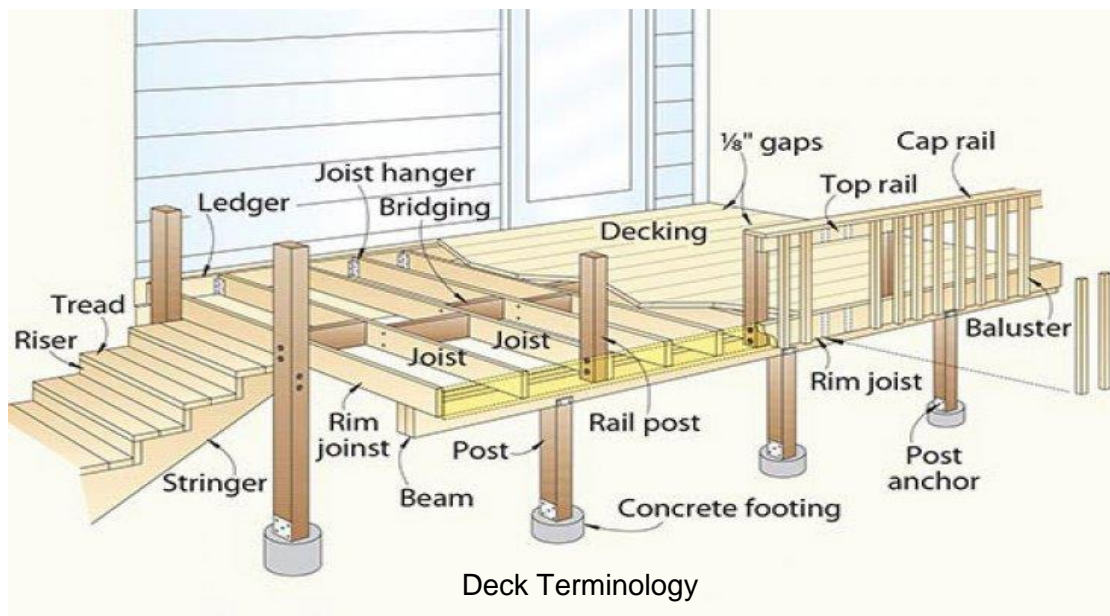


Deck Construction Guide

Important Deck Construction Details

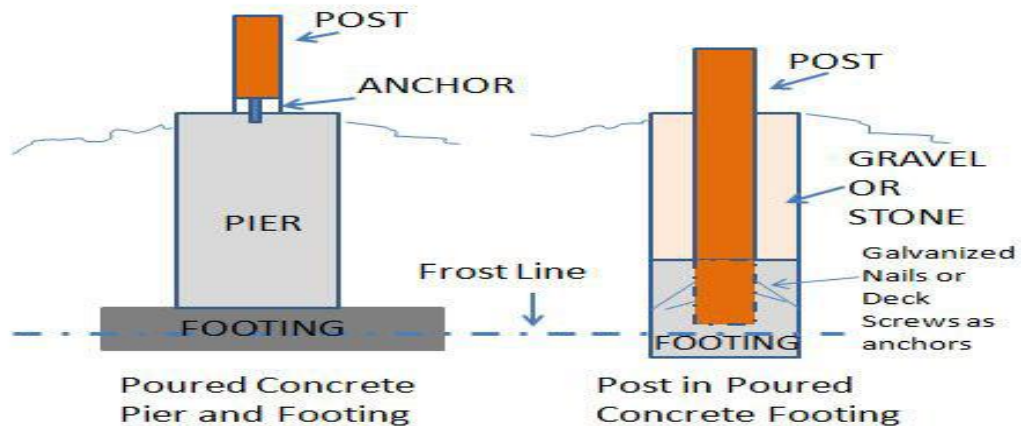
- Joist hanger NAILS must be used, not screws. Minimum size nail is 10D. Screws are not permitted to attach joist hangers or other beam connectors.
- All fasteners, both nails and screws, must have a corrosion resistant coating, galvanized or stainless, or otherwise approved to be used with treated lumber.
- Decks and roofs installed against a manufactured dwelling (mobile home) MUST be free standing.
- Deck ledger boards MUST NOT be attached or supported to stone, brick or other masonry veneers or chimneys.
- Footings must extend to the frost line (42-inches) unless solid rock is encountered.
- Decks erected around a swimming pool will also need to meet specific pool safety standards.
- If the deck will support a hot tub or spa the deck construction plans will need to be reviewed and approved by a PA licensed architect or engineer.
- Deck designs that deviate from these construction guidelines will require a specific plan and drawings and may require engineering.
- All girders and beams must be supported by a post. Girders and beams that support the deck joists cannot be supported just by the ledger board.
- Ledger connections shall be properly flashed to prevent water from contacting the rim joist.
- Deck ledgers shall be minimum 2 x 8 pressure-preservative treated No.2 grade lumber.
- As code requires, where positive connection of the ledger to the rim joist cannot be inspected, deck shall be self-supporting.



Installation Guide For Residential Decks

Posts shall bear on properly mixed concrete footings (10 -12 inches in diameter)that extend to below the frost line (42-inches) or to solid rock. Posts shall be restrained to prevent lateral displacement at the bottom support. Such lateral restraint shall be provided by manufactured connectors or a minimum post embedment of 12 inches in surrounding soils or concrete piers. If concrete footings are thicker than 20-inches, a sonotube or similar product must be used to form the pier.

TYPICAL DECK POSTS TO DECK FOOTINGS



DECK POST HEIGHT^a

For single-level wooden decks posts must be sized in accordance with Table 1

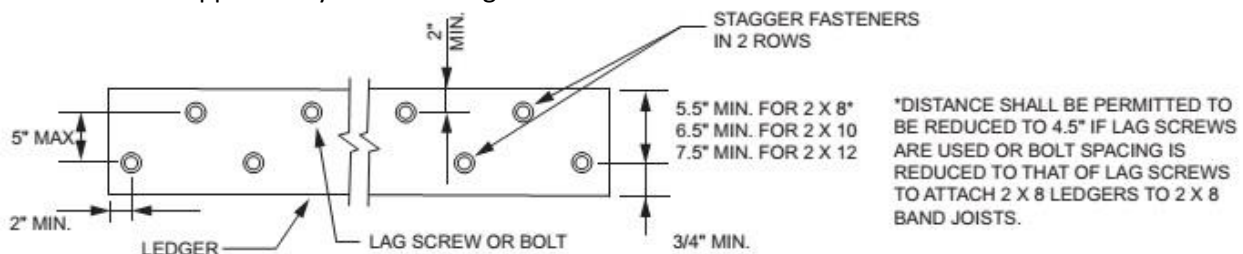
DECK POST SIZE	MAXIMUM HEIGHT ^a
4 x 4	8'
4 x 6	8'
6 x 6	14'

Note: Provide diagonal post to beam bracing at the outside corners of the post & beam when decks are greater than 6-feet above the ground. Do not install diagonal bracing on center and interior posts.

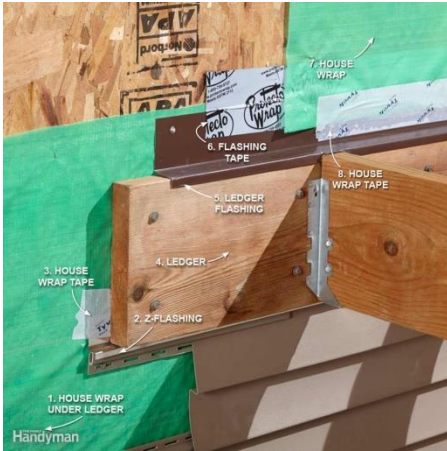
a. Measured from the footing to the underside of the beam

PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS

All deck ledgers shall be a minimum 2-inch by 8-inch. Deck ledgers shall not support concentrated loads from beams or girders. Joists MUST run at right angles to the deck ledger board. Deck ledgers shall not be supported on stone or masonry veneer. If joists are intended to run parallel the house, the deck beams MUST bear on posts and not be supported by the deck ledger board.



Flashing a Ledger Board



Deck ledger boards are a common source of water infiltration, and it can be years before you discover the damage caused by water finding its way behind the ledger and into your home.

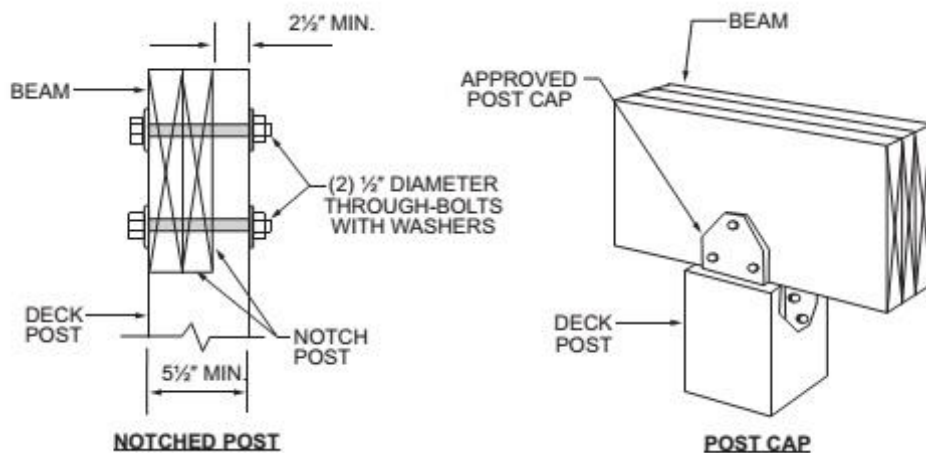
- Install house wrap on the wall several inches higher than where the top of the ledger board will be.
- Install Z-flashing approved for pressure-treated lumber where the bottom of the ledger will be.
- Cover the top of the Z-flashing with house wrap tape.
- Fasten the ledger board over the Z-flashing.
- Install flashing approved for pressure-treated lumber on top of the ledger.
- Cover the top of the flashing with window/door flashing tape.
- Install house wrap over the flashing.
- Fasten the house wrap to the wall with house wrap tape.
- Install the siding.

FLASHING AND LEDGER ATTACHMENT TO THE HOUSE MUST BE FIELD INSPECTED FOR SOLID ATTACHMENT

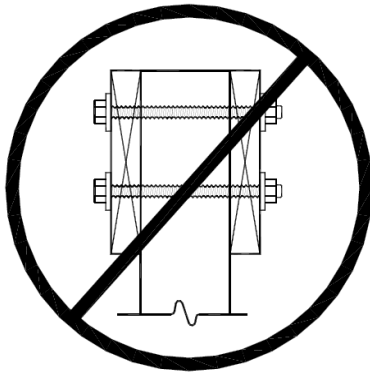
Lag screws, LedgerLok Ledger Board Fasteners, or other approved bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in each joist cavity. Ledger connections shall be properly flashed to prevent water from contacting the rim joist. **Where positive connection of the ledger to the house rim joist cannot be inspected, deck shall be self-supporting.**

DECK BEAMS / BEAM TO POST CONNECTION

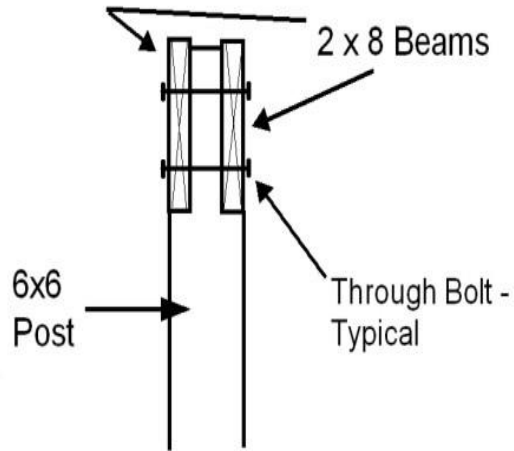
Deck beams shall bear a minimum on 1 ½ - inches and be attached to deck posts by 2 – ½-inch bolts or other approved fasteners. Manufactured post-to-beam connectors shall be sized for the post and beam sizes. All bolts shall have washers under the head and nut.



The ends of each joist and beam shall have not less than 1 ½ inches of bearing on wood or metal and not less than 3 on concrete or masonry for the entire width of the beam. Joist framing into the side of a ledger board or beam shall be supported by approved joist hangers. Joists bearing on a beam shall be connected to the beam to resist lateral displacement.



PROHIBITED POST-TO-BEAM CONNECTION
 Note: Supporting beams to a post with only bolts or other fasteners is prohibited.



Each beam must rest a minimum of 1 ½-inches on each post.

DECK BEAM SPAN LENGTHS (ft. - in.)

Beams shall be permitted to cantilever at each end up to one-fourth of the actual beam span, but not more than 24-inches. Splices of multispan beams shall be located only at interior post locations.

BEAM SIZE	MAXIMUM BEAM SPAN BETWEEN POSTS						
	6'	8'	10'	12'	14'	16'	18'
1 - 2X6	4' 11"	4' 0"	3' 7"	3' 3"	3' 0"	2' 10"	2' 8"
1 - 2X8	5' 11"	5' 1"	4' 7"	4' 2"	2' 10"	3' 7"	3' 5"
1 - 2X10	7' 0"	6' 0"	5' 5"	4' 11"	4' 7"	4' 3"	4' 0"
1 - 2X12	8' 3"	7' 1"	6' 4"	5' 10"	5' 5"	5' 0"	4' 9"
2 - 2X6	6' 11"	5' 11"	5' 4"	4' 10"	4' 6"	4' 3"	4' 0"
2 - 2X8	8' 9"	7' 7"	6' 9"	6' 2"	5' 9"	5' 4"	5' 0"
2 - 2X10	10' 4"	9' 0"	8' 0"	7' 4"	6' 9"	9' 4"	6' 0"
2 - 2X12	12' 2"	10' 7"	9' 5"	8' 7"	8' 0"	7' 6"	7' 0"
3 - 2X6	8' 2"	7' 5"	6' 8"	6' 1"	5' 6"	5' 3"	5' 0"
3 - 2X8	10' 10"	9' 6"	8' 6"	7' 9"	7' 2"	6' 8"	6' 4"
3 - 2X10	13' 0"	11' 3"	10' 0"	9' 2"	8' 6"	7' 11"	7' 6"
3 - 2X12	15' 3"	13' 3"	11' 10"	10' 9"	10' 0"	9' 4"	8' 10"

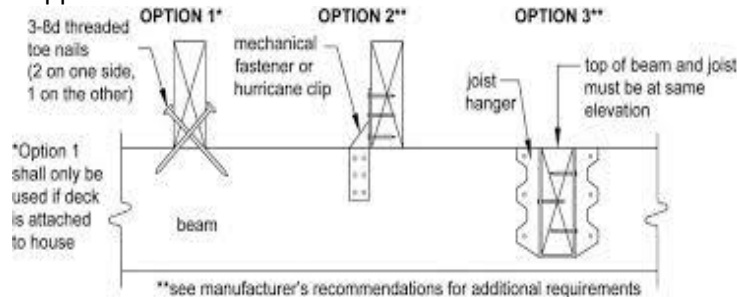
DECK JOIST SPANS

JOIST SIZE	DECK JOIST SPAN WITH NO CANTILEVER			DECK JOIST SPAN WITH CANTILEVERS		
	12" OC	16" OC	24" OC	12" OC	16" OC	24" OC
2 x 6	9' 11"	9' 0"	7' 7"	6' 8"	6' 8"	6' 8"
2 x 8	13' 1"	11' 10"	9' 8"	10' 1"	10' 1"	9' 8"
2 x 10	16' 2"	14' 0"	11' 5"	14' 6"	14' 0"	11' 5"
2 x 12	18' 0"	16' 6"	13' 6"	18' 0"	16' 6"	13' 6"

Deck joists shall be permitted to cantilever not more than one-fourth of the actual, adjacent joist span but not more than 24-inches.

JOIST TO BEAM / LEDGER CONNECTIONS

Each joist must be attached to a beam as shown below. Joists may bear on and cantilever (overhang) past the beam ¼ of its length when Option 1 or Option 2 is used (2-foot maximum). All hangers, clips and fasteners must be galvanized, stainless, or approved for use with treated lumber.



A FRAMING INSPECTION IS REQUIRED PRIOR TO INSTALLING THE DECKING FLOOR BOARDS

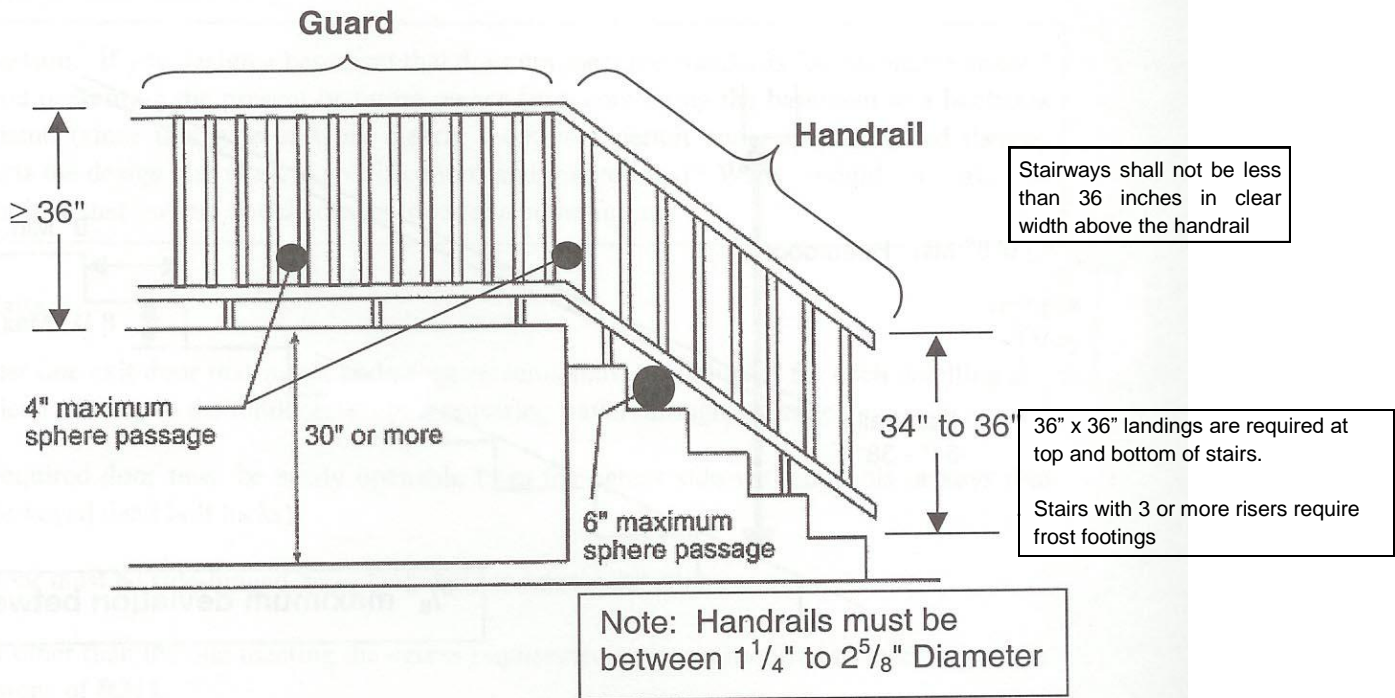
DECKING

Maximum allowable spacing for joists supporting decking shall be in accordance with the table below. Wood decking shall be attached to each supporting member with not less than (2) 8d threaded nails or (2) No. 8 wood screws.

MATERIAL TYPE AND NOMINAL SIZE	MAXIMUM ON-CENTER JOIST SPACING	
	Perpendicular to joist	Diagonal to joist ^a
1 1/4-inch-thick wood (5/4)	16 inches	12 inches
2-inch-thick wood	24 inches	16 inches
Plastic composite	In accordance manufactures instructions	In accordance manufactures instructions

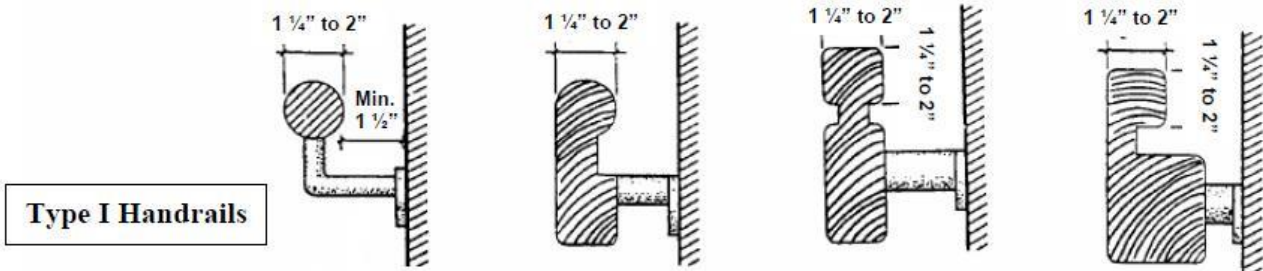
a. Maximum angle of 45 degrees from perpendicular for wood deck boards.
 Decking boards should be spaced about 1/8-inch apart.
 Deck boards must rest on at least three (3) joists.

GUARD AND HANDRAIL REQUIREMENTS



- Maximum Stair Riser height is 8 1/4-inches
 - Riser heights cannot vary more than 3/8"
- Minimum Tread Width is 9-inches

Guards are required on all decks & stairways that are over 30-inches above the ground at any location around the deck. Handrails are required on one side of stairs with 4 or more risers and shall be continuous for the full length of the flight, from a point directly above the top riser of the flight to a point directly above lowest riser of the flight. Handrail ends shall be returned or shall terminate into posts or safety terminals or a wall. Handrails adjacent to a wall shall have a space of not less than 1 1/2-inches



Examples of Unacceptable Handrails

