Building with conscience.

StoVentec® Fiber Cement

Fabrication, Handling, and Maintenance Guide

Facades

Interiors

Ventilated Rainscreen cladding systems

StoVentec Fiber Cement is a durable, high-density, noncombustible wall cladding panel. Product collections are the Primara Line (PL) and Strata Line (SL). Primara Line panels are grey-bodied with a surface acrylic coating while Strata Line panels have integral color complementing an opaque surface acrylic coating. This Fabrication, Handling, and Maintenance Guide provides detailed information on proper handling and care of fiber cement prior to and after installation.

Fabrication, Handling, and Maintenance Guide

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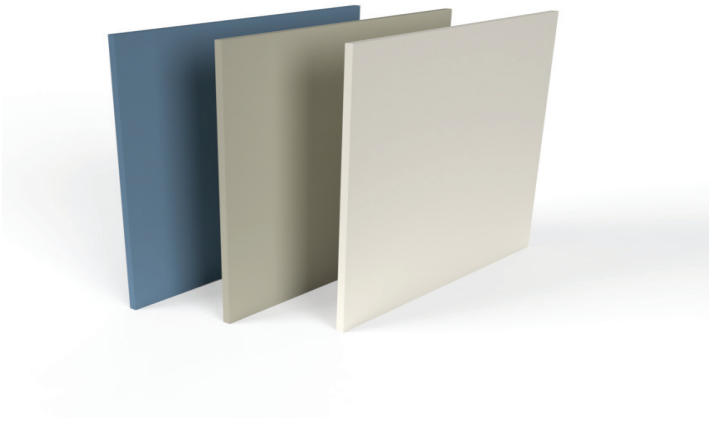

ATTENTION

The final design of any project is the sole responsibility of the Design Professional, with considerations for compliance of local building and design codes and requirements. Sto Corp. accepts no liability for design, engineering, or workmanship of any project. The information provided herein is in addition to other technical data provided by Sto Corp. (System Bulletin, Specification, Guide Details, etc).
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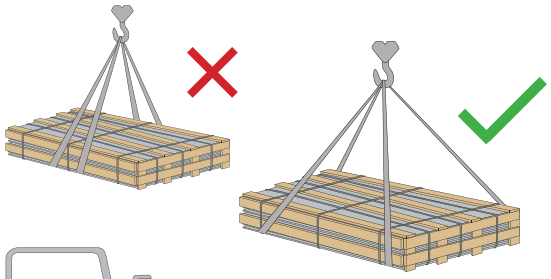
StoVentec Fiber Cement

StoVentec® Fiber Cement is a high-density, non-combustible ASTM C1186 Type A, Grade IV compliant fiber-cement cladding. Refer to the Product and System Bulletins, Design Guide and Detail Booklet, code reports, specifications, Safety Data Sheet, and complete Application Guide available at stocorp.com/rainscreen-systems.

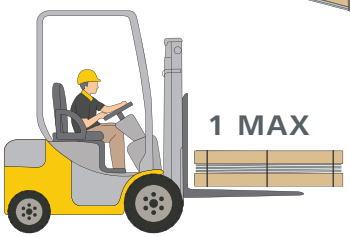
The fiber-cement panels are completely pre-finished. As such they must be handled with care and kept clean in order to preserve the finish aesthetics. Use of professional CNC equipment for fiber-cement fabrication in a controlled indoor setting is highly recommended. Panel processing activities in the field at job sites should be kept to a minimum. StoVentec has a network of partners and can facilitate a full package of engineering and fabrication services.

Fiber Cement Pallet Transport, Handling and Storage

Pallets of fiber-cement must be transported under cover, protected from the weather. Panels are packaged in crates on pallets with plastic overwrap and foam slip sheets between and surrounding the panels. The factory packaging is not sufficient to protect the materials from weather.

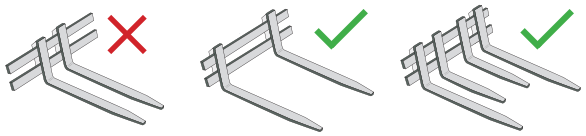


Unloading must be carried out with suitable machinery and tools. Belts, spacers, and forks of any forklifts must be suitably equipped to ensure weight is evenly distributed. Always handle or move pallets individually, one at a time.

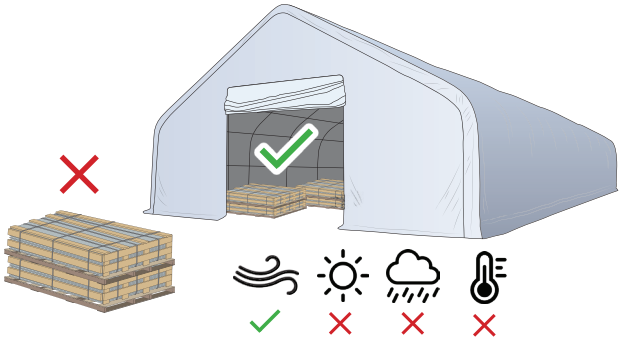


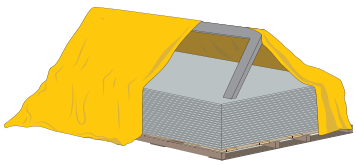
Move pallets with care to distribute weight evenly. Only move one pallet at a time.

Store on pallets in the original shipping crates, protected from weather and sunlight, in an **indoors/dry location** on flat surfaces until ready for installation. During prolonged indoor storage, remove the pallet plastic overwrap to allow for ventilation. Pallets of like size may be stacked two (2) high.



During the installation process at the job site, when pallets are not in use, cover with a vapor permeable cover. Always prevent the panels from coming in direct contact with the ground.



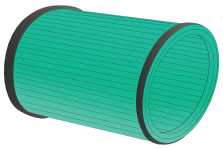


During installation, cover material with vapor permeable sheets and allow for ventilation.

Silica Dust & OSHA Standard for Construction

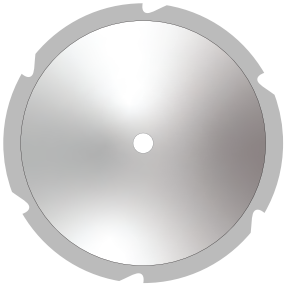
Fiber-cement contains silica (sand) and, like with any construction material that does, caution must be taken to protect users and any individuals in the vicinity from exposure to respirable crystalline silica dust, which is a serious health hazard covered by extensive OSHA rules for the construction industry.

Dust mitigation measures, collection, and/or use of personal protective equipment (PPE) are necessary whenever fiber cement is cut, drilled, or sanded. Wherever possible, utilize vacuum dust collection with HEPA filtration while cutting, sanding, or drilling fiber-cement. Utilize safety glasses and N95 dust masks whenever fabricating panels by hand.



Hand Tools and Professional CNC Equipment

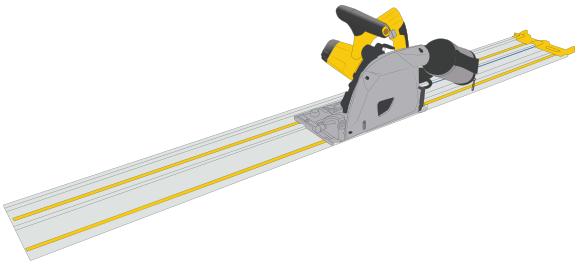
If cutting fiber-cement by hand, **panel saws** or **track saws** utilizing **fiber-cement saw blades** are recommended so that no part of the saw but the cutting blade contacts the fiber-cement as it is cut. Diamond tipped saw blades designed for cutting fiber-cement have fewer teeth than typical blades, reducing the amount of silica dust generated. A **jigsaw** with **carbide grit blades** can be used to create circular cuts or arched/non-linear cuts.



Fiber-cement saw blades have few teeth, helping to reduce silica dust generated.

Concrete/masonry drill bits are needed to pre-drill fiber-cement panels where fasteners will be located at installation.

- 7/16 inch (11mm) bits for StoVentec Fiber Cement Screw applications
- 13/32 inch (10mm) bits for StoVentec Fiber Cement Rivet applications



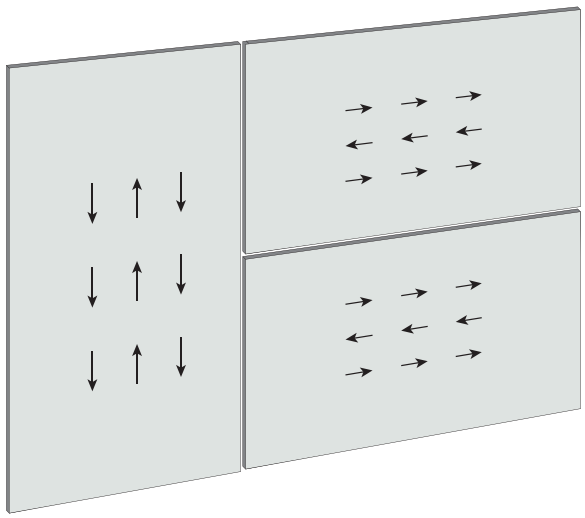
Sandpaper/Block: 60-100 grit

Professional CNC Equipment in a controlled indoor setting is the absolute best means of preparing pre-finished fiber-cement for installation. Best practices and optimal tools for fabricating fiber-cement vary according to the particular equipment with programing and guidance for various material types provided by the machine manufacturers. Such machines can move panels, cut them to final dimensions, drill fastener holes and/or perforations, and chamfer edges all while controlling dust and minimizing direct human interaction with the materials. **StoVentec can facilitate professional fabrication services for any project.**

Alu Ranger 6321 VGroove

Panel Directionality

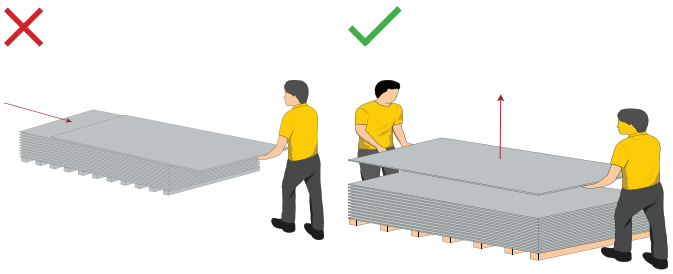
StoVentec Fiber Cement panels have an aesthetic directionality in their visible finish surfaces. Primara Line panels have a light sanding grain texture running in the long direction of the panels. Similarly, Strata Line panels, although completely smooth, have a subtle uniform linear effect in the finish paint. As such, it is important to plan for this visual directionality in the panel layout and in cutting panels accordingly.



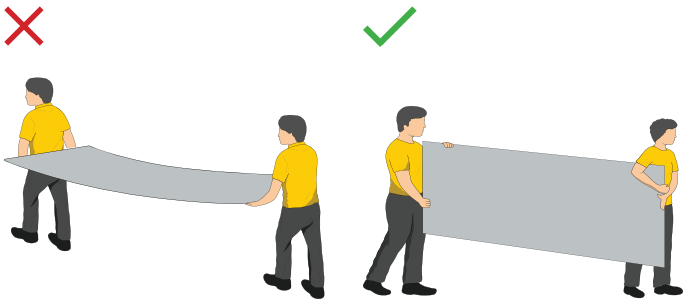
Individual Panel Handling

Panels are completely pre-finished. As such they must be handled with care and kept clean in order to preserve the finish aesthetics.

Lift panels directly up off their stack. Dragging panels off the stack will cause finish damage.

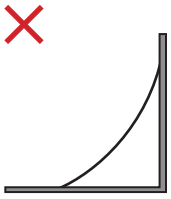


Carry panels on edge by a minimum of two people.



Do not rest panels against a wall such that they can bow.

Do not mark, draw on, or chalk the finished surface of panels.



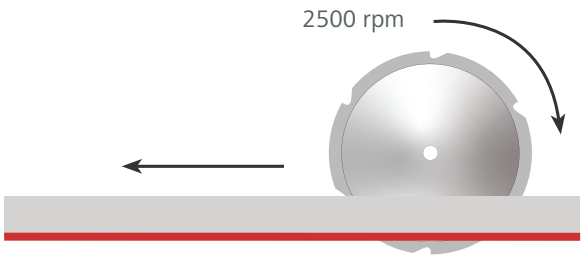
Cutting

Cutting panels face-down allows for the panel finish to remain clean/sharp at the cut edges. The worktop surfaces on which cutting and drilling occur must be flat, continuous (supporting the entire panel), and clean/soft/smooth so that panels are never subject to tension during cutting and finishes and edges/corners are not damaged. Foam slip sheets present between panels in their factory packaging may be used on the cutting table surface to help protect the panel finish.

Utilize lower saw blade rotation speed (2000-2500 rpm) with a feed speed of 10 feet per minute. The cutting angle should be perpendicular (90 degrees) to the panel surface.

Dust collection during the cutting process is necessary as fiber cement includes silica (sand), which is a health hazard with detailed OSHA rules. Wherever possible, utilize a vacuum with HEPA filtration while cutting, sanding, or drilling fiber cement.

Cut edges may be sanded (grit 60-100) to remove any burrs. Angle the sanding block away from the panel finished surface. Again, remediate/remove any dust generated.



Cut panels with the finish face DOWN.

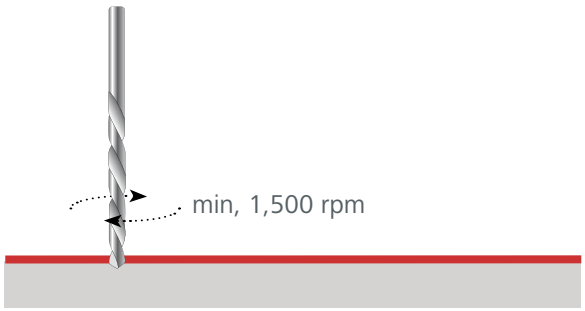
Drilling

Before high-density fiber-cement can be installed, it must be pre-drilled to match a prescribed or engineered fastening pattern suitable for the design wind pressures of the project. Slow drilling speed is best as it will generate less fine dust.

For projects utilizing StoVentec Fiber Cement Screws, panels must be pre-drilled with 7/16 inch (11mm) masonry bits. For installation with StoVentec Rivets 13/32 inch (10mm) masonry bits are required.

Minimum fastener/hole to panel edge distances must also be observed. Refer to the **Design Guide and Detail Booklet** for the edge distances for pre-engineered wind load configurations or project-specific engineering details.

Always clean off any remnant materials on the rear surface of the holes as well as the drilled out material via vacuuming (w/ soft tip) and/or clean microfiber cloths.



Drill panels with the finish face UP.

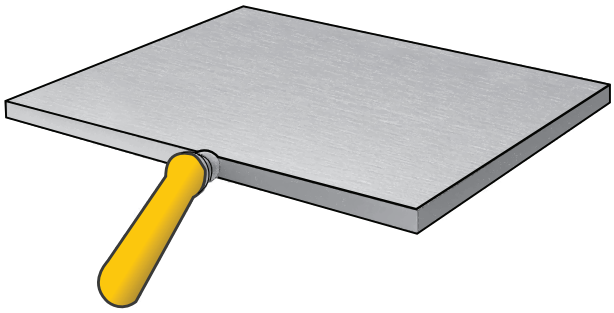
Cut Edge Treatment

With panel cutting, sanding, and drilling completed (and dust fully and carefully removed), it is required to treat cut edges (including drilled holes) with a silane solution.

Dowsil 520 water repellent emulsion (concentrated and milky white) is used to treat cut edges of fiber-cement panels in order to hydrophobate the newly exposed edge surfaces. This provides long-term resistance to weather exposure in the field, replacing similar factory coating lost to cutting/drilling.

Dowsil 520 comes in 40% active material concentration and should be diluted to 10-15% using distilled or demineralized water. The 10% level is achieved with a 3:1 ratio of water to repellent. Apply to panel cut edges with a small roller, sponge-tipped applicator, or foam brush so that the surface remains moist for 3-4 minutes. **Promptly wipe away any solution from the panel face. Utilize a clean-room swab with small tip to treat pre-drilled holes in the panels.**

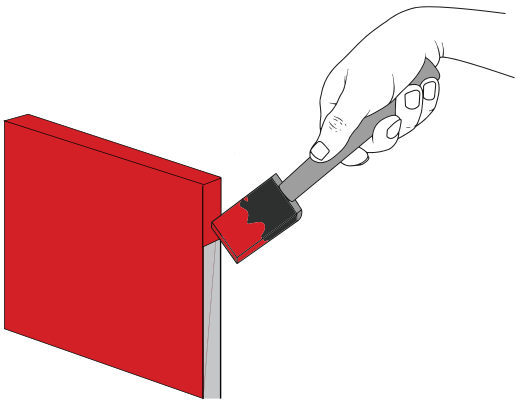
In terms of volume and usage of applied, diluted solution, the rate should be minimum 200g/m^2 (5.9 ounces/yd^2) with a maximum of 400g/m^2 (11.8 oz/yd^2). Immediately wipe off any excess edge sealer that may get onto the panel finish surface. Refer to Dow's technical data sheet for more information.



Dowsil 520 silane water repellant is the treatment for cut edges.

Cut Edge Re-coating

StoColor Acryl Plus Flat (80647), a high-performance, exterior grade, acrylic-based coating, color matched by Sto to the Primara Line and Strata Line collections or to custom colors, may be used for aesthetic re-coating of cut panel edges, particularly for products without integral (through-body) color. Apply Acryl Plus Flat in accordance with the Product Bulletin using a small roller or brush. Avoid getting the coating on the finish surface and remove any that does immediately with a clean cloth.



Finish Touch-up

Small scratches or blemishes may be touched up using color-matched StoColor Acryl Plus. Isolate the scratch with low-adhesive painter's tape. Utilizing the minimum amount of Acryl Plus possible to coat the scratch, and with a small, fine point artist's brush or cotton swab, touch up the blemish. **Lightly dab to apply the color only to the blemish. Less is best: it is impossible to match the sheen of the factory finish with any touch up paint.**

Cleaning - Before and After Installation

It is critical to keep pre-finished fiber-cement clean during and after the fabrication processes as well as immediately following installation. Fiber-cement dust can bind to finished surfaces and cannot be removed easily. Remove dust after any cutting, drilling or sanding using vacuuming and a clean microfiber cloth but do not scrub.

After installation, wash the facade using low-pressure water spray. If needed, add mild household cleaners (solvent-free) to the water spray. Test the solution in a small inconspicuous area to verify unintended damage or adverse effects are not produced before using it at scale. Do not allow the panels to dry with cleanser solutions applied and always thoroughly rinse the washed areas with clean water, from high to low, so as not to leave any residue.

Periodically wash the installed cladding as above to remove dirt, dust, pollen, and other natural deposits.

High-pressure cleaning may cause panel damage and is not recommended for fiber-cement facades.

Efflorescence, Algae and Mildew Removal

Refer to Sto Specification No. RC100 - Guideline Specifications for Cleaning Wall Surfaces.

Maintenance in the Vicinity

Regular maintenance in the immediate vicinity of installed fiber-cement is important to the cladding's long-term performance and appearance. Keep plants and vegetation clear from contact with the facade with clearance of one foot or more. Maintain ground clearance of 6 inches for panels at grade by preventing the buildup of landscaping materials such as mulch and stone. Align water sprinklers for landscaping not to spray directly on the facade. Keep gutters, downspouts, scuppers, etc clear to prevent overflow of water onto or behind the facade. Ensure proper drainage around the building base to prevent water pooling at the wall.

Annual Inspection

Annual inspections of the building facade are recommended to identify any potential issues such as missing or loose cladding fasteners, damage to panels and visual defects.

SVFC Primara Line coatings have been tested for durability with 4000 hours of QUV-B accelerated weathering. Delta E readings post-test for both color and gloss were less than 1. Depending on the climate and elevation exposure, this represents 6-12 years of natural weathering.

Surface finishes are important to the long-term durability of fiber-cement. Natural forces of weathering, particularly UV from sunlight on south and west-facing elevations eventually wear down finish coatings. Fiber-cement may be refinished with acrylic based coatings to refresh the original aesthetics or change things up as desired by building owners or occupants.