

Galvanized Steel Structural Deck Panels

TILEDECK
PORCELAIN TILE ON STEEL DECK

TD-50S600-54

Specification, Page 1
Rev. 2019-03-17



Upgrade your existing wood deck to TILEDECK.
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APPLICATION. TILEDECK™ **pre-engineered** panels are suitable for residential and commercial deck and floor applications, in compliance with AISI S200; AISI S100/CSA S136 “North American Specification for the Design of Cold-Formed Steel Structural Members” as referenced in the applicable building codes:

- **International Building Code (IBC 2015), Section 2211.1.** The products and engineered design described in this report may also be considered to be in compliance with the 2015 and 2012 **International Residential Code (IRC)**, based on compliance with the IBC and permissibility language in R301.1.3 of the IRC.
- **National Building Code of Canada (NBC) 2012.**
- **2012 Ontario Building Code (OBC),** Div. B Part 4 (s. 4.3.4.2); Div. B Part 9 (s. 9.4.1.1).
- **Alberta Building Code (ABC).**

VARIATIONS FROM SPECIFICATION. Any item not specifically addressed herein shall comply with the regional building code as applicable. Contact Evolutiondeck Inc. for specific loading criteria or considerations.

REFERENCES.

- **ASTM A653/A653M-98 (G60)**– Steel Sheet, Zinc Coated
- **SAE J78** – Self-Drilling Tapping Screws
- **AISI S100 / CSA-S136,** North American Specification for the Design of Cold-Formed Steel Structural Members
- **AISI S200,** North American Standard for Cold-Formed Steel Framing

DELIVERY, STORAGE, AND HANDLING. Product may be stored outside, but if stored for long periods of time it should be protected from moisture staining, deformation, and other damage as required in AISI’s “Code of Standard Practice”.

STANDARD SPECIFICATION. The TILEDECK™ product is manufactured to a single geometric configuration in lengths of 48 inches. The standard deck joist height is 0.5 inches, width coverage of 6.0 inches, and minimum uncoated thickness is 0.054 inches. System components are made from galvanized sheet steel as per ASTM A653/A653M-98 (G60), with a minimum yield strength of 50 ksi.

SECTION PROPERTIES.

Moment of Inertia, $I_{xx} = 0.02 \text{ in}^4$

Xcg = 0.3542 in.

Dead load = 3.5 psf.

STRUCTURAL CAPACITY LIMIT. The structural properties of the deck plank are based on the AISI100/CSAS136 Specification, Appendix 1 (Direct Strength Method), Section A.1: which is based on the maximum critical load for buckling. Design capacity limit exceeds the required safety factor, $\Omega = 2.0$ (ASD); and resistance factor of $\Phi = 0.75$ (LSD/LFRD).

- Max. clear span between supports = 14.5 inches
- Max. Total Allowable Uniform load = 250 psf (ASD, LSD, LFRD)
- Max. Point Load between supports = 400 lbs.

SERVICEABILITY LIMIT. Maximum deflection at service loading of 100 psf does not exceed $L/360$.

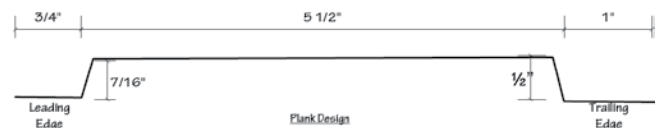
VIBRATION. Vibration serviceability design = 40 Hz, calculated as $F = 18/\sqrt{\Delta(\text{mm})}$, where Δ = mid span deflection based on live loading.



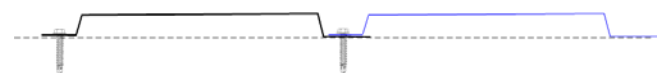
INSTALLATION. TILEDECK™ planks may be installed over standard wood or steel joist supports designed in compliance with applicable building codes. When installing TILEDECK™ planks over treated wood supports, an isolation gasket / moisture barrier is required between the steel and the treated wood (eg. Deckwise Tape, peel/stick moisture shield etc.).

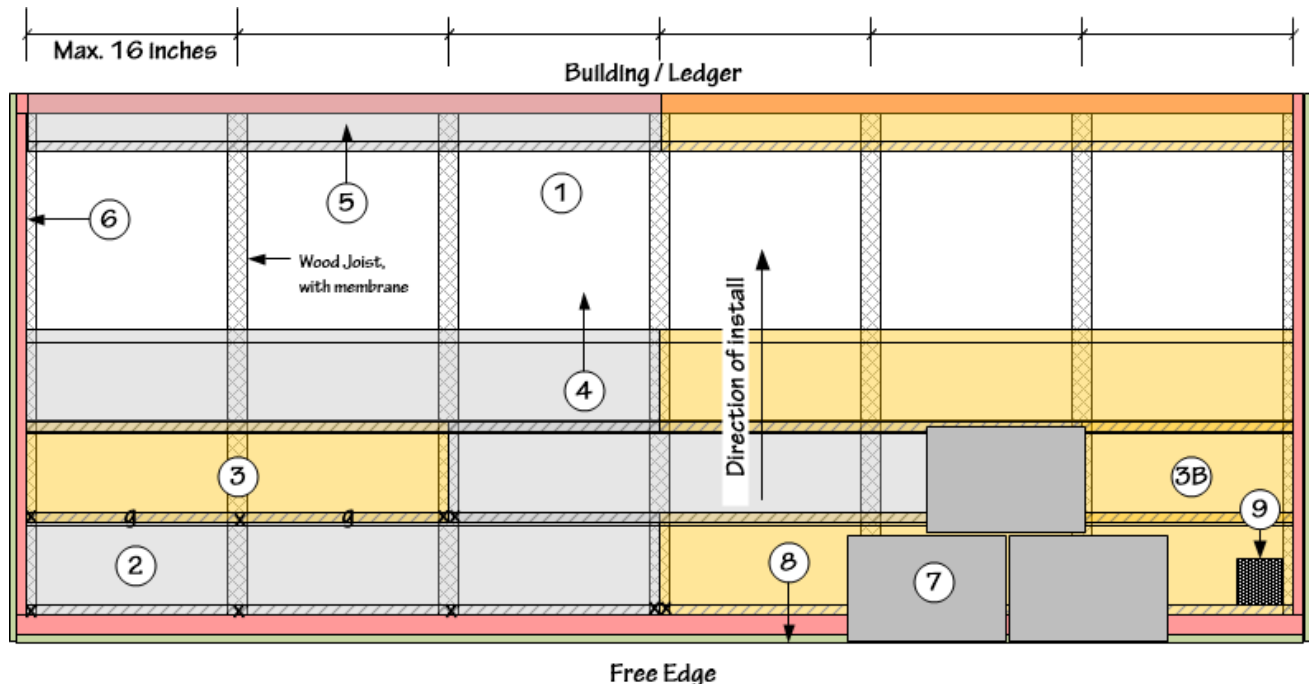
FASTENERS. TILEDECK™ planks are assembled using all-weather galvanized M12 x 1 self-drilling screws as described in ESR – Report 1976 (Tek), ER-4780 (Dril-Flex), ER-5454 (Pro-twist), ER-5280 (Grabber) or equivalent. When fastening the plank into a treated wood joist, then a M12x1 stainless steel screw is required. Hex head screws are recommended, but other driver configurations are acceptable.

CUT EDGES. Panels can be field cut using traditional methods, including a metal-cutting saw, abrasive cutoff grinder, plasma cutter or mechanical snips. Be sure to follow all safety precautions, including using protective glasses/face mask, gloves, respirators as per tool manufacturer instructions. Panels should only be handled using protective gloves, as cut edges are sharp and may cause injury. Product cut edges from manufacturing, or field cutting do not need to be corrosion protected.



PLANK DESIGN. TILEDECK™ planks have a Leading Edge and a Trailing Edge. The Leading Edge of a subsequent panel is installed over the Trailing Edge of the previous panel, so that when assembled there is a level surface for the tile/paver. Each successive plank can be adjusted 1/2” on the Trailing Edge to adjust for squareness or spacing the planks.





ASSEMBLY (SEE FIGURE 1).

- 1. Preparation.** Remove all existing wood decking from the structure and inspect wood joists to ensure they are structurally adequate, and generally level to each other. Replace any that are structurally suspect, rotten or warped/crowned. Install joist tape over each joist to isolate the steel plank from the treated wood.
- 2. Layout your pattern.** TILEDECK™ planks are 48-inches long and are designed to span 4 joists spaced at a maximum 16 inches on centre. TILEDECK™ planks have a **Leading Edge** of 3/4 inch and **Trailing Edge** of 1 inch. Start by orienting the Leading Edge at the center of the joist and install into the wood joists with stainless steel screws (x). Where two panels meet on a single joist, you will use two screws (xx).
- 3.** Each row of panels will overlap the previous row. Cut a panel to 32-inches and install over the previous panel (the Leading Edge is on top of the Trailing Edge of the previous panel). Screw through both panels into the wood joist with stainless steel screws (x) and mid span between joists with galvanized screws (g). Use your cut off piece (3B) at the end to complete the row. Try to install the panels square, however each panel can be adjusted approximately 1/2-inch on the previous panel for squareness and spacing.
- 4.** Continue installing successive rows in the same manner as in (3) along the width of the structure until you get to the last row before the Building Ledger.
- 5.** The **final row** panel may need to be ripped to fit at the Building Ledger. In this case, you will need to increase the height of the ledger 1/2-inch, or add a 1/2-inch filler material (wood with gasket, 1/2inch square aluminum rod) through which the last steel panel will be screwed. Make sure to use at least 1.75 inch long screws for the final piece to have sufficient depth of the screw into the wood joist.
- 6. Filler materials.** The free ends of the deck will need either filler material, or steel angle to provide a sufficient ledge on which to set the tile/paver.
- 7. Surface finishes.** Outdoor **Porcelain Tile** is normally glued to the steel surface using a polyurethane adhesive. Work your way from the front of the deck towards the house, and we recommend an exterior grade adhesive that cures flexible – such as *Miracle Lumber Lock*. DO NOT fully butter the tile with glue or use mortar. Only apply beads of glue to the tile, to allow water to escape underneath the tile. In the case of stone or concrete pavers, the perimeter pavers are adhered to the deck plank, and the field pavers are dry-laid. Fill the joints with a modified grout or Alliance Gator Tilesand for tile, or standard polymeric sand for pavers. Other surface finishes can be applied using normal methods such as a screws.
- 8. Borders / Fascia.** Fascia and border materials can be selected from traditional materials, and include aluminum tile edge, bent aluminum, composite or PVC fascia, and fiber cement board. Install per manufacturer instructions.
- 9. Guard Posts.** Guard posts are installed per standard installation methods pursuant to manufacturer instructions and your local building codes. Current codes demand stronger wood posts, so they are generally not notched and are installed on the inside of the framing. That means they need to be installed prior to adding the TILEDECK™ plank. Aluminum post guards require adequate blocking to support the post lag screws as per manufacturer instructions.
- 10. Additional Information.** Additional information is available at www.tiledeck.info, or from our help line at 1-800-725-5228.