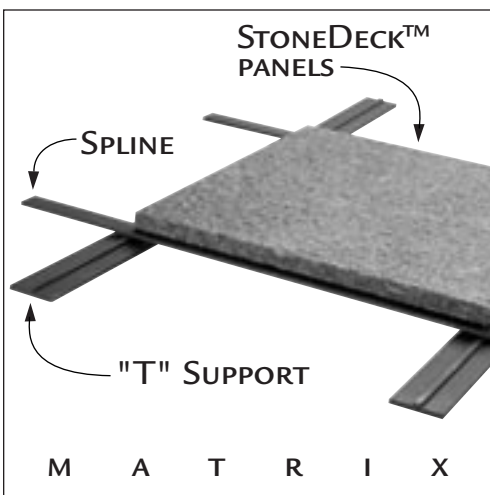
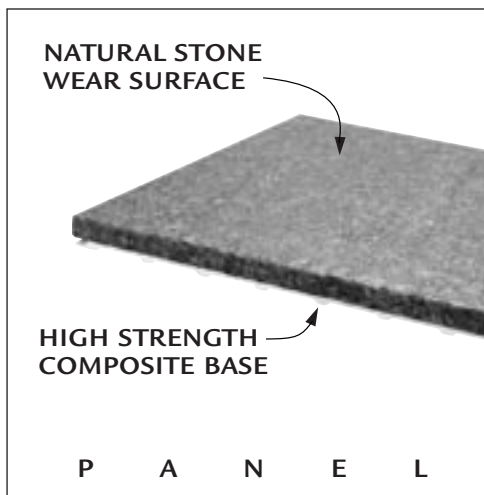




StoneDeck™

I N S T A L L A T I O N



G U I D E L I N E S

■ GENERAL LAYOUT CONSIDERATIONS

Before installing the StoneDeck™ system, it is important to consider a few helpful tips regarding planning & design issues to assure efficient construction practices and high quantity results.

The first consideration, whether the deck is new construction or the remodeling of an existing structure, is to verify that all elements of the deck meet or exceed local building codes. Consult a qualified engineer for structural design issues.

The StoneDeck™ system installs over conventional framing of treated wood with joist spacing at 1'-4" on center. A dead load of 10 psf should be considered in the load calculations for the deck surfacing. StoneDeck™ exceeds all building codes for flexural strength of a decking material.

When constructing a new deck to receive StoneDeck™ panels, always set framing members at 1'-4" o.c. in a uniform, square and level condition. At deck perimeter conditions, set joist dimensions to be at 1'-4" to the outside edge of joist versus centerline. For decks with non-conforming joist layouts or where some joists are out of level or square, refer to the section on page 6. of this brochure which provides guidelines for "Adjustments and Non-Conforming Joists Spacing."

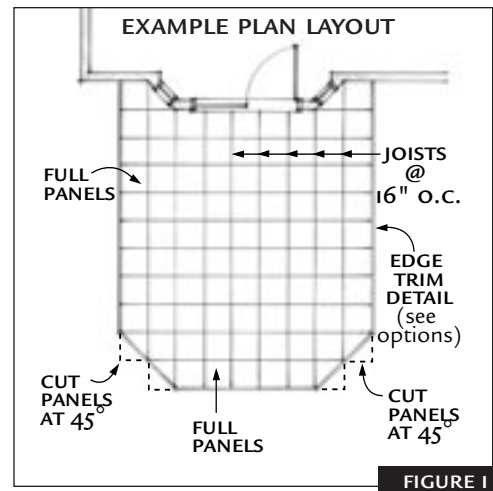
Next, consider the following planning/design rules of thumb for aesthetic and quality construction results. Almost any deck shape is achievable with StoneDeck™. Rectangular shapes are the easiest to construct due to the square StoneDeck™ panels and interlock matrix, but curves and diagonals at the edge conditions are also achievable with some cutting. If possible, size the deck to work with the full size of the StoneDeck™ panels. This will match joists to panels and minimize cutting of panels or matrix members. If the aesthetic pattern of the StoneDeck™ panels is critical due to a feature element like a central doorway or some other consideration, it is advisable to draw a deck layout (Figure 1) at an appropriate scale to verify that the panel layout aligns with the structure and meets the desired design results. It is important to consider how the panel pattern is affected by stairs or other features and what type of edge condition and safety railing will be used. Edge condition options are detailed later on page 5. of this brochure.

Finally, it is important to select the appropriate start point for the layout. Generally, it is always desired to have full panels at the outer edge conditions, with cut panels to be located in the non-traffic area along the building edge. This again is a function of aesthetics as well as ease of application. In some cases a balance of partial panels at edge and building is desirable. In all cases, panels of less than 2" dimension due to cutting, should be avoided by initial layout verification.

■ TOOLS

The following is a general list of tools needed to install StoneDeck™.

- Tape Measure
- Spacing Tool (by StoneDeck™)
- Large Square (3/4/5 preferred)
- String Line
- Straight Edge
- Safety Planking (as required)
- Gloves
- Safety Glasses
- Rubber Mallet
- Screw Gun/Driver
- Drill & Bits
- Construct. Adhesive (PL400 or equal)
- Caulking Gun
- Ladders (as required)
- Tub Saw - Wet
- 4" Grinder



■ INSTALLATION OF "T" SUPPORTS

Once the start point has been selected, it is now time to begin installing the "T" Supports by fastening them to the wood joists. Before setting or fastening the "T" pieces, check that the joists are square to the building. Use a large square or measure from a straight edge on the building in the 3-4-5 method shown in (Figure 2) at right. Use a string line to verify joist straightness. Next, add a weather barrier to the top of all joists by placing a bead of silicone sealant or weather sealant tape at the top surface of the joists. This prevents moisture from being trapped under the "T" Support pieces, which could cause deterioration to the structural frame. To begin the "T" Support layout, it is recommended that you start at a joist in the relative geometric center of the deck. Again, make sure the joist is square to the edge condition, then fasten the "T" Support in place along the entire joist using screws in the pre-drilled holes. Use a stringline along the first "T" Support to insure straightness. Use a StoneDeck™ "spacing tool" (15-3/4" width between joists) to place and fasten additional "T" pieces to the joists on each side of the initial starting point (Figure 3). Progress from the start point toward the side edge conditions. It is critical that the "T" Support elements are installed on the joists at 1'-4" o.c. Fasten all "T"s with #7 x 1-1/4" exterior grade screws at the pre-drilled, countersunk holes along the length of the "T". Continue checking for square and level as you progress with the "T"s. It is recommended to check the accuracy of the spacing by setting StoneDeck™ panels for an entire row in a loose, unfastened condition.

Always set screwheads at the "T" piece flush in the counter sunk holes to avoid any condition where the raised screwheads restrict the StoneDeck™ panels from placement and interlock with the "spline" element.

■ INSTALLATION OF PANELS

As a general note, the correct panel orientation for spanning the distance between joists should be where the ribs on the panel bottom run perpendicular to the joists. In this way, the panel is set in its optimum structural orientation and also provides a path for the natural drainage of water through the system.

As stated previously, start the first row of panels at either the outer perimeter edge or the building edge, depending on location of full panel aesthetics (Figure 4). It is recommended to set an entire row of panels prior to insertion of the interconnecting "spline" element.

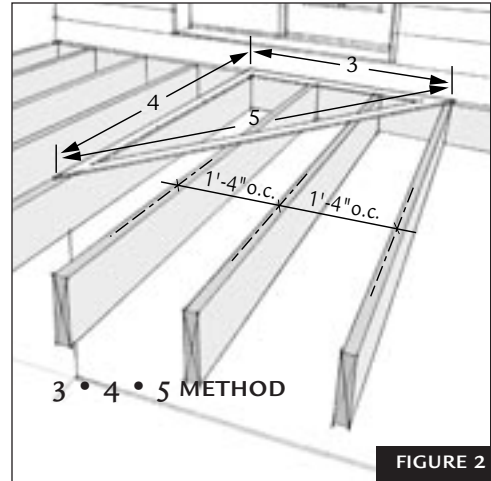


FIGURE 2

Using a large square or tape measure, set up a 3 • 4 • 5 triangle as shown to verify that the joist framing members are square to the building. Adjust as required to achieve a square layout with joist spacing at 1'-4" o.c.

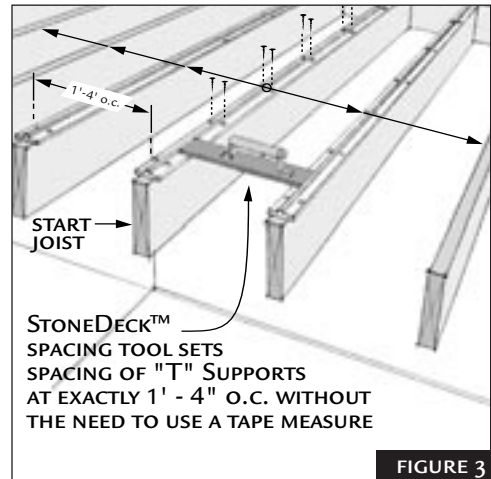


FIGURE 3

Build to each side from start point joist.

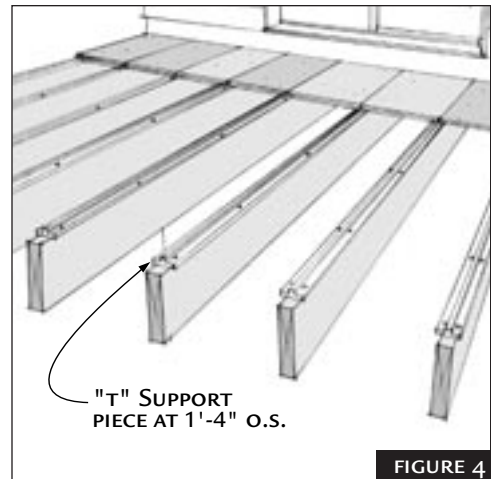


FIGURE 4

Install full row of panels.

■ INSTALLATION OF PANELS (continued)

In most cases the normal method of construction is where the StoneDeck™ panels rest on the “T” Support element and are properly spaced apart on all edges with a 1/8” minimum gap. Note: Tile spacers of appropriate size may be used to achieve accurate gapping. Where the outer edge detail conditions use cut panels to fit the geometry and a spline cannot be used to fasten both sides of the StoneDeck panel, apply a bead of construction adhesive (PL400) along the “T” Support and set the panel into it.

■ INSTALLATION OF SPLINES

The spline element is used to interlock all panels to adjoining panels by fitting in the manufactured groove on (2) sides of each panel (Figure 7). The entire connection matrix is locked to the wood joists structure by fastening the “spline” through the center of the “T” Support using the pre-drilled countersunk hole in the spline (Figure 8).

At the deck perimeter conditions, where the first and last joists support the StoneDeck™ panels, a “T” Support piece can not be used to support the panels, due to its wider dimension for normal support of panels on each side of the raised “T” element. Instead, use the narrower width spline piece, fastened along the first and last joists, in a continuous manner, to support the StoneDeck™ panels at the same height, as the panels at all other joists between the first and last.

Once a row of panels is in place, you can now set the “spline” into the receiving channel on the open side of the panels. Using a rubber mallet, lightly tap the spline into the grooves for its entire length (8’-0”), keeping in mind to center the counter sunk holes in the spline piece to a position directly over the center of the “T” Support (Figure 8). Once the spline has reached the back of the groove, you are now ready to fasten it in place. Fasten with #6 x 1-1/2” self tapping exterior grade screws. With this completed, continue setting rows of panels and locking them in place with the “spline” elements. Remember to use the spacer elements to maintain the 1/8” gap. Leave end cutting situations for later, once the general deck field of panels has been placed and locked.

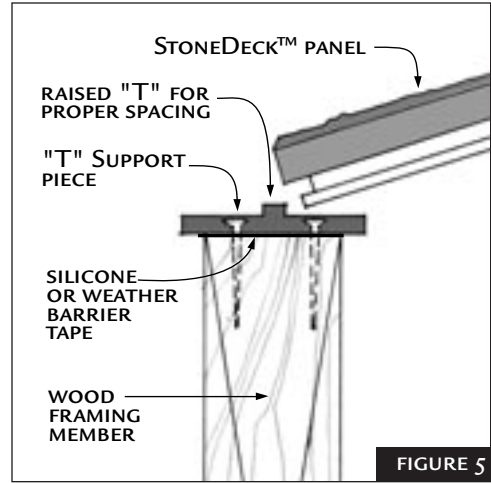


FIGURE 5

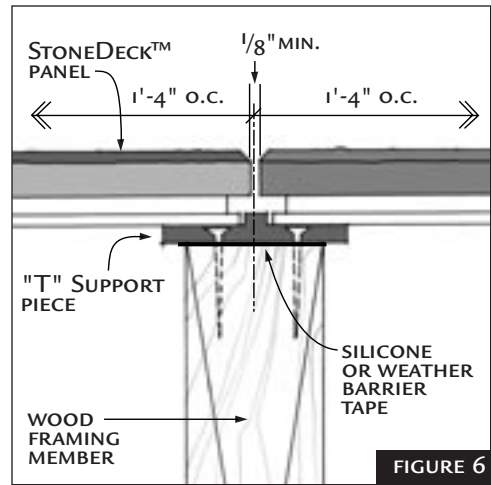


FIGURE 6

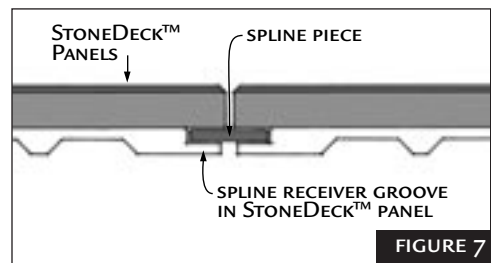


FIGURE 7

Section View

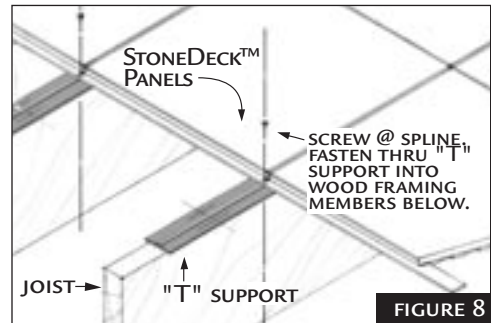


FIGURE 8

Plan View

■ EDGE DETAIL

Now that the StoneDeck™ panels have been placed over the main deck area, you can finalize the deck by completing the edge details. Prior planning before you start the deck is advised to pre-arrange the edge condition desired. The details at right are a few options on how to finish your edge conditions.

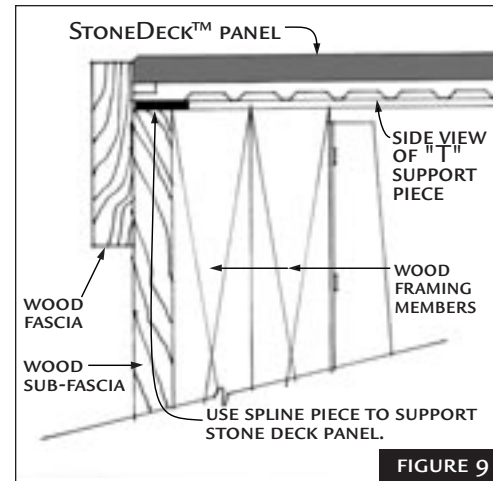
The edge condition can be treated from simple to ornate, in order to meet your aesthetic interests. When considering the edge/fascia condition, it is recommended that the safety railing aesthetics and details be coordinated to have a continuity of appearance.

If a wood rail and picket / ballaster concept is desired, then a wood edge/fascia is a logical choice (Figure 9). If a wrought iron railing system is your material of choice, then a StoneDeck™ panel fascia would appropriately compliment the railing (Figure 10). Cut StoneDeck™ panels to the desired size for use as fascia panels. Fasten to sub-fascia and panel edge above with construction adhesive and/or hidden mechanical fasteners. Sub-Fascia options: wood trim, composite trim, vinyl or metal. Other materials or combinations can be considered for site specific aesthetics.

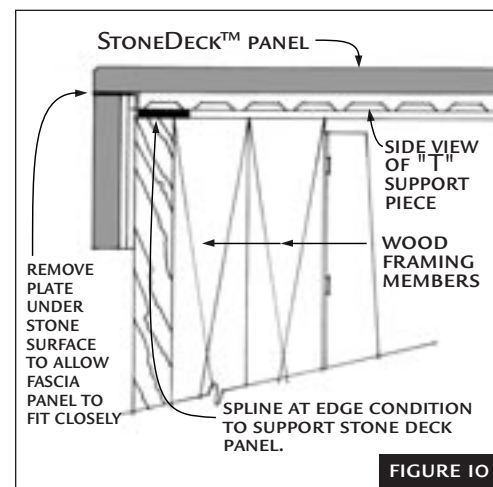
With the edge/fascia determined, prepare the StoneDeck™ panels to fit each condition appropriately. Cut each panel as required to fit the opening and attach to the sub-fascia or matrix of “T” Supports or Spline using a construction adhesive (i.e. PL400 or equal) if a spline interlock is not possible. This condition may exist at the building edge where possible shortened panels are located or the panels are at irregular curved or diagonal perimeter conditions. Note: railing supports (vertical) must be appropriately fastened to the deck or fascia structure to handle all barrier loads per code. DO NOT fasten railing directly to the StoneDeck™ panels.

■ CUTTING THE PANEL

StoneDeck™ panels can be cut by using diamond tip saw blades. If only a few cuts are needed, then dry cut with a diamond blade in a circular saw used in conjunction with a rip guide. If many cuts are required, it is recommended that a wet saw be used to avoid overheating the blade and the resulting negative impact to the StoneDeck™ panels. Wet (tub) saws are typically available for rent or purchase.



Wood Edge Detail.



Stone Edge Detail.

■ ADJUSTMENTS AND NON-CONFORMING JOIST SPACING

If your existing deck framing does not consistently conform to the 1'-4" on center spacing or there pre-exists an unusual layout that will not allow the 1'-4" o.c. spacing, then the following installation helps and hints should apply.

The StoneDeck™ panels are made to fit with the "T" Support matrix to a framing condition where the joists are spaced a consistent 1'-4" on center. If some joist spacings are off by 1-1/2" or less, you can add a 2 x 4 treated lumber (nailer cleat) along side the non-conforming joist to bring the dimension back in specification (Figure 11).

If the joist spacing is non-conforming to the point where add on nailers will not allow the framing to meet the 1'-4" o.c. specifications, then an option is to use the "cross-joist" support system (Figures 12 & 13). This method is an adaptation of the standard "T" Support method where an added framing member (1" x 4" treated lumber) is used for stiffening purposes. The added framing member allows the "T" Support piece to run perpendicular (at 90°) to the main framing joists (Figure 12). As with the standard "T" Support piece method, start at a location on the deck where full panels can be installed, (i.e. perimeter edges or house edge). Measure along the joists and mark the 1'-4" o.c. increments. Next, with a chalk line, snap a marker line to the joist tops. With these locations marked, place and fasten the 1'-4" framing member centered on the chalk line (Figure 13). Fasten with #6 x 1-1/2" self tapping, exterior grade screws. Before placing and fastening the "T" Support pieces, again measure and mark with a chalk line the 1'-4" o.c. spacing on top of the added 1" x 4" member.

Next, place and fasten the "T" Support pieces along the chalk lines as described on page 3 of these instructions (Figures 2-4). Use the StoneDeck™ spacing tool to verify the correct 1'-4" o.c. spacing.

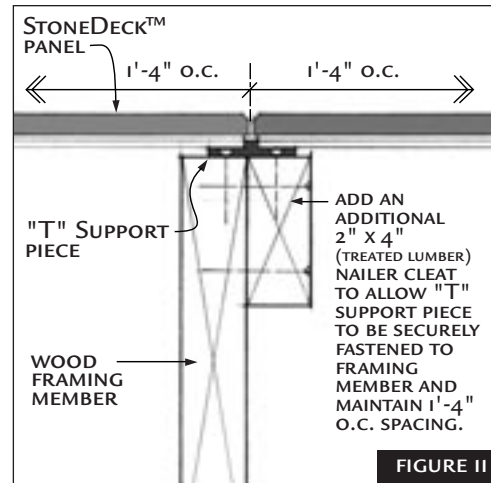


FIGURE 11

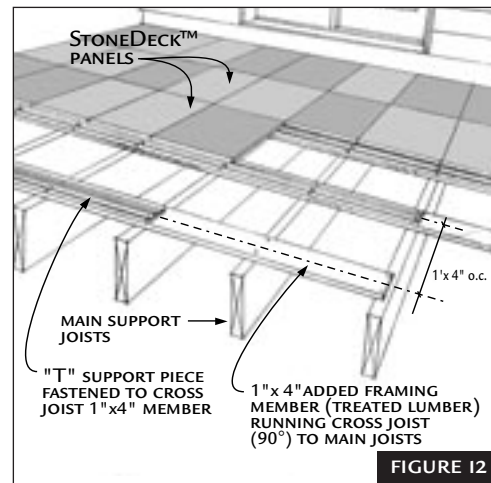


FIGURE 12

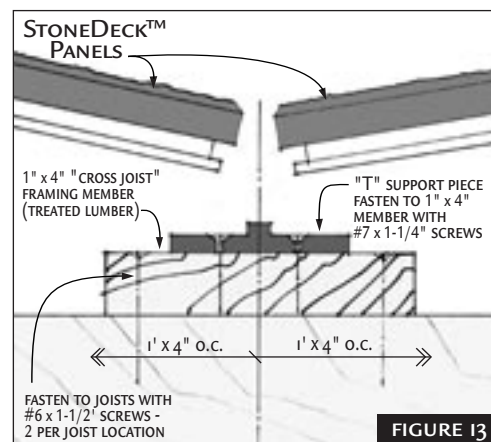
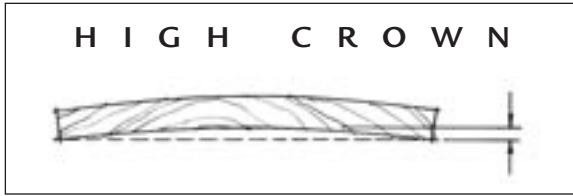


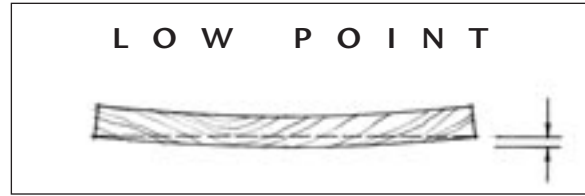
FIGURE 13

■ ADJUSTMENTS AND NON-CONFORMING JOIST SPACING (continued)

If joists have a high crown or a low point which can be verified using a string line from check points at the joist ends, then follow these helps and tips to correct the condition to meet the specification.



Adjust by removal of the crown area with a plane or saw. Note: with new framing, allow a period of time before performing adjustments to allow lumber to acclimate and adjust through shrinkage and release of moisture.



Adjust by shimming at the fastening points of the "T" Supports. Or if possible, remove the joist and relocate in same location but with the crown up instead of down. Shims need to be treated lumber or a non-deteriorating material (i.e. plastic gaskets, neoprene.)

Beyond this, any number of conditions can exist where some additional adjustment may be necessary. Always plan ahead to avoid major problems. The goal is a level, fully supported and fastened StoneDeck™ system!

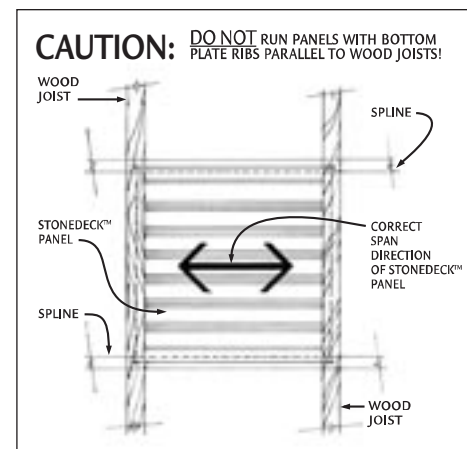
As previously mentioned, apply construction adhesive (PL400) where screw fastening is not possible due to conflicts or situations where the spline groove has been removed through modification to fit the framing condition.

■ MAINTENANCE & CARE

StoneDeck™ is made of durable long lasting components. The top wear surface is natural stone which has many unique characteristics, color variations, graining, size, clefting; just to mention a few. Some chemicals, salts, oils or animal grease may cause discoloration in an area of contact. A sealer will help prevent this from affecting the StoneDeck™ panels. Taking care of the stone surface is as simple as applying an appropriate sealer (i.e. Miracle Sealant) every 1-5 years and possibly power washing the stone surface as required to remove soiling. Power washing can also remove any build up of debris that may collect in the open space between StoneDeck™ panels. Sealing all StoneDeck™ panels after installation is essential and required under the warranty provisions.

■ CAUTIONS

- StoneDeck™ must be installed with ribs (at bottom side of panel composite plate) running perpendicular to "T" Supports. DO NOT run panels in an orientation where ribs run parallel to the "T" Support. Panels in this position are not oriented for full strength.
- In areas of intense sunlight, lighter colors of stone are recommended to avoid solar gain and heated conditions. With dark colored stone panels, advise the end user to always check the surface temperature prior to touching with bare skin.
- Always wear goggles and gloves when cutting the stone/high strength composite panels to avoid injury.



■ STONEDECK™ SPECIFICATIONS

- Specifications and Installation Guidelines are subject to change without notification

See us at www.stonedeck.biz
StoneDeck™ offers a 10 year limited warranty.
See your StoneDeck™ representative for details on this ageless product.

■ STONEDECK™ MATERIALS GUIDE

StoneDeck™ Panel

Each panel covers an area of 16" x 16" or 1.78 square feet.

Panels weight = 8 to 10 lbs. per s.f. depending on stone type. Check with your StoneDeck™ supplier for specific weight by stone type.

Panel strength will range from 4,000 psf to 5,000 psf in flexural strength. Strength varies with stone type.

Water absorption ranges from .03 to 1.1% depending on stone type.

Surface treatment - varies by stone type - honed, antiqued, flame treated or natural clefing may be used to create a slip resistant surface. Polished surfaces are not used.

"T" Support

High strength composite pieces are 8'-0" long. Each full StoneDeck™ panel uses 16" of "T" Support on one side.

Spline

High strength composite pieces are 8'-0" long. Each full StoneDeck™ panel uses 16" of spline on one side. Add additional spline to quantified total to cover edge conditions.

Screws

Use #7 x 1-1/4" countersunk, philips head, coarse thread, exterior grade screws to fasten the "T" Support to all wood framing members. Use #6 x 1-1/2" self tapping, countersunk, philips head, coarse thread, exterior grade screws to fasten spline piece through "T" Support to wood framing. Finish on all screws may be: zinc plated, galvanized, or Evercote™. The "T" Support and Spline are pre-drilled and countersunk to fasten screws at 1'-4" o.c. Some field adjustments may be necessary by adding drilled and countersunk conditions as non-conforming situations.

Construction Adhesive

Use an exterior grade construction adhesive (PL400 or equivalent) to fasten composite panel bottom surface to composite spline or "T" Support pieces as required.

Weather tape or silicone sealant

To help resist deterioration of treated wood elements, provide weather tape or silicone sealant along tops of all treated structural wood joists to receive "T" Supports and at edge conditions to receive spline pieces.

Sealer

Use of Miracle Seal 511 Impregator is recommended on all StoneDeck™ panels applying it to the side edges and top surface in all areas of freeze/thaw.



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