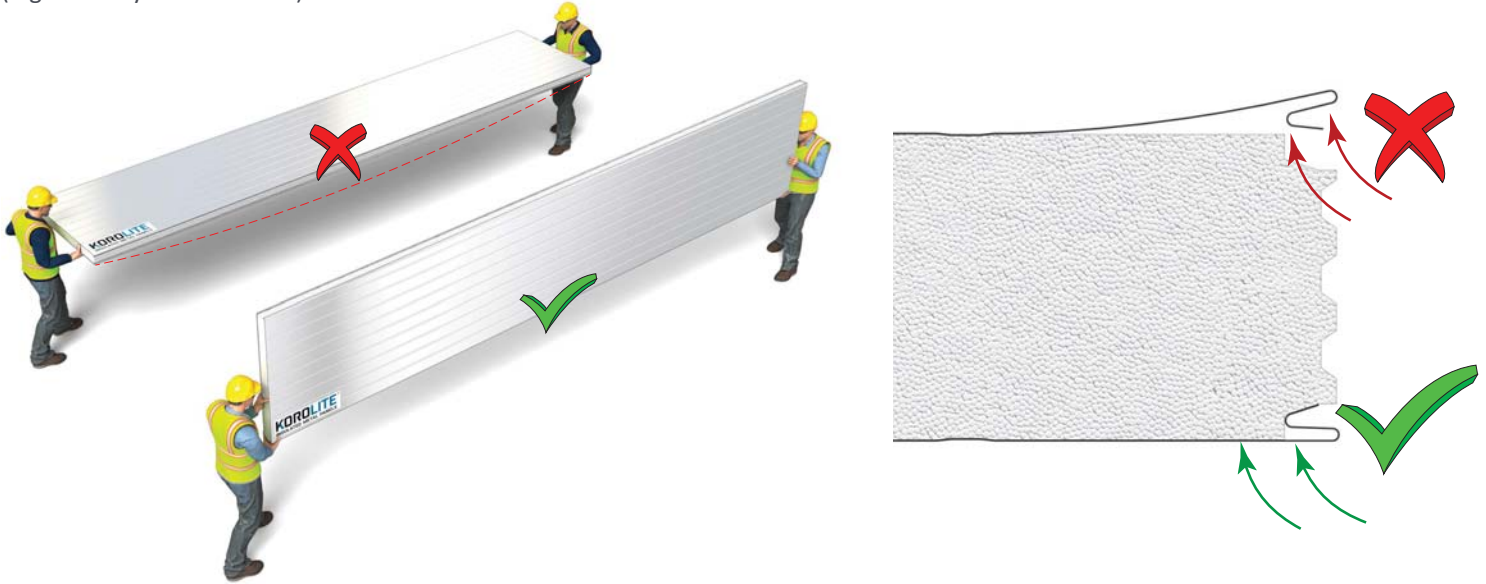
Panel installation contractor is responsible for design, use and safety of lifting equipment.

Do not stand under loads being lifted.



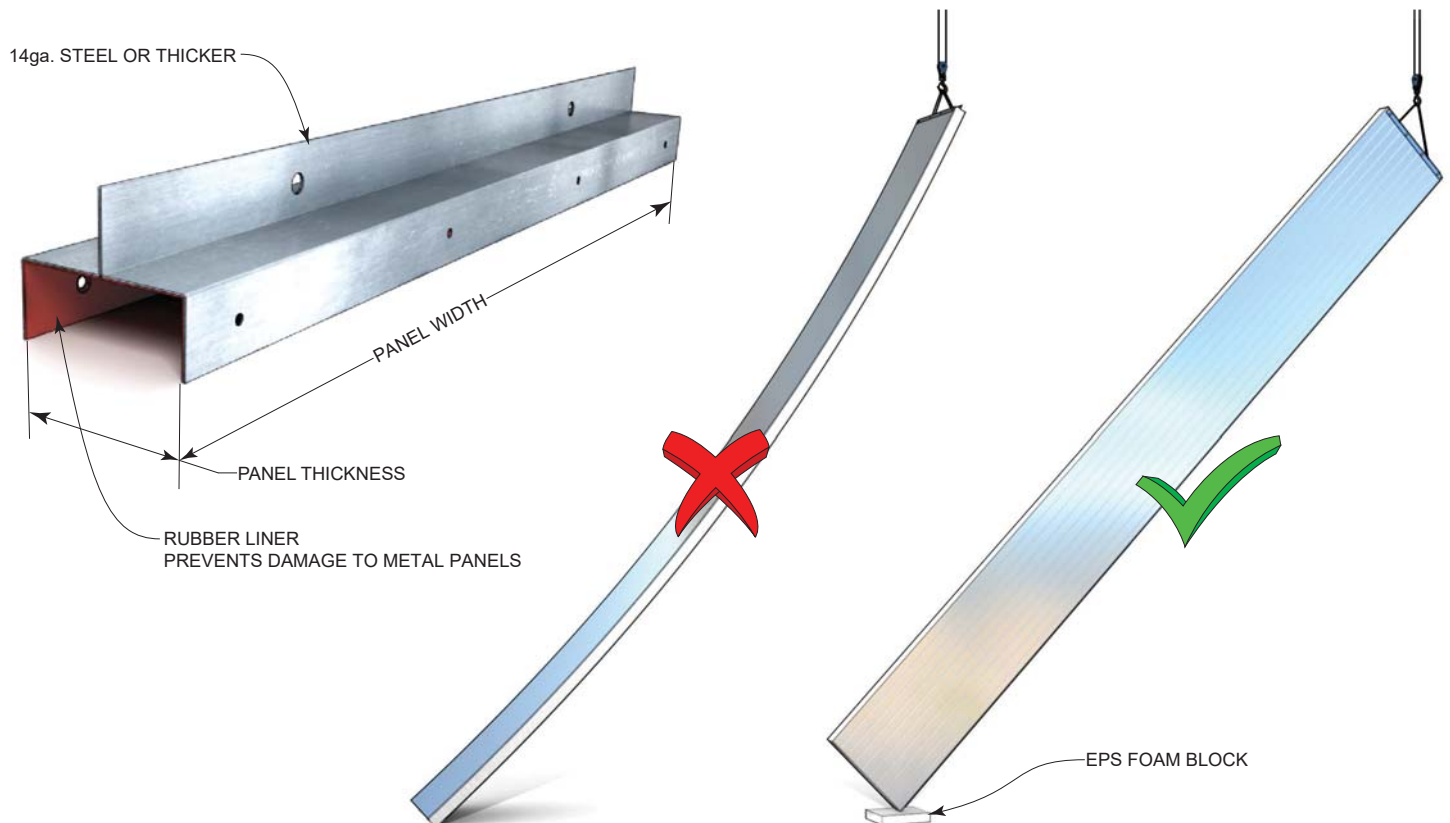
HANDLING INDIVIDUAL PANELS MANUALLY

Wear sturdy gloves and clothing. Ensure panels are always handled and carried on edge rather than flat to prevent metal skin damage due to deflection. Always lift the panels in a manner to prevent metal skin delamination by lifting the panels from underside. To avoid surface damage due to scratching, do not slide panels on bundles - always lift them. Rotating panels on edge may be necessary: use EPS spacers/dunnage from bundles to prevent damage to interlock ends, and always rotate or flip panels evenly with 2-3 workers along the panel length (e.g. not only at one corner).



HANDLING INDIVIDUAL PANELS WITH CLAMPING DEVICES

When lifting panels with clamping devices, ensure the top metal clamping device/track is securely fastened to metal panel with through bolts and is of sufficient capacity for panel lifting. The clamping device with bolts must be designed and approved by a licensed engineer. The panels must be rotated and lifted on edge to avoid skin damage due to deflection. An EPS foam block must be used under the rotating corner when lifting the panel into its vertical position to avoid damage. The holes from through bolts in the metal panels are filled with sprayfoam once the lifting track is removed. Ensure the holes will be covered by metal trim/flashing.



HANDLING INDIVIDUAL PANELS WITH VACUUM LIFTS

Use of vacuum lifting equipment often reduces installation time over other means. The equipment must be designed for the reach and weight rating as well as panel profile being lifted. Verify the specific requirements with the equipment supplier.

The following list of equipment suppliers is not an endorsement and is to be used for informational purposes only:

Ontario Glazing Supplies Ltd.
300 Trowers Road, Unit 7
Woodbridge, ON
L4L 5Z9, Canada
Tel: (905) 652 - 2772

Wood's Powr-Grip Co., Inc.
908 West Main Street, PO Box 368
Laurel, MT USA 59044
Tel: (406) 628-8231

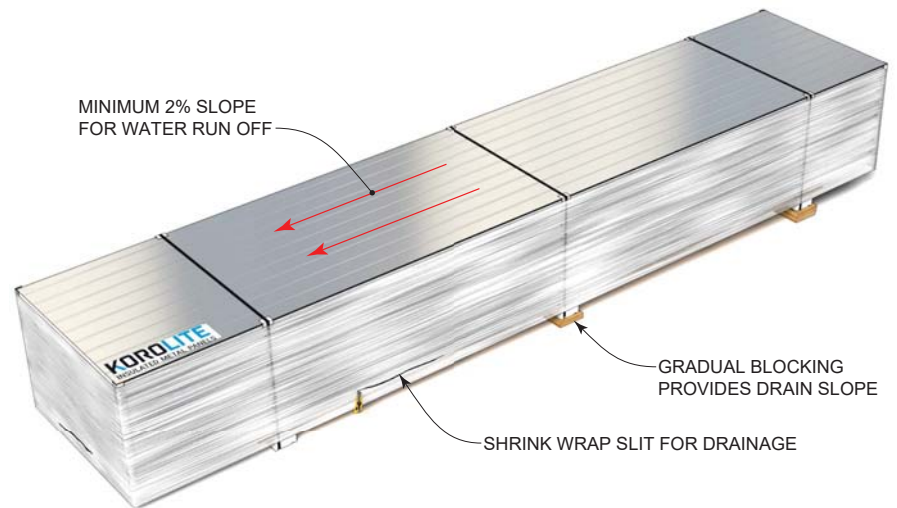
AutoMAK Assembly Inc.
1190 Arrowhead Court
Crown Point, IN 46307
Tel: (219) 310-8458



STORAGE

Panels should be securely stored in cool, dry and shaded areas away from elements on well drained, level ground free from standing water or snow. If stored outside and exposed to elements, use gradual blocking under bundles to provide a minimum of 2% drain slope for water runoff. Cut horizontal slits near bottom of shrink wrap to allow for water drainage.

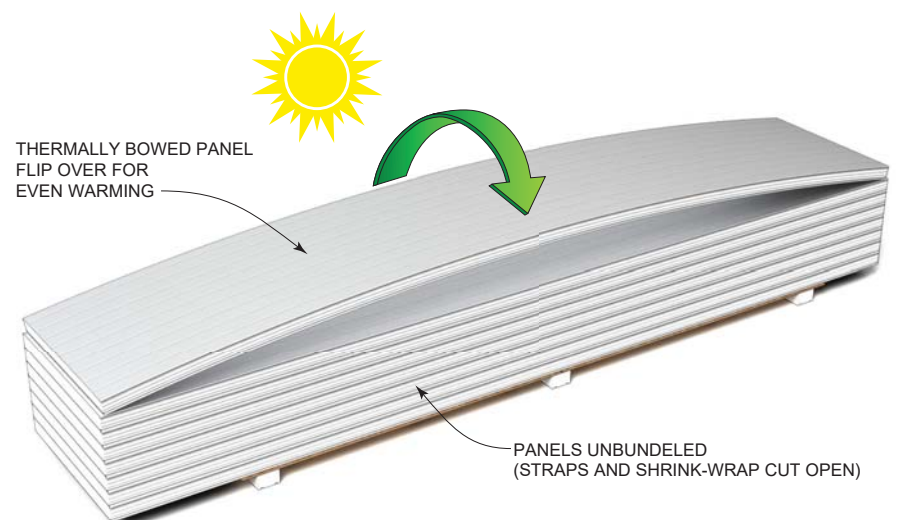
At end of each workday, cover open bundles with poly or tarp with straps to protect against elements. When strapping the bundles use protective edge covers - do not over-tighten the straps as this may cause damage to interlocking panel ends.



WARNING: Keep panels away from cutting or painting work as well as any ignition sources such as welding and torching.

THERMAL BOWING

Whenever possible, store panels in a cool, dry and shaded place. Panels exposed to sunlight may show signs of thermal bowing. Move the panels to a shaded area or flip them over to expose the cool surface to sunlight for 15 to 30 minutes. This will flatten the panels and allow for proper interlock engagement.



OIL CANNING

Oil canning is a rare occurrence which can be defined as perceived waviness in the surface of metal panels. It does not affect panels' thermal performance or structural integrity. It is usually caused by a number of factors largely outside of Airfoam's control and include:

- The coil manufacturing process may produce coils with more tension at center or perimeter edges of the sheet metal.
- Structural support frame, though within tolerance, may be out of plane which induces stresses within metal panels.
- Improper handling of panels such as carrying them in flat orientation. Twisting may occur when one corner is lifted up from a bundle.
- Movement of the structure due to settlement, differential deflection, or racking may cause either temporary or permanent waviness.

Potential for oil canning can be minimized by specifying the 'Standard 9' sheet metal profile as well as using thicker sheet steel (e.g. 24 gauge). At Airfoam, every attempt is made to avoid or minimize the potential for oil canning, however since many uncontrollable factors are involved, Airfoam cannot assure its complete elimination and as such is not grounds for panel rejection.

If oil canning produces extreme distortions, it may indicate movement within the primary structure and as such it should be brought up to the attention of the Engineer of Record (EOR).



PROTECTIVE FILM

Each Korolite Insulated Metal Panel is shipped with a thin protective film applied on one side of the panel. The film serves as defense barrier against cutting debris, rock chipping from moving traffic, paint, caulking etc. Prior to lifting each panel into its final position, peel back the film from corners of panels. Film is typically completely removed once all panel installation activity that may damage the panel surface ceases, such as application of flashing, screws and caulking as well as installation of any service penetrations, doors and windows.

PANELS ARE INSTALLED WITH PLASTIC FILM
PARTIALLY PEELED OFF AT ENDS.
FILM IS COMPLETELY REMOVED ONCE FLASHING,
SCREW FASTENING AND SEALING IS COMPLETE

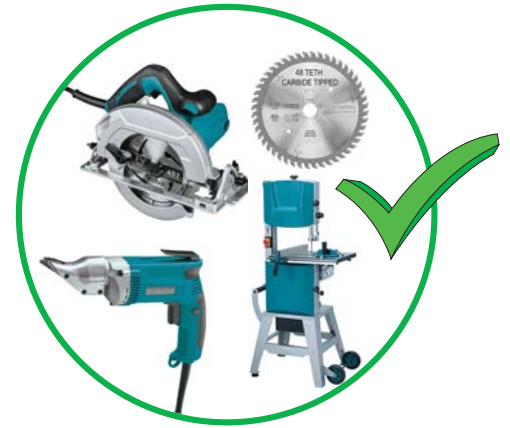
PEEL OFF FILM AT EITHER END
AT 45 DEGREES



PANEL CUTTING PROCEDURES

The following guidelines should be followed for successful panel cutting:

- Always wear respiratory and eye protection as well as gloves and long sleeve shirts.
- Whenever possible, panel cutting should precede installation.
- Use extreme care when cutting panels to avoid metal skin delamination as well as damage to painted surface.
- Airfoam recommends the use of circular saw with a fine tipped carbide blade of 40 teeth or more. A band saw with a proper metal cutting blade may also be used.
- Do not use torch cutters, angle grinders or jigsaws to cut the metal panels.
- Avoid the use of reciprocating saws as the blade on thicker panels tends to veer off course whilst pulling off the metal skin.
- Small penetrations are cut with a hand router from either side of the panel, EPS core is then cut out with a serrated knife.
- Hand snips, power snips and nibblers are used to cut trims and flashings.



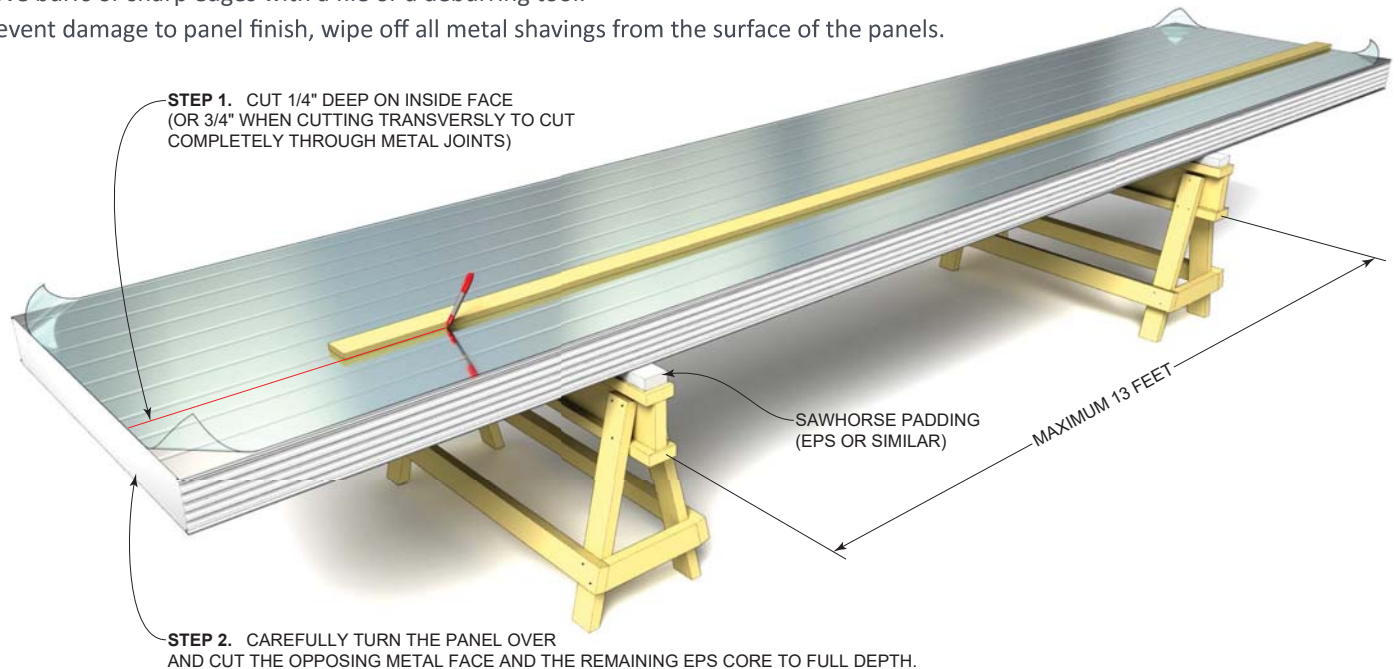
WARNING: Use of abrasive saws or grinders will damage the paint finish and metal skins.

PANEL CUTTING

To begin cutting a metal panel, place it on a pair of padded sawhorses. Wipe off any mud or debris from panel face that is to be cut with a clean rag. Leave protective film in place during cutting. Masking tape should be applied to one or both sides of panel (if the protective film has been removed). Draw the cut line with a washable felt marker or a chalk. Re-check measurements and proceed to cut the panel with the appropriate cutting tool.

STRAIGHT CUTS

- Cut the interior face of panel approximately 1/4" deep or 3/4" when cutting (transversely) through interlocks.
- Carefully turn the panel over and cut the opposing metal face and the remaining EPS core to full depth.
- Remove burrs or sharp edges with a file or a deburring tool.
- To prevent damage to panel finish, wipe off all metal shavings from the surface of the panels.



CUTTING OPENINGS

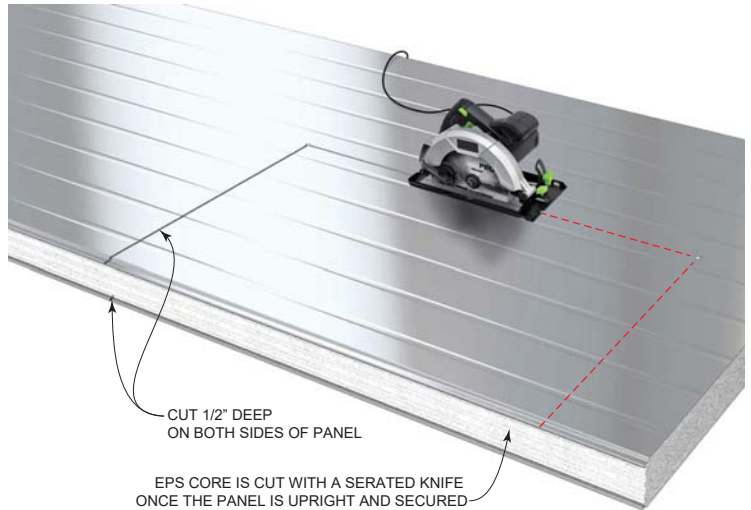
The steps to cut panels with openings depends on the how much panel width is left on side of opening to keep the panel stable during the lifting and installation process.

OPENING CUT IS WIDER THAN 50% OF PANEL

Drill in 1/4" to 1/2" diameter locating holes at each of the two corners, and cut both sides of panel to 1/4" depth. Using extreme care, flip the panel on edge and lift into place, secure it with fasteners to top and bottom metal track as well as the substructure as required. Then fully cut the remaining EPS core at opening with a serrated knife and remove the cut section of panel.

OPENING CUT IS NARROWER THAN 50% OF PANEL

Drill in 1/4" to 1/2" diameter locating holes at each of the two corners and cut interior face approximately 1/4" deep. Carefully turn the panel over and cut the opposing metal face and the remaining EPS core to full depth. Remove the cut panel section prior to carefully lifting the panel into place.



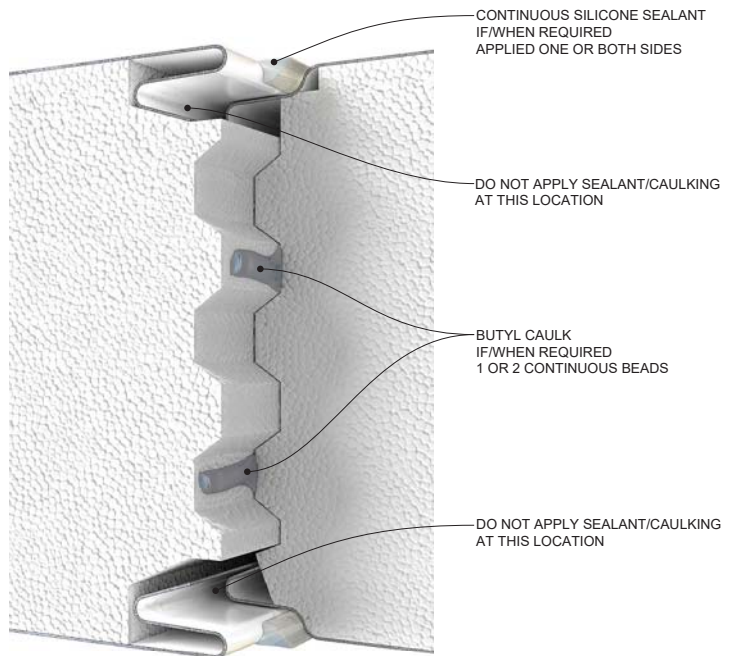
SEALING AND CAULKING

The project architect or the envelope engineer is responsible for specifying the type of sealant and caulking to be used. They are further responsible for specifying the air/vapor barrier location or the location of the sealant.

Panel joints must be clean, dry and un-damaged prior to sealant application. Always follow sealant or caulking manufacturer guidelines.

Inner butyl caulking (at EPS finger-joints) is installed (if/when required) as each panel is lifted into place. In each instance the bead should be applied at approximately 1/8" to 1/4" in size. Ensure the butyl caulking is compatible with EPS core.

Exterior silicone sealant is placed (if/when required) from outside of joint once the panels are interlocked and fully secured in place. Do not place the sealant into the male-female metal skin interlock as this will push the panels apart during installation. Applying the sealant from outside allows for easy inspection to ensure a continuous seal. The bead should be 1/4" in size and should not overflow onto adjoining panel faces. Remove excess sealant from panel faces using clean cotton rags with WD-40 or mineral spirits.



WARM WEATHER:
Store sealant in shaded area out of direct sunlight.

COLD WEATHER:
Store sealant in a warming bin until ready for use.



TOUCH-UP PAINT

Minor damaged or scratched panel surfaces/paint may be fixed with touch up paint. Clean the affected area with isopropyl alcohol. Apply touch up paint at ambient temperatures above 50°F [10°C] by using artist brush. Contact Airfoam Technical Support for appropriate touch-up paint. For deep scratches or excessive areas to be repaired, contact Airfoam Technical Support for detailed instructions

PANEL CLEANING AND MAINTENANCE

Proper installation and maintenance are key to successful project outcome with Korolite® Insulated Metal Panels. All dirt, contaminants, EPS and metal shavings should be removed to ensure proper service life. The panels should be wiped down as they are lifted into place. Caulking and sealants as well as any oil, grease or similar substances can be removed by wiping panels with a clean cloth soaked in WD-40 or similar. Test on an inconspicuous surface first. Wipe only contaminated areas and follow up with detergent cleaning and thorough rinsing.

WARNING:

When cleaning the panels, do not use wire brushing or any abrasive cleaning methods.
Avoid the use of strong solvents.

AVAILABILITY

Korolite® Insulated Metal Panels are supplied from Surrey BC. For product availability or to get in touch with your local distributor, call Airfoam at 800.663.8162 or +1.604.534.8626.

RECYCLING

Sheet metal as well as EPS can be recycled for reuse in a variety of different applications, from construction and landscaping to packaging and park benches. Airfoam Industries Ltd. is a registered Recycling Facility accepting recyclable #6 Expanded Polystyrene (EPS) from our customers - free of charge, if it is clean, dry, and not mixed with any other materials.

TECHNICAL SERVICES

Airfoam can provide technical information and support to help address questions when using Korolite® Insulated Metal Panels. Technical personnel are available to assist with your project. For technical assistance, contact Airfoam at:

Online: www.airfoam.com/EPS-Insulation-Support.php

Phone: 800.663.8162 or +1.604.534.8626

Fax: +1.604.534.1212

NOTES:

- WAREHOUSE CURTAIN WALLS
- WAREHOUSE PARTITION WALLS
- COOLER / FREEZER ROOMS
- COLD-STORAGE FACILITIES
- REFRIGERATED, CLIMATE CONTROLLED BUILDINGS
- COMMERCIAL BUILDINGS
- INDUSTRIAL BUILDINGS
- AGRICULTURAL BUILDINGS

DIMENSIONS

The panels are 48" or 45¾" wide, 2" to 11" thick and custom-cut to length per approved designs.

EXPANDED POLYSTYRENE (EPS) CORE

Expanded Polystyrene (EPS) is a high-performance, closed cell, rigid foam insulation material containing air as main ingredient. EPS insulation resists moisture, mold, and fungi with low environmental impacts, high & stable Long-Term Thermal Resistance, and good drying potential over the long service periods of buildings.

METAL SKINS

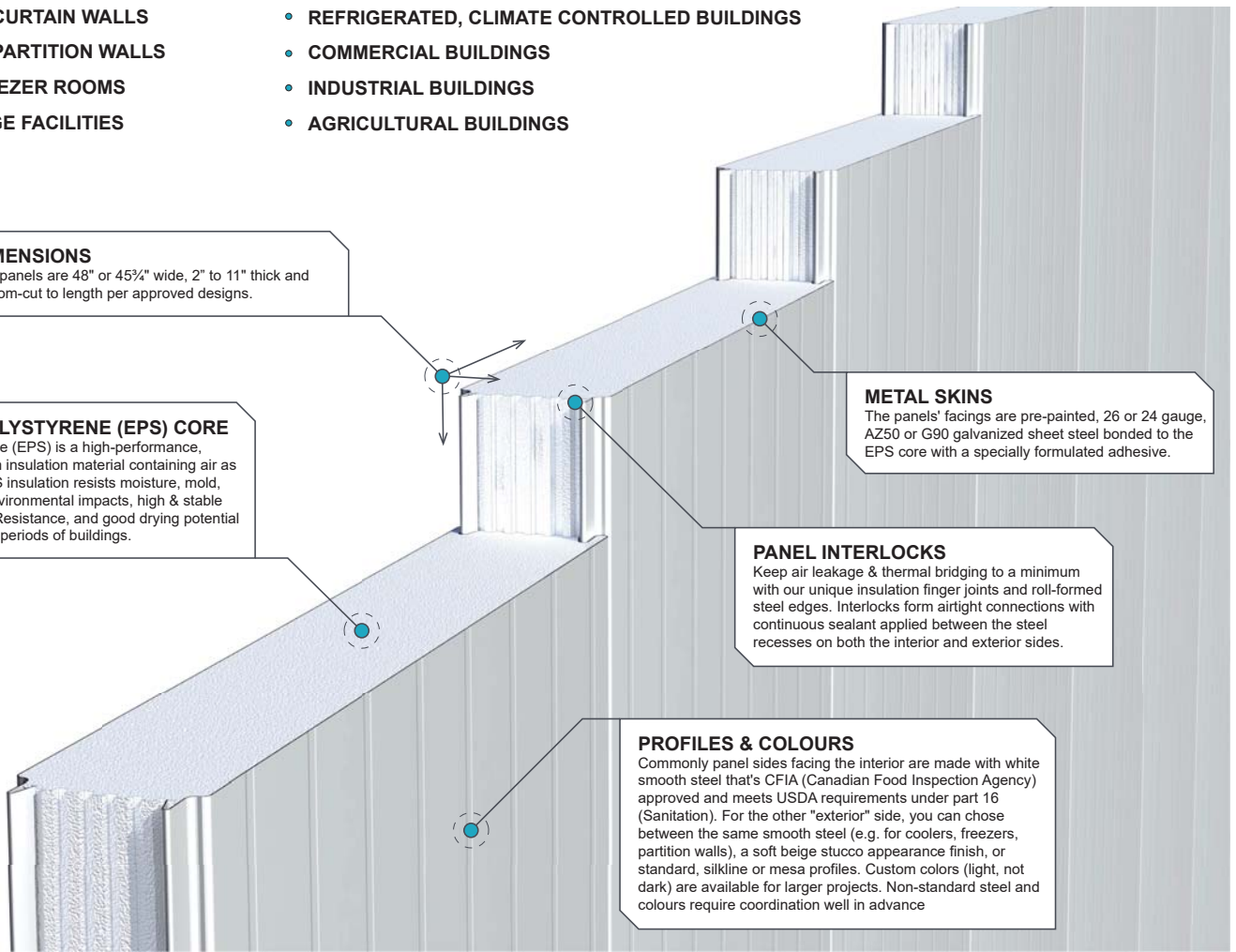
The panels' facings are pre-painted, 26 or 24 gauge, AZ50 or G90 galvanized sheet steel bonded to the EPS core with a specially formulated adhesive.

PANEL INTERLOCKS

Keep air leakage & thermal bridging to a minimum with our unique insulation finger joints and roll-formed steel edges. Interlocks form airtight connections with continuous sealant applied between the steel recesses on both the interior and exterior sides.

PROFILES & COLOURS

Commonly panel sides facing the interior are made with white smooth steel that's CFIA (Canadian Food Inspection Agency) approved and meets USDA requirements under part 16 (Sanitation). For the other "exterior" side, you can choose between the same smooth steel (e.g. for coolers, freezers, partition walls), a soft beige stucco appearance finish, or standard, silklite or mesa profiles. Custom colors (light, not dark) are available for larger projects. Non-standard steel and colours require coordination well in advance.



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