# Deck Construction Info

This is not intended to be explicit "How To" construction advice. Providing building code 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.

## Deck FAQ:

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, 4 x 3-1/2" nails installed every joist space will support the ledger board, or ½" lag or through bolts installed @16" o.c. alternating stagger at 2" from top and 2" from bottom. If you have an insulated 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 deck screws to mount my joist hangers and deck brackets?*
A: No. They do not provide adequate shear strength. Hangers are designed to be secured with high-shear hanger nails or structural screws.

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 ≥ 24"(600mm) and ≤ 72"(1800mm) the height of the guardrail is required to be at least 36"(900mm) high, and if it is ≥72"(1800mm) the guardrail is required to be 42"(1060mm) high.

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 7-7/8", while the dimension of the tread must be between 10" and 14". All steps must have uniform rise and uniform run. Pre-fabricated metal stringers may not always fit properly, and often they are installed with a top and/or bottom riser that does not match the riser heights.

| | Joist Span Table | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Joist Size** | **2x6** | | | **2x8** | | | **2x10** | | |
| **Spacing** | 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. |
| **Max Span** | 10'-4" | 9'-4" | 8'-2" | 13'-6" | 12'-4" | 10'-9" | 17'-3" | 15'-8" | 13'-9" |

**2-ply Beam Sizing Table**

* All splices must occur over posts.

| Supported Joist Length | 2-ply 2x6 | 2-ply 2x8 | 2-ply 2x10 |
|---|---|---|---|
| 8 ft (and less) | 6'-7" | 8'-5" | 10'-3" |
| 10 ft | 6'-1" | 7'-6" | 9'-2" |
| 12 ft | 5'-8" | 6'-10" | 8'-4" |
| 14 ft | 5'-2" | 6'-4" | 7'-9" |
| 16 ft | 4'-10" | 5'-11" | 7'-3" |
| 18 ft | 4-7" | 5'-7" | 6'-10" |
| 20 ft | 4'-4" | 5'-4" | 6'-6" |

***For information on how to build a built-up wood beam, including proper location of splices, see CCA-SK Bulletin 21-BCB-09, "Built-up Wood Beams"!*

**Large Beam Sizing Table**

| | 2x8 Beams | | | 2x10 Beams | | |
|---|---|---|---|---|---|---|
| Supported Joist Length | 3-ply | 4-ply | 5-ply | 3-ply | 4-ply | 5-ply |
| 8 ft (and less) | 12'-6" | 14'-5" | 16'-2" | 15'-3" | 17'-8" | 19'-9" |
| 10 ft | 11'-2" | 12'-11" | 14'-5" | 13'-8" | 15'-9" | 17'-8 |
| 12 ft | 10'-2" | 11'-9" | 13'-2" | 12'-6" | 14'-5" | 16'-1" |
| 14 ft | 9'-5" | 10'-11" | 12'-2" | 11'-7" | 13'-4" | 14'-11" |
| 16 ft | 8'-10" | 10'-2" | 11'-5" | 10'-9" | 12'-6" | 13'-1" |
| 18 ft | 8'-2" | 9'-7" | 10'-9" | 9'-8" | 11'-9" | 13'-2" |
| 20 ft | 7'-6" | 9'-2" | 10'-2" | 8'-11" | 11'-2" | 12'-6" |