



## Installation of TimberSIL® GlassWood Boards, Decking and Lumber

### What about the TimberSIL® process?



TimberSIL® is a solid, DRY, southern yellow pine lumber product which has amorphous glass microscopically infused on the interior and exterior surfaces of the lumber. Molecules-thin ribbon barriers of non-toxic amorphous, silicon dioxide (glass) intimately commingled with wood fibers and cell walls adds significant strength, resilience, dimensional stability, resistance to fire, biological inertness, sustainability, and permanent carbon sequestration to wood.

It is entirely non-toxic, non-corrosive and non-leaching. This patented process also adds unique characteristics to how the lumber material behaves in the environment. It looks and feels like normal lumber, but the difference is the glass content. There is enough glass added throughout the board to produce significant advantages in durability, strength, hardness, stiffness and resistance to insects and fire.

TimberSIL® is not like pressure treated (PT) lumber. TimberSIL® Glass Wood is an entirely new product category and has earned an exemption from EPA pesticide registration. EPA classifies TimberSIL® as a barrier product—the first of its kind.

In contrast, typical PT lumber is a registered pesticide product, inherently toxic, and is both wet (30-50% moisture) and weaker than the mill material started with. TimberSIL, like PT is southern yellow pine (SYP) but this GlassWood material is much stronger, harder and stiffer than the usual wet, green lumber. And for the most part, TimberSIL GlassWood is a higher grade than what you find in the market for PT lumber. TimberSIL® is always a #1, #1 prime or #1 dense TPI® or SPIB® graded material.

### Receiving your TimberSIL® Glass Wood for your project

When your TimberSIL® materials arrive to the project site, some preparations for storage and handling should be in order. All authorized distributors and dealers are required to store TimberSIL® materials inside or at least in a three-sided shed for storing dry lumber. TimberSIL® Glass Wood is a **kiln dried to 19% wood product**. Therefore, unless you are going to immediately install the materials, adequate storage must be provided. Obviously, it cannot be treated like normal wet, PT building materials. It

should NOT be left exposed out in the weather or laid directly on the ground. TimberSIL® should be kept wrapped, banded if possible and stored in the dry and off the ground using sticker boards and plastic on the ground. Since these wood products are dry and effectively pre-shrunk it is important to handle and store the materials properly to maintain dimensional stability. If you have material that is banded, it is best to leave it banded until you are ready to install. Keep your dry building materials dry. Boards or lumber that is left unused should be restacked evenly and covered to maintain straightness. It is recommended to re-band if possible if sufficient overage is being kept stored for more than several days.

**TimberSIL® Decking in freeze-thaw climates:** It is highly recommended to sand and apply a top quality transparent sealer to all surfaces of decking prior to installation to alleviate checking and splitting due to the intrusion of water that freezes. Flat horizontal surfaces, including decking, that can accept water then freeze will weather much more rapidly than surfaces that are sealed.

## TimberSIL® Glass Wood Decking

Building a TimberSIL® Glass Wood Deck is easier than building with pressure treated or composite decking materials. Stronger TimberSIL® lumber means using less material for structure—and less material is less labor. Many composite decking materials require added joists, special care and exotic fasteners. Treated lumber is toxic and will require replacement way before TimberSIL® Glass Wood. To determine the best use of materials, have your designer, architect or engineer consult the TimberSIL® Span Tables for the specific spans and post spacing your contractor can build to.



The premium 5/4 radius edge decking product is a full 1" thick X 5.5" wide and is graded with one (1) premium side per the Southern Pine Inspection Bureau grading guidelines. You should also take note of the direction of the end-grain of each board to determine the best position for potential cupping—make sure the crown is 'up' so any warp will not trap water. The radius edges make for a smoother surface with less splintering. While it is necessary to sand and seal your deck boards to achieve the best product



performance and yield the longest service life, you may choose to sand and seal prior to installation or complete the process after deck boards are in place.

TimberSIL® GlassWood Decking is also available by special order in a commercial grade 2x6 dimension.

## Cutting TimberSIL® Glass Wood

Sawing or cutting TimberSIL® is very similar to normal wood, but it is denser. Your saw cut will take slightly longer. Think of cutting hardwood—it is denser so the saw has to work harder to get through it. The glass surrounding the fiber is microscopic flakes and is not harmful like the fibrous silica in cementitious boards. It is recommended that the same breathing protection and eye protection you would wear with any wood cutting job be used with TimberSIL® GlassWood. The woodcut waste and sawdust is completely safe and can be ground up for mulch or put in the trash. No special precautions are necessary for landfill acceptance as this product is completely non-toxic. **TimberSIL® Glass Wood is safe for ground contact (non-cut ends only).** Boards that are ripped are not warranted. If cut ends are placed in the ground we require the use of an end sealer such as an epoxy-based, *Anchor Seal* product to protect the cut surface in the ground.

## Fastening TimberSIL® Glass Wood

Since TimberSIL® is not corrosive, it is not necessary to use expensive stainless steel screws in fastening TimberSIL® decking or fencing to the framing. Exterior grade coated screws or triple-dipped galvanized nails are acceptable fasteners for this product. It is important to pre-drill decking and certain locations on framing for fasteners as this product is harder and stiffer than PT lumber. In order to minimize wood splitting from fasteners, installers must pre-drill holes at the ends of deck boards (within 2.5" of the end) prior to screwing or nailing. Remembering that this lumber is KD-19 dry and harder than normal SYP, care in nailing at the ends of framing members should be noted.



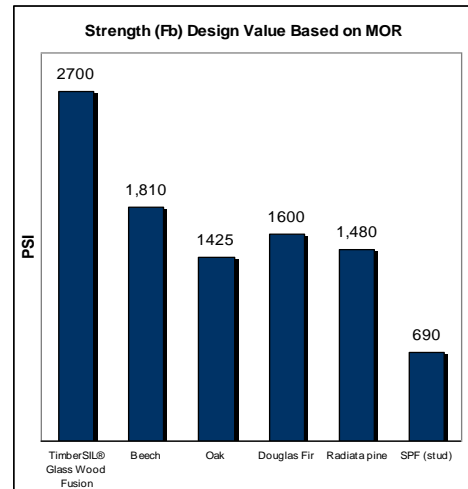
The gripping power of TimberSIL® Glass Wood has been proven to be much higher than even normal kiln dried lumber, so your fasteners, especially nails will be very difficult to remove. If you must remove a nail, use a pry bar and scrap block to protect the surface of your installed material.

## Building with TimberSIL® Glass Wood

As mentioned, TimberSIL® Glass Wood is a higher grade than what you find in the market for PT lumber. TimberSIL® is always a #1, #1 prime or #1 dense TPI® or SPIB® graded material. More importantly, TimberSIL® Glass Wood is much stronger than conventional framing lumber that less material can be used to frame up a structure and still provide more than adequate structural integrity. Comparing TimberSIL® with PT lumber or composites means less joists and less vertical post supports for the same sized deck. What does this mean to the installing contractor?

Contractors can be more competitive in offering a more responsible, value-added product at the same price of other less desirable toxic products. With the assistance of a licensed engineer or designer utilizing the TimberSIL® Span Tables, the contractor can build with significantly less material saving both material and labor costs.

The same glass content within the cellular structure of the lumber, decking or boards that makes them stronger also makes these materials denser and therefore stiffer and harder. So, in a word, it's going to be less 'forgiving.' That means if the board is slightly bowed or crooked, it will take more effort to get it straight. This was not an issue as long as the wood was wet and weak. But now it's stronger, up to 40% stronger than the pine lumber before TimberSIL® processing. If a board is slightly crooked, simply fasten one end securely then use a temporary level attached near the other end to move the board to the desired position. You may use temporary wedges along the way to keep the board straight along its length.



The following link is a good resource for planning the construction of your deck:

<http://outdoor-living.hardwarestore.com/learning/a-guide-to-building-a-deck.aspx>

## Sanding and Painting TimberSIL® Glass Wood Residential 5/4 Decking and Railings

TimberSIL® Products recommends Keim® silicate-based paints and stains which can be applied directly on the surface without sanding. For added color selections TimberSIL® also recommends Sikkens® Cetol paints and stains. For these and other coatings sanding prep is required for proper adherence. If sanding, use a medium to heavy grit paper PRIOR TO sealing, staining or painting in order to improve proper adherence.



Occasionally, a white residue is visible on portions of the lumber surface; remove with a wire brush and/or sander with medium to heavy grit prior to painting, staining or sealing.

*Surface Checking:* In the case of an exposed deck in full sun, it is not uncommon for some surface checking (small cracks) to occur as a result of thermal expansion and drying of the wood fibers near the surface. The outside (top surface) of the lumber heats and dries at a faster rate over the inside of the lumber resulting in the surface checking. The glass limits the length and depth of surface checking and prevents structural checking. This surface checking is normal and is necessary to relieve stress and

prevent structural checking so common to pressure treated lumber where no added structural component is present in the wood.

## **TimberSIL® Glass Wood for Commercial/Industrial Applications**

For high pedestrian traffic or specific commercial or industrial uses in all areas including freeze-thaw climates, we recommend TimberSIL® Glass Wood in a #1 Dense, MSR, or Dense Structural Select (DSS) grade when available. TimberSIL® #1 Dense for commercial/industrial applications is available in 2x6", 2x8", 2x10", 3x8" & 3x12" dimensions up to 16ft in length and do not require coatings of any kind.

## **Installing TimberSIL® Glass Wood Tongue and Groove (T&G) Porch Flooring**

TimberSIL® requires following the guidelines of the Southern Pine Council, specifically the **Guide to Porch Flooring & Construction**, which can be viewed at <http://www.southernpine.com/porch.shtml> in installing our T&G products.

**Preparing TimberSIL® tongue & groove boards:** Store your TimberSIL® tongue & groove boards properly until use. The porch flooring and framing components should be allowed to acclimate with the exterior environment for a period of one-to-two weeks prior to installation.

Proper acclimation of the flooring includes storing the boards with stringers allowing good air circulation, using plastic sheeting on the ground below and as a loose fitting cover to allow air circulation. Do NOT store where boards are in the sun all day. Occasionally, a white residue is visible on portions of the lumber surface. This residue is easily removed with a wire brush or orbital sander. If the lumber surface is rough, either due to a mill or grain defect, or the appearance of excess silicate, a light sanding with a medium grit paper may be necessary.

Follow common sense techniques to minimize dimensional changes by sealing and painting ALL surfaces of each board. Never allow boards or finished flooring to be subject to standing water and provide an environment where moisture distribution is even as possible.

### **Required Design Features for Tongue & Groove Porches:**

- Slope the porch framing 1/4" per foot away from the house to permit adequate water runoff.
- Allow a ½ inch gap at wall to allow for expansion; cover with trim if desired.
- Encourage air flow beneath the porch by using ornamental vents or lattice skirting.
- Orient tongue & groove flooring perpendicular to the house, so any water runs along the sloping porch boards.
- Locate porch flooring beneath a porch roof-Never install flooring open to direct rain.
- Beneath the porch, install a moisture barrier, such as 4-mil polyethylene to reduce the upward migration of moisture beneath the porch.
- Beneath the porch, slope the soil downward from house to outside edge of porch so any runoff water will be directed away from the house and porch.

- Columns and newell posts should be vented at top and bottom.
- Extend flooring beyond the porch front band joist to allow a 1" overhang.

Other products are available through special order and/or distribution: TimberSIL® GlassWood residential siding and roof shingles; marine products—poles and pilings; industrial products—railroad ties and utility poles.

Please contact us with any questions regarding our fine products.

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