

BuildTECH Bulletin

DECKS – Frequently Asked Questions

This is not meant to be explicit “How To” construction advice. Providing building code enforcement services does not permit BuildTECH to ‘design’ projects for owners. If you require additional information, or you are unsure of or confused by the information provided, please consult with a qualified contractor for all details concerning construction of a deck. Material suppliers can also be good sources of information regarding construction of decks.

Q: Do I need to use piles or will surface deck blocks be adequate?

A: Deck foundations are not specifically prescribed in the building code. And although there could be noticeable deck movement from frost, typically, surface mounted deck foundation systems like “deck blocks” or concrete pads have been proven to function as adequate foundations for decks. However, as decks get higher off the ground or support additional loads from a roof, the movement can become more noticeable, and be more of a structural concern.

When the height measured from ground to the underside of the joists is more than 72” (1800mm) or a roof is being supported, concrete piles or screw piles are required, and posts shall be at least 6”x6” or 3-ply 2”x6” – no 4”x4” posts.

Lateral bracing is very important as well; lateral bracing could be met with proper knee bracing or an appropriate mechanical connection bracket. Toe-nailing is not adequate lateral support.

Q: How should my ledger be attached to the house rim joist?

A: Generally speaking, 3 x 3-1/2” nails installed every joist space will support the ledger board, or 1/2” lag or through bolts installed @16” o.c. alternating stagger at 2” from top and 2” from bottom. If you have an Emercore rim joist you will need to reference the manufacturer’s literature on how to properly attach a deck.

Q: How big does my beam need to be? How many posts do I need? What size joists do I need?

A: There are many variables that determine the size and spacing of deck frame components. Attached are tables showing the distance a beam or joist can span between supports. Please refer to these when designing your deck.

Q: Can I use screws to mount my joist hangers and deck brackets?

A: No. Screws do not provide enough shear strength to properly support joist hangers or other brackets with shear forces on them. Hangers are designed to be secured with high-shear hanger nails – hot dipped galvanized should work best with galvanized metal hangers and brackets.

Q: How high does my guard rail need to be on my deck?

A: The height of guardrails is dependent on the height of the deck, measured between the deck surface and the adjacent ground level. If the distance is between $\geq 24"$ (600mm) and $\leq 72"$ (1800mm) the height of the guardrail is required to be at least 36” (900mm) high, and if it is $\geq 72"$ (1800mm) the guardrail is required to be 42” (1060mm) high. Also, it must be constructed so no part can facilitate climbing and the maximum distance between the vertical rails is 4” (100mm).

Q: When do I need a handrail on my steps? When do I need a guardrail on my steps?

A: A handrail is required when there are **more than 3** risers, and a guardrail is required when the tread height is more than 24” (600mm) above the adjacent ground.

Q: What dimensions do I need for my steps?

A: The dimension of the riser must be between 5” and 8”, while the dimension of the tread must be between 9.25” and 14”. All steps must have uniform rise and uniform run. This means that in a flight of stairs, every riser must be the same height, and every tread must have the same depth. For this reason pre-fabricated metal stringers may not always fit properly at the top and/or bottom of the steps.

Joist Sizing Table

Joist Sizes	2x6			2x8			2x10			2x12		
	12" o.c.	16" o.c.	24" o.c.	12" o.c.	16" o.c.	24" o.c.	12" o.c.	16" o.c.	24" o.c.	12" o.c.	16" o.c.	24" o.c.
Joist Span	10'-4"	9'-4"	8'-2"	13'-6"	12'-4"	10'-9"	17'-3"	15'-8"	13'-9"	20'-4"	18'-9"	16'-8"

*Joist span – distance between supports

2-Ply Beam Sizing Table

Supported Joist Length	2 ply 2"x6"	2 ply 2"x8"	2ply 2"x10"	2 ply 2"x12"
8'-0"	6'-1"	7'-8"	9'-4"	10'-10"
10'-0"	5'-7"	6'-10"	8'-4"	9'-8"
12'-0"	5'-1"	6'-3"	7'-7"	8'-10"
14'-0"	4'-9"	5'-9"	7'-1"	8'-2"
16'-0"	4'-5"	5'-5"	6'-7"	7'-8"
18'-0"	4'-2"	5'-1"	6'-3"	7'-1"
20'-0"	4'-0"	4'-10"	5'-9"	6'-7"

*Supported Joist Length – ½ joist span measured between supports.

Large Beam Sizing Table

Supported Joist Length	2"x8"			2"x10"			2"x12"		
	3 ply	4 ply	5 ply	3 ply	4 ply	5 ply	3 ply	4 ply	5 ply
8'-0"	10'-7"	12'-2"	13'-8"	12'-11"	14'-11"	16'-8"	15'-0"	17'-4"	19'-4"
10'-0"	9'-5"	10'-11"	12'-2"	11'-7"	13'-4"	14'-11"	13'-5"	15'-6"	17'-4"
12'-0"	8'-8"	10'-0"	11'-2"	10'-7"	12'-2"	13'-7"	12'-3"	14'-2"	15'-10"
14'-0"	8'-0"	9'-3"	10'-4"	9'-9"	11'-3"	12'-7"	11'-4"	13'-1"	14'-8"
16'-0"	7'-6"	8'-8"	9'-8"	9'-2"	10'-7"	11'-10"	10'-7"	12'-3"	13'-8"
18'-0"	7'-1"	8'-2"	9'-1"	8'-7"	9'-11"	11'-1"	10'-0"	11'-7"	12'-11"
20'-0"	6'-8"	7'-9"	8'-8"	8'-2"	9'-5"	10'-8"	9'-6"	10'-11"	12'-3"

*Supported Joist Length – ½ joist span measured between supports.