

CRANE

Composites

TRAVEL TOUGH
with frp panels

Transportation Panels **ARMORTUF®** | **KEMLITE®**



frp Fiberglass Reinforced Panels

why **frp**? where **frp**?



sanitary & cleanable

All Crane Composites products are in full compliance with USDA/FSIS requirements and fully support the new Food and Safety Modernization Act (FSMA).

simple & cost-effective

Thermoset panels provide a non-porous surface which makes it impossible for dirt to become embedded in the surface of the panel. Plus, they're easy on your budget and designed to last for years to come.

dependable performance

Count on Crane FRP panels for extremely strong durable panels that resists most stains and chemicals. FRP does not support the growth of mold, mildew, or bacteria.

there is more to **frp** than ever before

sidewall + ceiling liners

dry/refrigerated trailers + truck bodies

translucent roofs

dry trailers + truck bodies

reefer roofs

refrigerated trailers + truck bodies

side skirts

dry/refrigerated trailers

scuff plates

dry/refrigerated trailers + truck bodies

exterior wall liners

dry/refrigerated truck bodies

laminated panels

frp laminated panels to custom substrate

repair kits

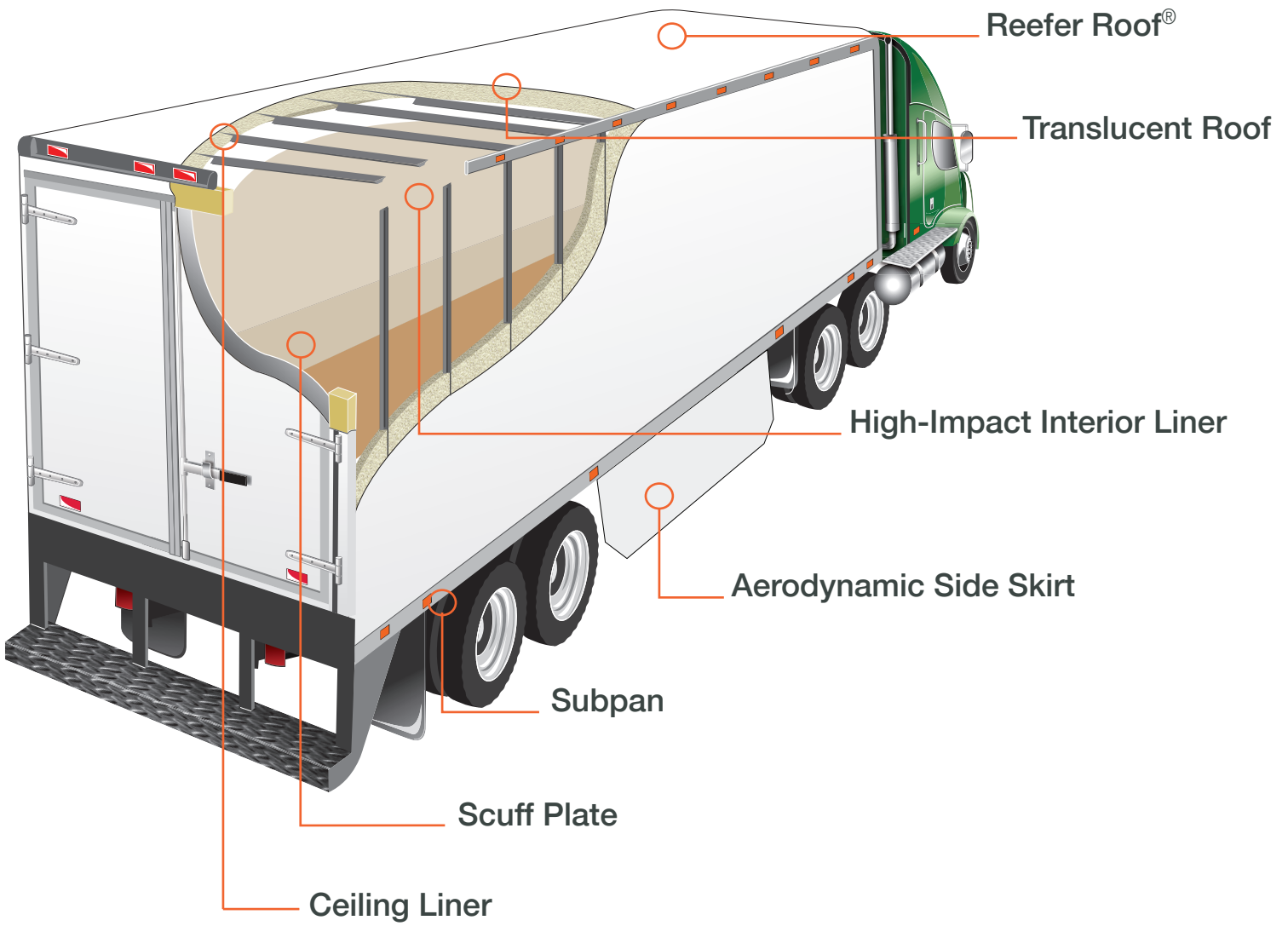
easy repair solutions



Crane liners have been designed to allow for full compliance with FSMA/USDA/FSIS requirements for non-food contacting applications for years and support the new Food Safety and Modernization Act.

Our products have been used for over 65 years and are used today in food processing plants, restaurants, and in transportation truck bodies and trailers, because they are a cost effective way to create a clean, durable, and sanitary surface.

DRY/REFRIGERATED TRAILERS



benefits of frp



Durable



Mold Resistant

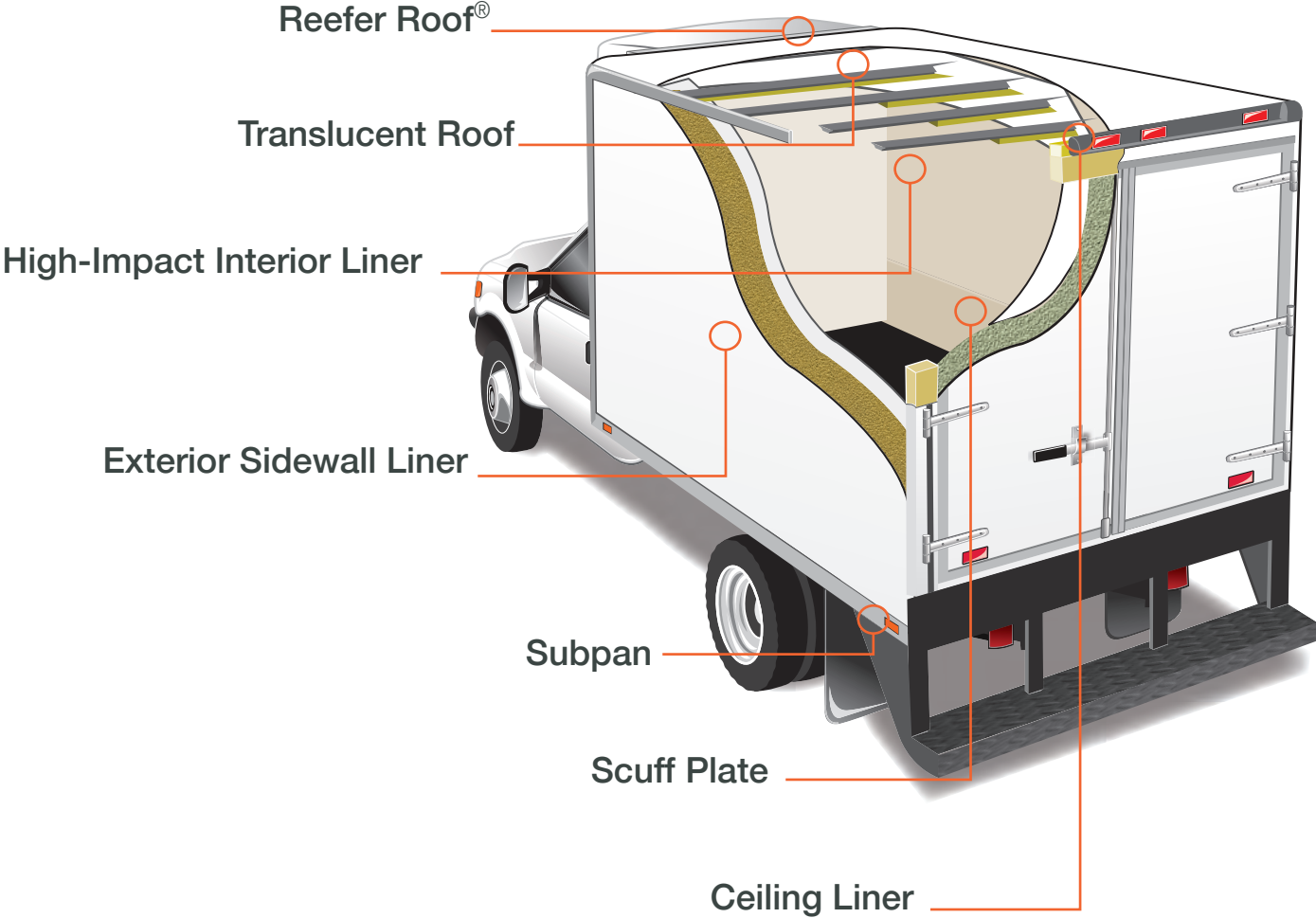


Light Weight



Moisture Resistant

DRY/REFRIGERATED TRUCK BODIES



best **life cycle cost**



Easy to Clean



Easy to Install



High Weight to Strength Ratio



Impact Resistant

Liners superior liner technology



ARMORTUF EMBOSSED (EARM)

liner market leaders

Crane Composites was first to introduce a composite panel into the truck trailer market. Our panels were the first Fiberglass Reinforced Plastic (frp) composite liners and full seamless lightweight liners in the market.

Crane Composites has been lining transportation trailers and truck bodies since 1954. Our liners are lightweight, easy to clean, and highly stain and abrasion resistant. Additionally, our panels are in compliance with FSMA/USDA/FSIS regulations.



liner benefits

There are many benefits of Crane Composites' interior liners; they resist damage and look better longer. Our liners are engineered with a matrix of glass reinforcement and other multiple reinforcement options including long chopped glass partnered with a durable polyester resin system. With a low vapor transmission rate and abrasion resistant surfaces, Crane Composites' liner options display a consistent white appearance that is easy to clean and maintain.

BENEFITS OF USING CRANE THERMOSET OVER THERMOPLASTIC

thermoset

Many benefits come with using a thermoset liner. Thermoset liners have hard, dense, resin rich surfaces that are easily cleaned and abrasion resistant. With no voids in the surface of our liners, stains do not become embedded or impossible to remove.

thermoplastic

In a thermoplastic liner, stains are difficult to remove due to voids forming on the surface. The surface of a thermoplastic liner is porous which makes it easy for dirt and moisture to become trapped.

learn more at: cranecomposites.com/resources

Translucent Roofs light, bright + watertight



KEMLITE EXTENDED WEATHERING ROOF (XLR)

bringing natural light into your trailer

Since 1980, Crane Composites has provided the market with a superior translucent roof solution that has addressed the need for a well-lit, lightweight vehicle that allows for a safer loading and unloading of cargo environment.

Kemlite translucent roofs provide enough light to identify products and easy read labels and also provides a safer environment for loading and unloading cargo. It is an efficient way to light a trailer, truck body, or delivery van without spending money to install lighting.



translucent roof features + benefits

Crane Composites' translucent roofs help trailers utilize natural light all while having significant weight savings. With the utilization of natural light, there is no need for installing lights on the interior of a trailer. Our translucent roofs provide enough light to cultivate a safe environment for the loading and unloading of cargo as well as the visibility to read cargo labels.

SOLUTIONS FOR DRY VANS TRAILERS

XLR

Our premium product that contains engineered fabric on the backside of enhanced tear resistance and a unique resin formulation for enhanced weatherability. When comparing our XLR roof to a standard aluminum roof for a 53' trailer, there is an average weight savings of about 15% or 34lbs. | 0.50lbs/ft².

TI

Woven fiberglass reinforcement built into roadside and curbside edges for additional rivet pull out strength | 0.47lbs/ft².

SOLUTIONS FOR TRUCK BODIES + DELIVERY VANS

TRW

Heavy duty translucent roof designed for truck bodies. It is a one-piece high-strength FRP roof with a full width woven roving mat | 0.39lbs/ft².

RISC Cool Roof

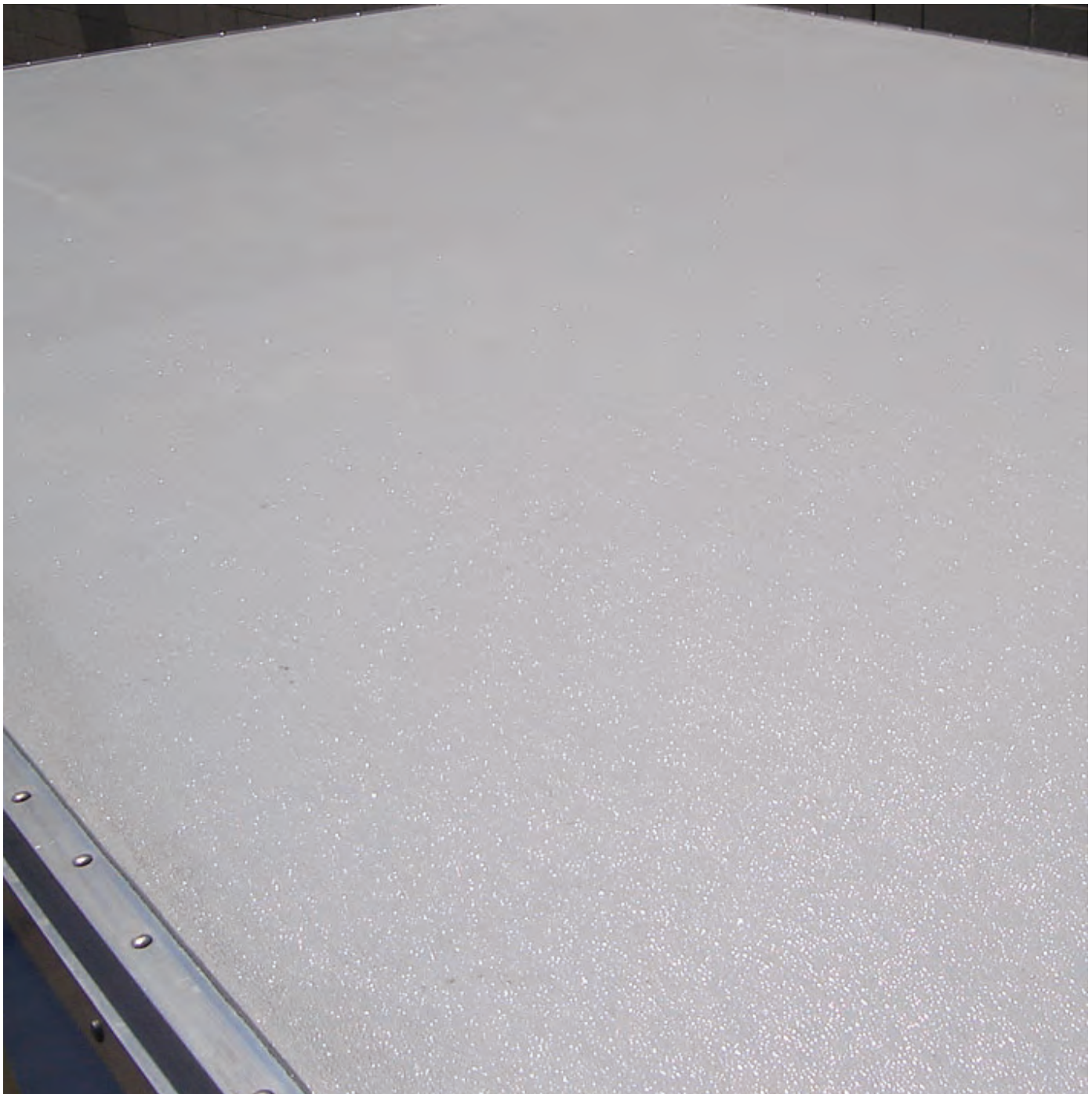
Provides low light transmission supporting cooler vehicle temperatures for delivery vehicles. A one-piece FRP roof with woven reinforcement built into a roadside and curb side edges for additional | 0.46lbs/ft².

TI

Woven fiberglass reinforcement designed to improve visibility for safer loading and unloading of cargo | 0.37lbs/ft².

for the latest news follow us on: [facebook.com/cranecomposites](https://www.facebook.com/cranecomposites)

Reefer Roofs because efficiencies matter

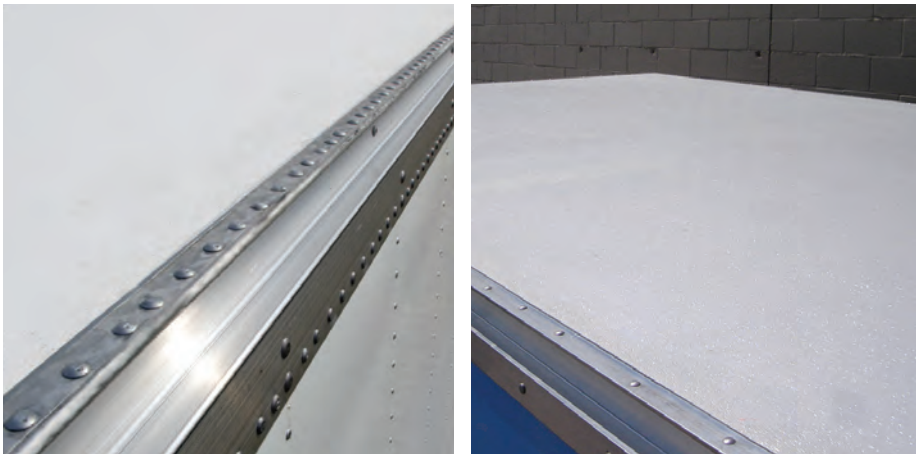


KEMLITE REEFER ROOF (RISC)

durable + sustainable composite roof

For a roof solution specifically designed and formulated to enhance the thermal efficiencies of your trailer or truck body, one product rises above other materials in the market: Kemlite Reefer Roof. Kemlite Reefer Roof is engineered with a unique resin formulation to reflect heat-generating solar radiation.

Our Kemlite Reefer Roof's ability to reflect most solar radiation improves the ability of your refrigerated trailer to maintain its desired interior temperature. As such, our Kemlite Reefer Roof option creates a more thermally efficient refrigerated trailer which in turn assists in reducing the operating costs of your trailers' cooling units.



reefer roof features + benefits

REEFER ROOF AS A SYSTEM

- Improves ability to maintain vehicle's interior temperature
 - Thermal break; conducts 1,000x less heat than aluminum roof panels
 - Durable, impact resistant roof panel and easy to repair
- Reflects up to 2x the solar radiation when compared to an oxidized aluminum roof.

Aerodynamic Side Skirts **because efficiency matters**



rugged design, lightweight & durable

AERODYNAMIC SIDE SKIRTS (ARMP)

For an aerodynamic side skirt solution with superior durability, one product rises above other materials in the market: Crane Composites fiberglass reinforced plastic (FRP) Aerodynamic Side Skirt. The Crane Composite Aerodynamic Side Skirt is designed to meet fleet's fuel efficiency requirements and enhance the productivity of a trailer while also lowering the total cost of ownership.

When comparing aerodynamic side skirt material, weight, flexibility, and panel composition are three key attributes that determine the performance over time of side skirts. Made with a woven fiberglass and polyester resin matrix, the Crane Aerodynamic Side Skirt raises the bar and provides fleets with a skirt that has a high strength-to-weight ratio with enhanced flexibility.



side skirts features + benefits

Crane Aerodynamic Side Skirts utilize both a fully woven high strength glass reinforcement, along with long strand chopped glass reinforcement, to achieve a flexible and durable panel that is designed to take abuse. The thickness of our skirt, 0.135", was derived to reduce fluttering of the panel, which can create drag. The skirts are enhanced with a unique resin system and UV inhibitors, which resist scratching and create a barrier between the environment and the glass reinforcement, providing longer life in high-abuse applications.

CRANE SIDE SKIRT PRODUCT FEATURES

RUGGED DESIGN

- Bending up to 90° both ways
- High flexural strength
- Crane's thermoset plastic and fully woven glass reinforcement allows for better fastener retention

IMPROVE FUEL EFFICIENCY

- Lightweight, robust design
- Panels designed to be flexible, yet stiff enough to resist fluttering to help maximize fuel efficiency

LIGHTWEIGHT

Under 1lb per square foot

CUSTOMIZABLE

Resin system is decal/logo friendly and ready to build your brand

for the latest product information, visit: cranecomposites.com/tr

Scuff Plate Panels protecting your sidewalls



KEMLITE SCUFF PLATE (EGAT)

Kemlite Scuff Plate panels are a high-impact, durable, lightweight product that are more cleanable, more stain resistant, and more abrasion resistant than competitive plastic materials and alternative solutions such as wood and aluminum.

Kemlite Scuff Plate is specifically designed and formulated for use as a scuff plate to protect your sidewalls from forklift and pallet damage in high abuse or impact areas within your vehicle.

benefit Crane is Designed to Last

- Minimizes damage caused by forklifts, pallets, crates, and cargo
- Protects against dents and tears
- Equipped with unique Surfaseal Technology for unmatched cleanability and stain resistance
- Superior performance at a fraction of the weight and thickness of alternative materials for more

Kemlite scuff plate is designed to take the abuse that is inevitable from loading and unloading your trailers and truck bodies. Scuff is the first barrier, the sacrificial layer...for that reason, we know it needs to last. Kemlite scuff plate will act as that barrier as evidenced by the image below.

Exterior Sidewalls *quality + service*

Manufacturers and dealers choose Crane Composites Fiberglass Exterior panels over the competition, because its smooth finish looks better, cleans easier, and lasts longer!

CRANE EXTERIOR PRODUCT FEATURES

NOBLE SELECT

An all-composite, wood-free exterior panel with superior surface and weathering performance. Crane's premium solution is Noble Select is designed for laminated. Decal and wrap friendly.

CRANE GOLD

Crane Gold panels set the GOLD standard with a premium, high-gloss finish. It delivers the smoothest finish with thick gel-coat for a fiber free result. Crane Gold is engineered with a superior resin system to provide best-in-class thermal stability.

FILON MAX

Our newest Filon sidewall product enhanced with a reduced fiber-show finish. Take your vehicle to the MAX! Our FILON MAX coilable exterior sidewall panels are specially formulated to deliver maximum weathering capabilities and engineered with a high-gloss finish that is especially illuminating in natural light.



CRANE GOLD (CAU)

Get more out of every mile and moment, choose Crane Composites Fiberglass Exterior for your vehicle for a radiant seamless finish.

Kemply® Laminated Solutions used to suit your vehicle needs

Wood offers a panel construction that exhibits superior structural strength and rigidity. Wood cores are available in different varieties (Plywood, OSB, etc) and thicknesses depending on the performance required.

We can laminate to foam, honeycomb and other materials. We can also laminate any Crane Composites material to either or both sides of the substrate.



KEMPLY with plywood (BCX)

Plywood (BCX) with 0.05" fiberglass panel laminated to one side of substrate.

available thicknesses

0.375" | 9.5 mm
0.5" | 12.7 mm
0.625" | 19.1 mm

KEMPLY with oriented strand board (OSB)

Oriented Strand Board (OSB) with 0.05" fiberglass panel laminated to one side of substrate.

available thicknesses

0.375" | 9.5 mm
0.5" | 12.7 mm
0.625" | 19.1 mm

cost effective & high performance

Crane works with laminating partners to create custom solutions engineered to suit your customer's specifications and application requirements.

Repair Kits designed for quick, durable repairs



Repair Kits	REPAIR DESCRIPTIONS	KIT COMPONENTS	FEATURES
<p>Peel + Stick Repair Patch</p>	<p>The Peel and Stick patch is specifically designed as a quick and easy repair method for on-site repairs with few steps and minimal equipment, time, and labor needed for repairing damage to Crane Composites' interior and exterior liners.</p>	<p>The kit includes 12"x12" frp squares</p>	<ul style="list-style-type: none"> • Minimal Equipment • Quick, On-Site Repair • Self-Adhering Patch • Minimal Labor
<p>Liner Repair Kit</p>	<p>The Liner Repair Kit is specifically designed to repair damage to Crane Composites' liner panels. The Liner Repair Kit can be used for small and large tears and punctures.</p>	<p>The kit includes Crane's unique resin mix, a chopped glass mat, film, and catalyst.</p>	<ul style="list-style-type: none"> • Minimal Equipment • Film and Fiberglass Included For Your Needs • Chemicals Must Be Mixed Using Kit Supplies
<p>SunPatch Roof Repair Kit</p>	<p>The SunPatch Fiberglass Repair Kit is specifically designed to repair damage to Crane Composites' roof panels. The Sun- Patch is intended for small tears and punctures. The SunPatch cures in 5-10 minutes after exposure to UV rays.</p>	<p>The patch is a resin impregnated fiberglass mat that is ready for application. No mixing is required.</p>	<ul style="list-style-type: none"> • Minimal Equipment • Quick, On-Site Repair • Cures with UV Light • Minimal Labor
<p>Translucent Roof Repair Kit</p>	<p>The Translucent Repair Kit is specifically designed for repairing damage to Crane Composites' roof panels. The Translucent Roof Repair Kit can be used for small tears, and large tears or gouges.</p>	<p>The kit includes Crane's unique resin mix, a chopped glass mat, film, and catalyst.</p>	<ul style="list-style-type: none"> • Durable Repair • Film and Fiberglass Included For Your Needs • Chemicals Must Be Mixed Using Kit Supplies

Crane Composites Transportation product specifications

SIDEWALL + CEILING LINERS	PRODUCT CODE	STRENGTH	THICKNESS
ArmorTuf High Impact Liner Embossed	EARM*	● ●	0.07" 1.8 mm
ArmorTuf Heavy-Duty Liner Embossed	EATR*	● ●	0.085" 2.2 mm
ArmorTuf Lightweight Liner Smooth	ARMI*	●	0.065" 1.5 mm
ArmorTuf High-Impact Liner Smooth	ARMT*	● ●	0.075" 1.9 mm
ArmorTuf-NXT High Impact Liner Embossed	ANXT	●	0.075" 1.9 mm
ArmorTuf Lightweight Liner Embossed	ERMI	●	0.075" 1.9 mm
Kemlite Lightweight Liner Embossed	LTR*	●	0.09" 2.3 mm 0.120" 3.1 mm
Kemlite Lightweight Tapered Liner Embossed	LTR*	●	0.120" 3.1 mm -tapers to 0.090" 2.3 mm
Kemlite High-Strength Liner Embossed	LHS*	●	0.06" 1.5 mm
Kemlite Lightweight Liner Embossed	LTR*	●	0.06" 1.5 mm 0.075" 1.9 mm

SUBPANS	PRODUCT CODE	STRENGTH	THICKNESS
Kemlite Lightweight Subpan Embossed	LTR-SP*	●	0.06" 1.5 mm

TRANSLUCENT ROOFS	PRODUCT CODE	STRENGTH	THICKNESS
Kemlite Extended Weathering Roof**	XLR*	● ●	0.075" 1.9 mm
Kemlite Aftermarket Translucent Roof***	TRF*	●	0.075" 1.9 mm
Heavy Duty Translucent Roof Designed for Truck Bodies ****	TRW	● ●	0.06" 1.5 mm
Kemlite Translucent Roof***	TI*	●	0.06" 1.5 mm 0.075" 1.9 mm
Kemlite Cool Roof*** Provides low light transmission supporting cooler vehicle temperatures for delivery vehicles	RISC*	●	0.075" 1.9 mm
Heavy-Duty Translucent Roof****	EATR*	● ●	0.085" 2.2 mm

REEFER ROOFS	PRODUCT CODE	STRENGTH	THICKNESS
Kemlite Reefer Roof	RISC*	●	0.075" 1.9 mm
SIDE SKIRTS	PRODUCT CODE	STRENGTH	THICKNESS
Aerodynamic Side Skirt	ARMR	●	0.135" 3.4 mm
SCUFF PLATES	PRODUCT CODE	STRENGTH	THICKNESS
Kemlite Heavy-Duty Liner and Scuff Plate Embossed	STI*	● ●	0.240" 6.1 mm
Kemlite Strength Liner and Scuff Plate Embossed	EGAT*	●	0.145" 3.7 mm
Kemlite Lightweight Liner and Scuff Plate Embossed	LTR*	●	0.120" 3.1 mm
EXTERIOR SIDEWALLS	PRODUCT CODE	STRENGTH	THICKNESS
Noble SELECT	NS	● ●	0.184" 4.7 mm
Crane GOLD	CAU	●	0.065" 1.7 mm 0.09" 2.3 mm
Filon MAX	MAX	●	0.05" 1.3 mm 0.07" 1.8 mm
Filon G3	RBP	●	0.045" 1.1 mm

● HEAVY-DUTY ● HIGH-STRENGTH ● MEDIUM-DUTY/STANDARD ● AFTERMARKET PRODUCT

* This product contains Surfaseal®, a unique surface to Crane Composites. This protective finish ensures that our panels will stand up to harsh conditions while maintaining a clean and sanitary surface.

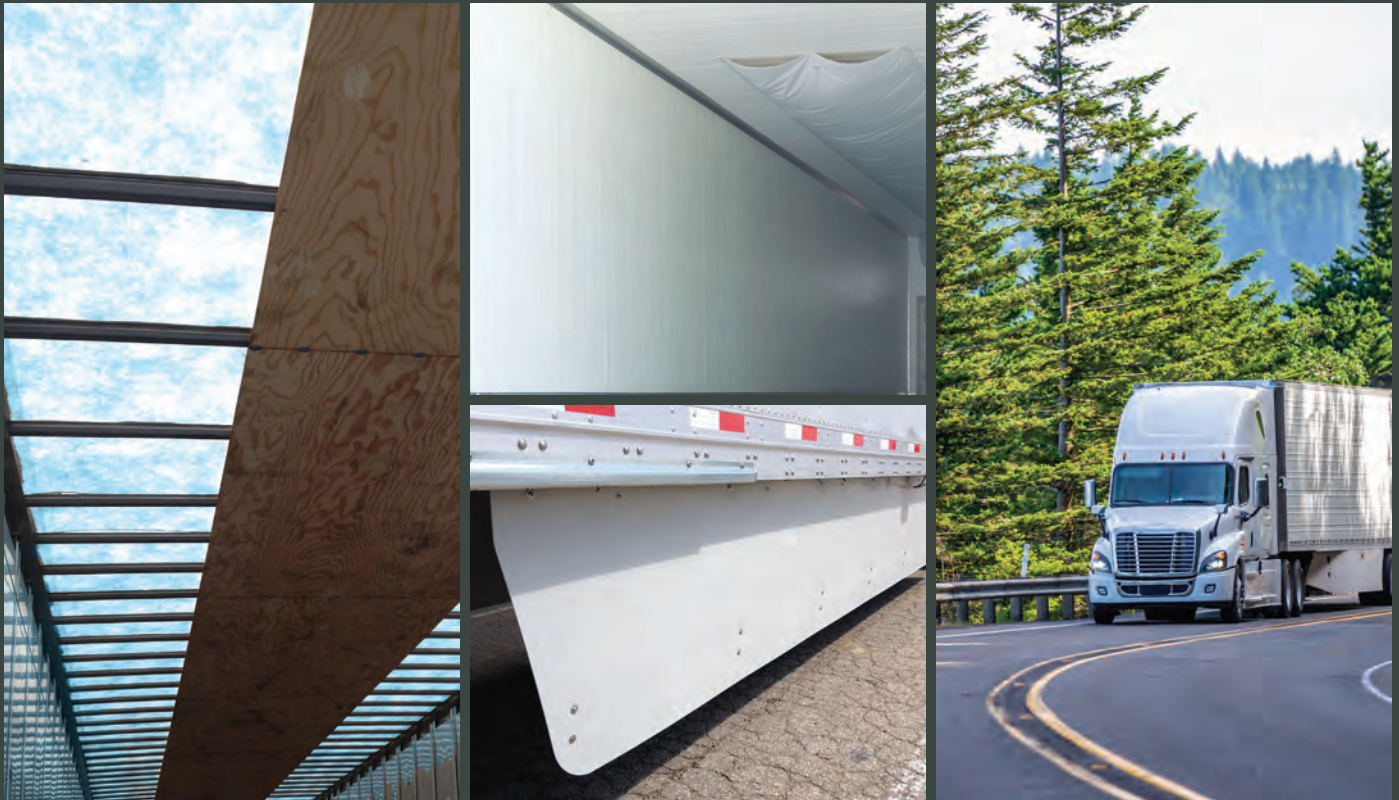
** Equipped with Enhanced Tear Resistant Fabric

*** Equipped with Woven Fiberglass Edge Reinforcement

**** Equipped with Full Width Woven Mat or Bi-directional Fiberglass for Livestock trailers only

who we are

Crane Composites Inc., a subsidiary of Crane Co. (NYSE:CR), is the world's leading provider of fiber-reinforced composite materials.



The superior option

Since 1954, we have continued to pioneer numerous patented technologies for industrial and commercial product applications. Crane Composites fiber-reinforced panels (FRP) can be found in virtually every type of vertical market, from highly industrialized environments to stylish retail and hospitality settings.

No matter what the application, our products and team reflect our mission statement: we are a performance

driven organization committed to global leadership and products of high-quality composite materials.

Customers benefit not only from the outstanding performance characteristics of our products, but also from our extensive support programs. Our expert product teams are focused on the needs of customers to provide unparalleled service and expertise.



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