# DECK REQUIREMENTS

*Single Family Residential Only*

- **Footings:** Minimum 36" Deep
  4"x4" Post – 12" Diameter
  6"x6" Post – 14" Diameter

- **Girders:** Southern Pine #2 or better***

Table 502.3.3a
Allowable span for girders supporting one floor only!

| SIZE OF WOOD GIRDER 2 | | FLOOR LIVE LOAD (PSF) | SPACING BETWEEN GIRDERS AND LOAD BEARING WALLS 3 | | | | |
|---|---|---|---|---|---|---|---|
| | | | 4 Feet | 6 Feet | 8 Feet | 10 Feet | 16 Feet |
| 4x4 | —— | 40 | 5"-0" | 4'-0" | 3'-6" | 3'-0" | 2'-6" |
| 4x6 | —— | 40 | 7'-6" | 6'-0" | 5'-6" | 4'-6" | 4'-0" |
| 4x8 | 6x6 | 40 | 10'-0" | 8'-6" | 7'-6" | 6'-6" | 5'-0" |
| 4x10 | 6x8 | 40 | 13'-0" | 10'-6" | 9'-6" | 8'-6" | 5'-6" |
| 4x12 | 6x10 | 40 | 16'-0" | 12'-6" | 11'-0" | 10'-0" | 8'-0" |

- **Deck Joists:** 2"x 6" – 9' 9" maximum Span
  2"x 8" – 12' 10" Maximum Span
  2"x 10" – 16' Maximum Span
  2"x 12" – 18' 7" Maximum Span

  Floor Live Load 40psf
  Calculations for Southern Pine or Better***

  ***Other species require calculations

- **Support Posts:** Anchored to footing by embedment or mechanical fastener (Simpson Bracket)
  4"x4" post can be used to 6' above grade. Above 6' use a 6"x6" bracket or larger.

- **Railings:** Guardrails minimum 36" high. Balusters shall be less than 4" apart.
  Stair rails shall not be more than 2 ¼ " maximum in diameter and grippable.
  Minimum handrail height, 34" to 38" from tread nose.

- **Risers:** Height shall be maximum 8 ¼" and all risers equal.
  Total differential between risers shall not exceed 3/8".

- **Treads:** Minimum tread depth shall be 9".
  Nosing required ¾" to 1 ¼" on less than 11" wide treads.

- **Stringers:** Must rest on masonry (poured concrete or patio blocks)
  Depending on tread material and stair width, additional stringers may be required.

- **Cantilever:** Maximum 27 ¾" @ 2" x 10" 21 ¾" @ 2" x 8" 15 ¾" @ 2" x 6"

- **Hangers & Framing:** Galvanized nails orbolts, "deck screws" are not to be used for framing connections or hangers.

**The following inspections are required:**

1. **Footings: Before pouring concrete. Concrete is not to be poured in standing water.**
2. **Open deck / frame: Before the deck boards are attached.**
3. **Final**

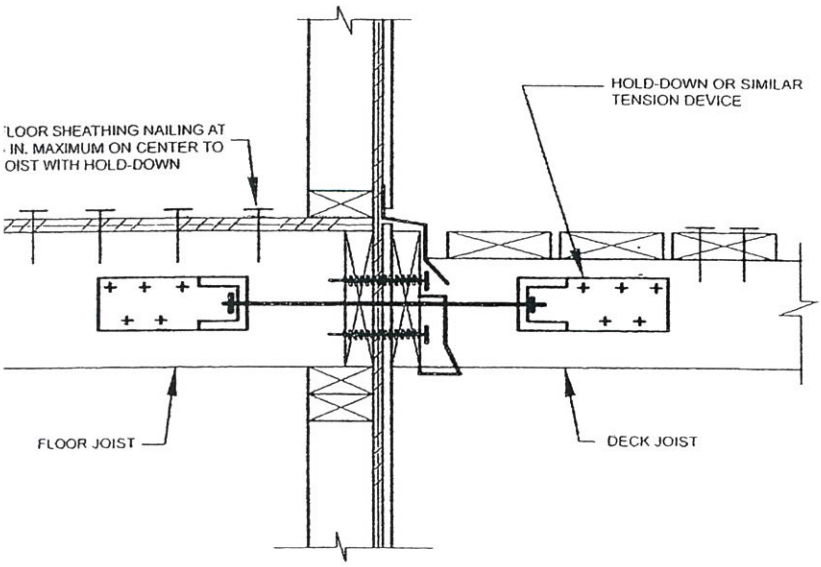



FIGURE 502.2.2.3
DECK ATTACHMENT FOR LATERAL LOADS

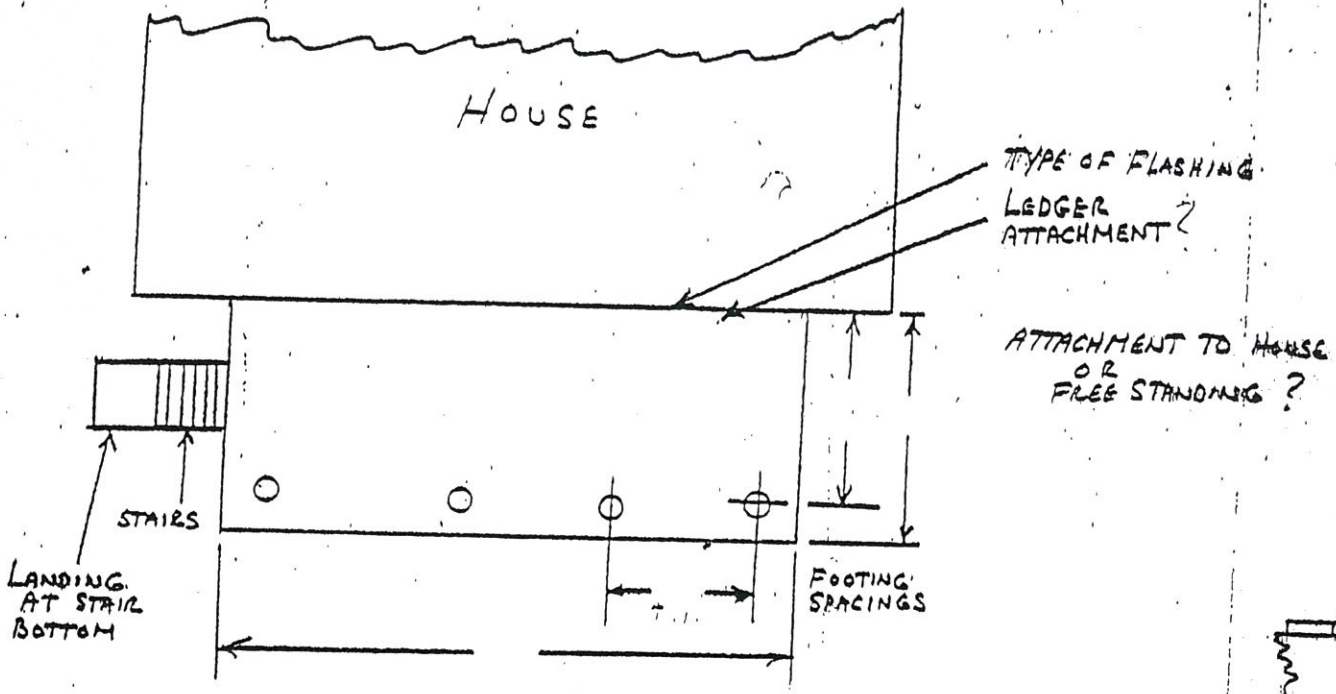
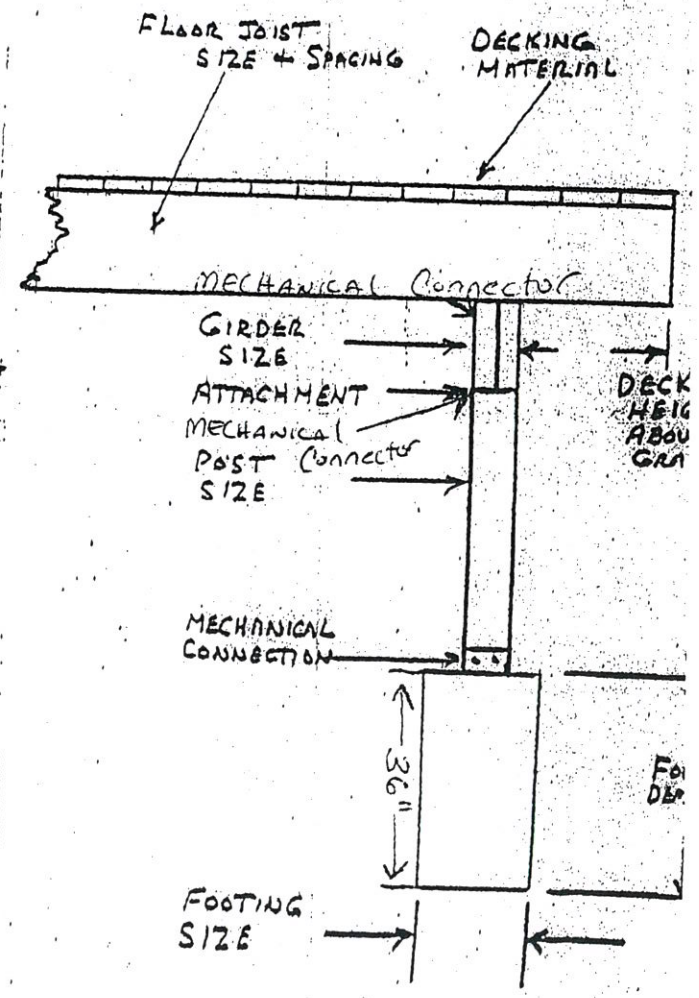
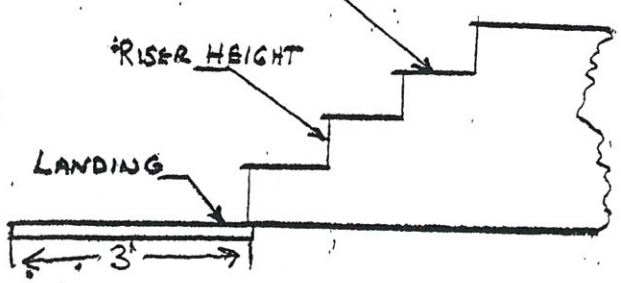
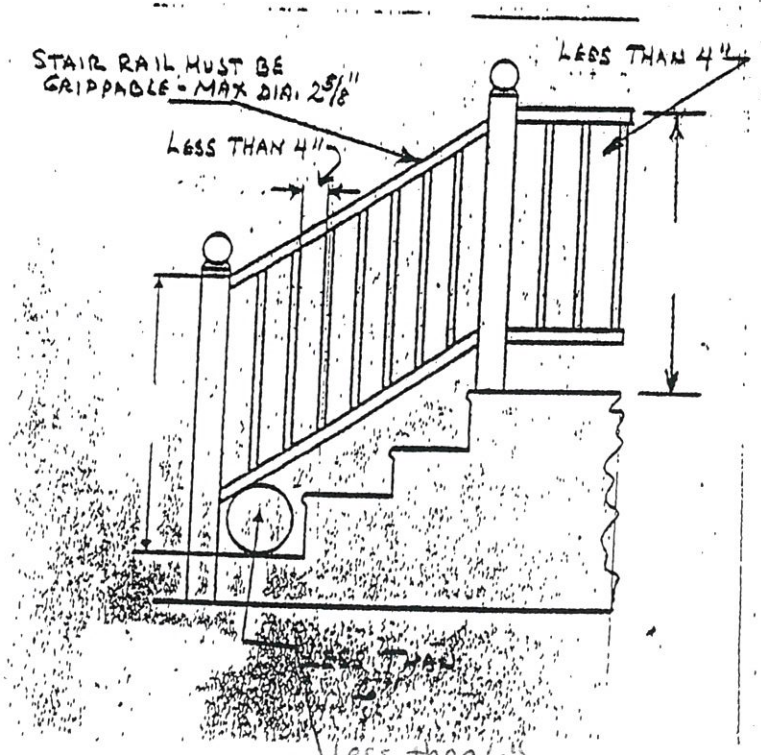
**R502.2.2 Decks.** Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads as applicable. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting. For decks with cantilevered framing members, connections to exterior walls or other framing members, shall be designed and constructed to resist uplift resulting from the full live load specified in Table R301.5 acting on the cantilevered portion of the deck.

**R502.2.2.1 Deck ledger connection to band joist.** For decks supporting a total design load of 50 pounds per square foot (2394 Pa) [40 pounds per square foot (1915 Pa) live load plus 10 pounds per square foot (479 Pa) dead load], the connection between a deck ledger of pressure-preservative-treated Southern Pine, incised pressure-preservative-treated Hem-Fir or *approved* decay-resistant species, and a 2-inch (51 mm) nominal lumber band joist bearing on a sill plate or wall plate shall be constructed with $^1/_2$-inch (12.7 m) lag screws or bolts with washers in accordance with Table R502.2.2.1. Lag screws, bolts and washers shall be hot-dipped galvanized or stainless steel.

**R502.2.2.1.1 Placement of lag screws or bolts in deck ledgers.** The lag screws or bolts shall be placed 2 inches (51 mm) in from the bottom or top of the deck ledgers and between 2 and 5 inches (51 and 127 mm) in from the ends. The lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger.

**R502.2.2.2 Alternate deck ledger connections.** Deck ledger connections not conforming to Table R502.2.2.1 shall be designed in accordance with accepted engineering practice. Girders supporting deck joists shall not be supported on deck ledgers or band joists. Deck ledgers shall not be supported on stone or masonry veneer.

**R502.2.2.3 Deck lateral load connection.** The lateral load connection required by Section R502.2.2 shall be permitted to be in accordance with Figure R502.2.2.3. Hold-down tension devices shall be installed in not less than two locations per deck, and each device shall have an allowable stress design capacity of not less than 1500 pounds (6672 N).

**R502.2.2.4 Exterior wood/plastic composite deck boards.** Wood/plastic composite deck boards shall be installed in accordance with the manufacturer's instructions.

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