

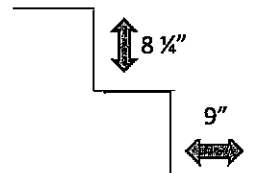


**BUILDING DEPARTMENT
SUMPTER TOWNSHIP
23480 SUMPTER RD
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734-461-6201 X 2233
BLDG CLERK: ACHEENIA HALL
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DECK GUIDELINES

The following items must be included when submitting an application to build a deck:

1. Readable diagram including a plot plan with accurate dimensions.
2. Deck construction details:
 - a. Post spacing, size, depth (42" minimum) and must be encased in concrete
 - b. Beam spacing and size
 - c. Joist spacing and size
 - d. Decking/floor lumber and size
 - e. Deck height-determines railing requirement (30")
3. Stairway details:
 - a. Riser dimension – maximum 8 ¼" and equal spacing
(suggest risers be a maximum of 7 ¾")
 - b. Tread dimension – minimum 9" clear and equal spacing
(suggest treads minimum of 10")
 - c. With – minimum 36"



4. Railings – if required or requested
 - a. Height – minimum 36"
 - b. Spacing of spindles – maximum 4" space

**WITHOUT THE ABOVE MINIMUM INFORMATION,
YOUR APPLICATION WILL BE REJECTED.**

Worksheet for Decks

Address: _____

Owner: _____

Phone number: _____

Dimensions of Deck:

Width (parallel to house): _____

Depth (house to end of deck): _____

Height above grade: _____

Posts:

Size: 4" x 4" _____ or 6" x 6" _____ Total number: _____ Spacing: _____

Beams:

Size: _____ Spacing: _____ Span: _____

Joists:

Size: _____ Spacing: _____ Span: _____

Footings:

Size (square): _____ " X _____ " Round: _____ " diameter.

Thickness: _____ "

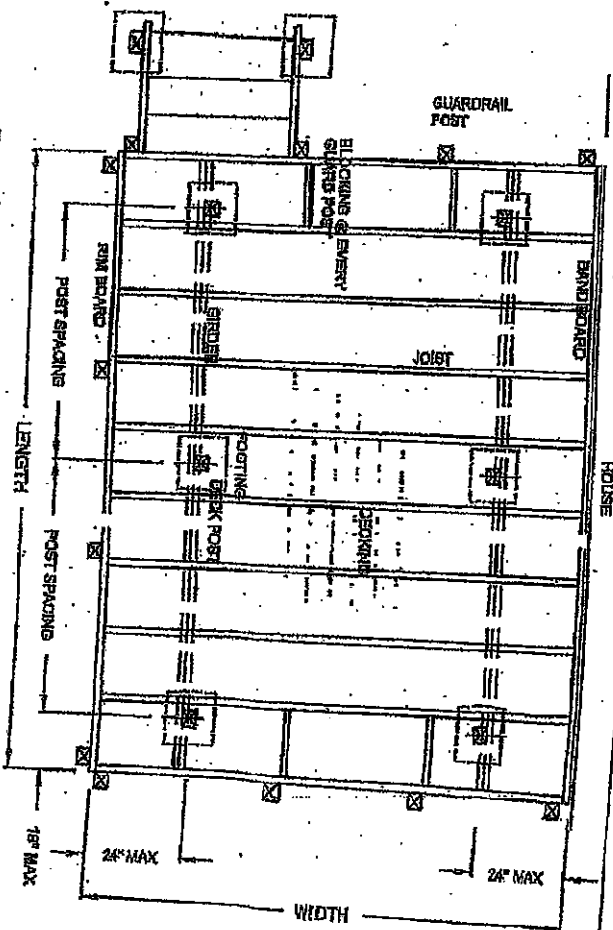
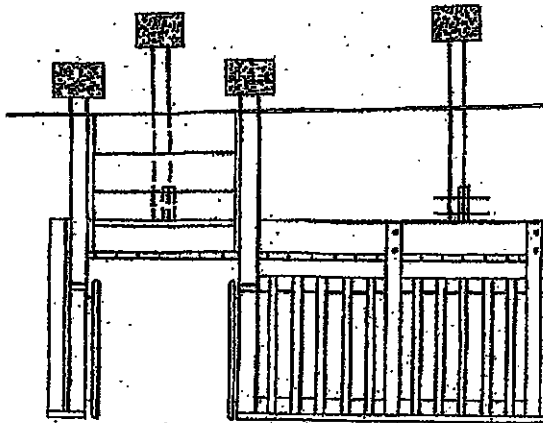
Ledger attachment:

Exterior wall material: Wood or Siding _____, Brick Veneer _____, Solid Brick _____

Method of Attachment: Thru Bolt _____ or Lag Bolt _____ Diameter: _____ Length: _____

I _____ do hereby certify that all the information
Print Name
contained in this worksheet is truthful and accurate!

Signed: _____ Date _____

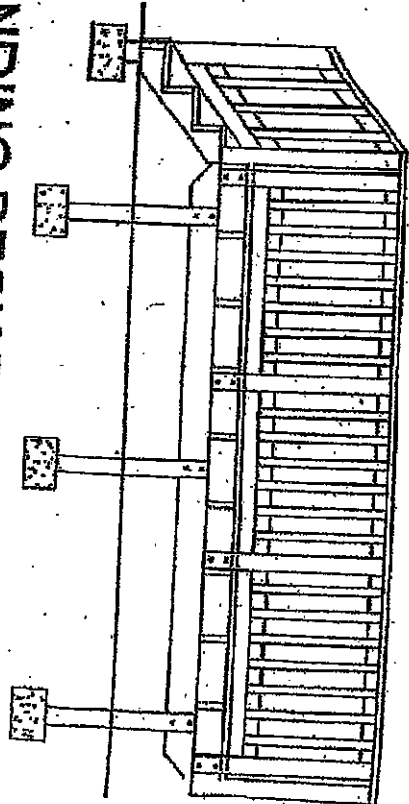


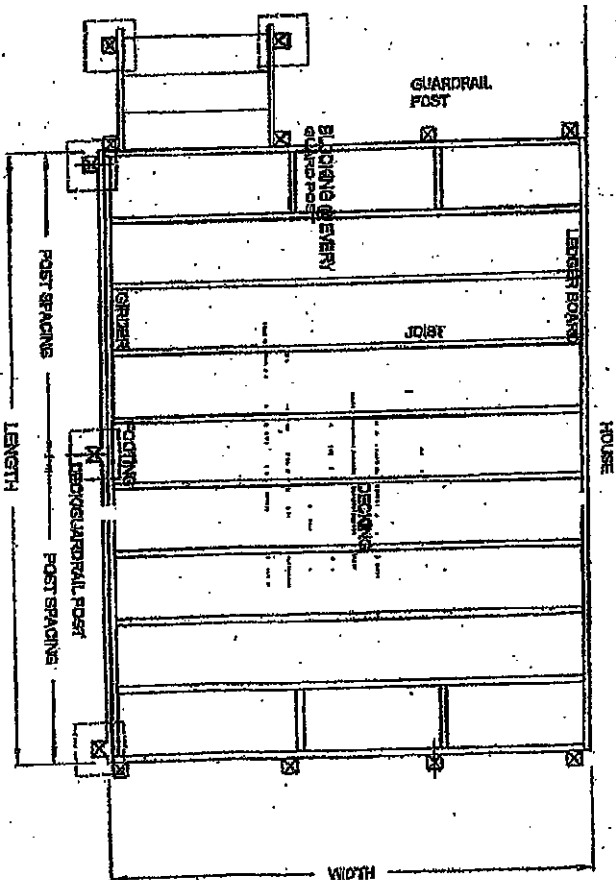
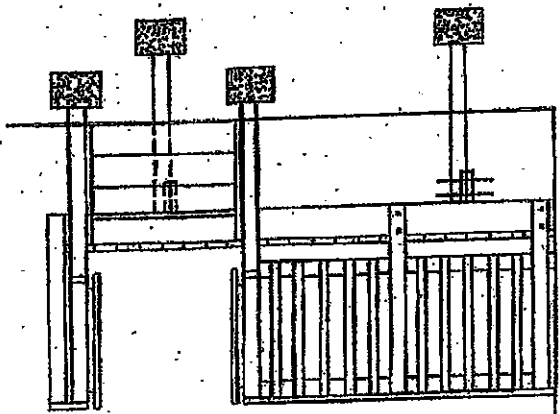
FREE STANDING DECK PLAN SPECIFICATIONS

LENGTH	_____	FT
WIDTH	_____	FT
POST SPACING	_____	FT O.C.
FOOTING DEPTH	_____	IN'
POST SIZE	_____	X _____
GIROET SIZE	_____	X _____
JOIST SIZE	2X _____	@ _____ IN O.C.

Fill in all the blanks

FREE STANDING DECK PLAN

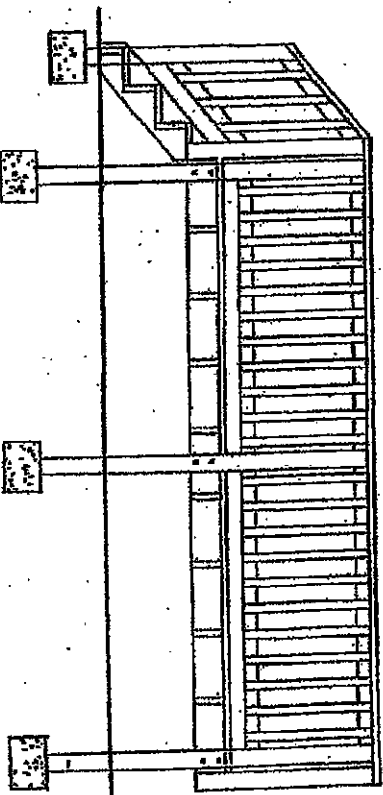




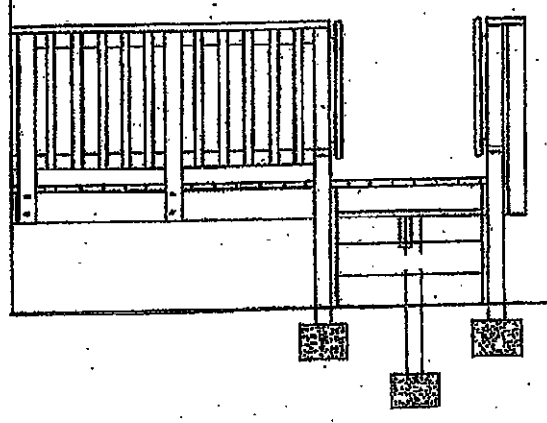
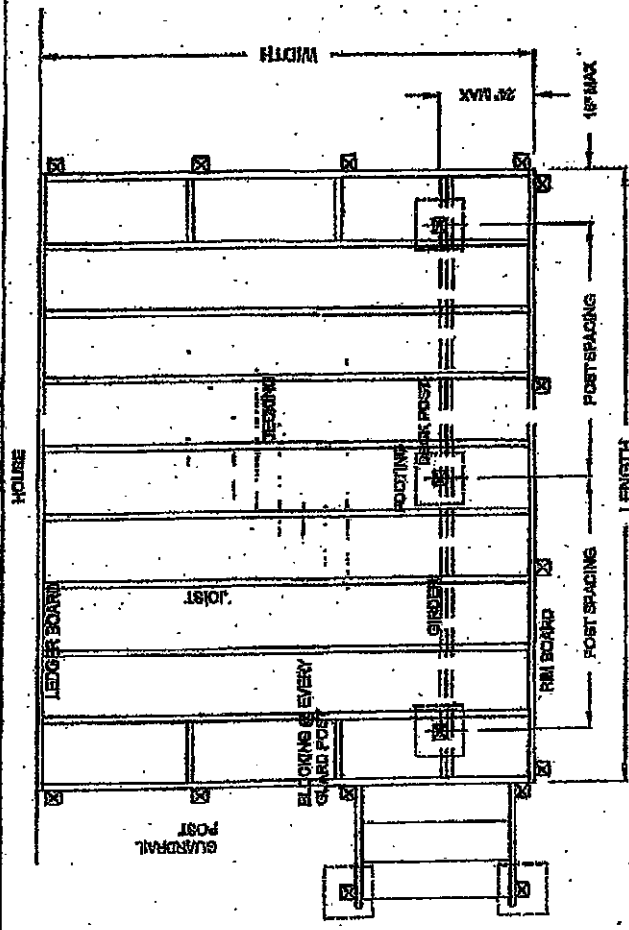
FLUSH STYLE DECK PLAN SPECIFICATIONS

LENGTH _____ FT.
 WIDTH _____ FT.
 POST SPACING _____ FT. O.C.
 FOOTING DEPTH _____ IN.
 POST SIZE _____ X _____
 GIRDER SIZE _____ X _____
 JOIST SIZE 2 x _____ @ _____ IN. O.C.

Fill in all the blanks!

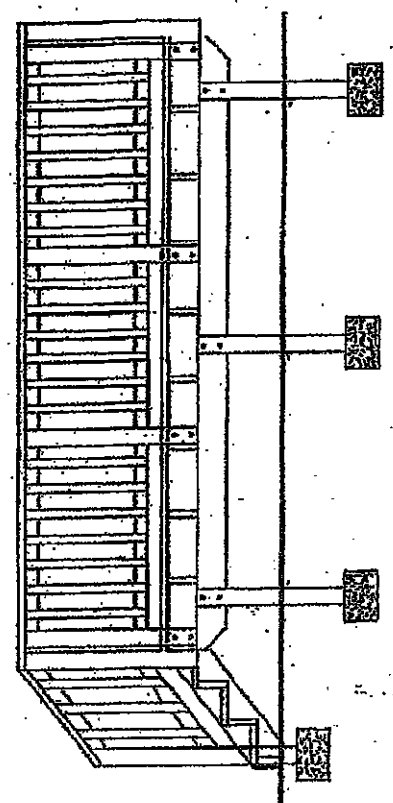


FLUSH STYLE DECK PLAN

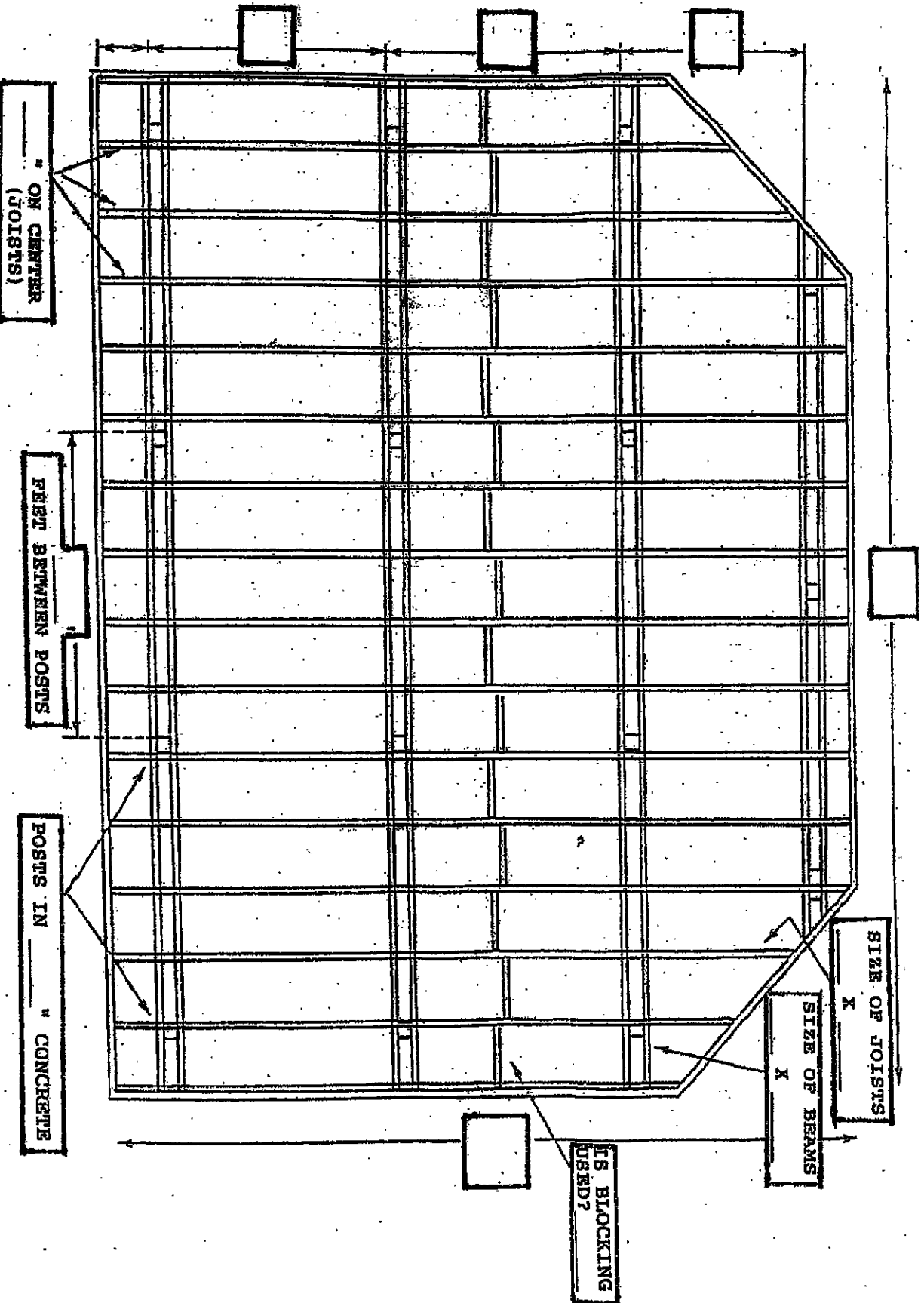


**CANTILEVER DECK PLAN
SPECIFICATIONS**

LENGTH _____ FT
 WIDTH _____ FT
 POST SPACING _____ FT O.C.
 FOOTING DEPTH _____ IN
 POST SIZE _____ X _____
 GIRDER SIZE _____ X _____
 JOIST SIZE _____ X _____ @ _____ IN O.C.
 Fill in all the blanks



CANTILEVER DECK PLAN



ALL SQUARES MUST BE COMPLETED

2015 MI Residential Code - Decks

SECTION R507 EXTERIOR DECKS

R507.1 Decks. Wood-framed decks shall be in accordance with this section or Section R301 for materials and conditions not prescribed herein. 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.

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.

R507.2 Deck ledger connection to band joist. Deck ledger connections to band joists shall be in accordance with this section, Tables R507.2 and R507.2.1, and Figures R507.2.1(1) and R507.2.1(2). For other grades, species, connection details and loading conditions, deck ledger connections shall be designed in accordance with Section R301.

R507.2.1 Ledger details. Deck ledgers installed in accordance with Section R507.2 shall be a minimum 2-inch by 8-inch (51 mm by 203 mm) nominal, pressure-preservative treated southern pine, incised pressure-preservative-treated Hem-fir, or approved, naturally durable, No. 2 grade or better lumber. Deck ledgers installed in accordance with Section R507.2 shall not support concentrated loads from beams or girders. Deck ledgers shall not be supported on stone or masonry veneer.

R507.2.2 Band joist details. Band joists attached by a ledger in accordance with Section R507.2 shall be a minimum 2-inch-nominal (51 mm), solid-sawn, spruce-pine-fir lumber or a minimum 1-inch by 9 1/2-inch (25 mm x 241 mm) dimensional, Douglas fir, laminated veneer lumber. Band joists attached by a ledger in accordance with Section R507.2 shall be fully supported by a wall or sill plate below.

R507.2.3 Ledger to band joist fastener details. Fasteners used in deck ledger connections in accordance with Table R507.2 shall be hot-dipped galvanized or stainless steel and shall be installed in accordance with Table R507.2.1 and Figures R507.2.1(1) and R507.2.1(2).

R507.2.4 Flashing. An approved corrosion-resistant flashing as required by Section R703.8 shall be installed above the attached ledger as shown in Figure R507.2.1(2) or as approved.

R408.30523a

R507.3 Plastic composite deck boards, stair treads, guards, or handrails. Plastic composite exterior deck boards, stair treads, guards and handrails shall comply with the requirements of ASTM D7032 and the requirements of Section 507.3.

R507.3.1 Labeling. Plastic composite deck boards and stair treads, or their packaging, shall bear a label that indicates compliance to ASTM D7032 and includes the allowable load and maximum allowable span determined in accordance with ASTM D7032. Plastic or composite handrails and guards, or their packaging, shall bear a label that indicates compliance to ASTM D7032 and includes the maximum allowable span determined in accordance with ASTM D7032.

R507.3.2 Flame spread index. Plastic composite deck boards, stair treads, guards, and handrails shall exhibit a flame spread index not exceeding 200 when tested in accordance with ASTM E84 or UL 723 with the test specimen remaining in place during the test.

Exception: Plastic composites determined to be noncombustible.

R507.3.3 Decay resistance. Plastic composite deck boards, stair treads, guards and handrails containing wood, cellulosic or other biodegradable materials shall be decay resistant in accordance with ASTM D7032.

R507.3.4 Termite resistance. Where required by Section 318, plastic composite deck boards, stair treads, guards and handrails containing wood, cellulosic or other biodegradable materials shall be termite resistant in accordance with ASTM D7032.

507.3.5 Installation of plastic composites. Plastic composite deck boards, stair treads, guards and handrails shall be installed in accordance with this code and the manufacturer's instructions.

R507.4 Decking. Maximum allowable spacing for joists supporting decking shall be in accordance with Table R507.4. Wood decking shall be attached to each supporting member with not less than (2) 8d threaded nails or (2) No. 8 wood screws.

2015 MI Residential Code - Decks

R507.5 Deck joists. Maximum allowable spans for wood deck joists, as shown in Figure R507.5, shall be in accordance with Table R507.5. Deck joists shall be permitted to cantilever not greater than one-fourth of the actual, adjacent joist span.

R507.5.1 Lateral restraint at supports.

Joist ends and bearing locations shall be provided with lateral restraint to prevent rotation. Where lateral restraint is provided by joist hangers or blocking between joists, their depth shall equal not less than 60 percent of the joist depth. Where lateral restraint is provided by rim joists, they shall be secured to the end of each joist with not less than (3) 10d (3-inch x 0.128-inch) nails or (3) No. 10x3-inch (76 mm) long wood screws.

R507.6 Deck Beams. Maximum allowable spans for wood deck beams, as shown in Figure R507.6, shall be in accordance with Table R507.6. Beam plies shall be fastened with two rows of 10d (3-inch x 0.128-inch) nails minimum at 16 inches (406 mm) on center along each edge. Beams shall be permitted to cantilever at each end up to one-fourth of the actual beam span. Splices of multi span beams shall be located at interior post locations.

R507.7 Deck joist and deck beam bearing. The ends of each joist and beam shall have not less than 1½ inches (38 mm) of bearing on wood or metal and not less than 3 inches (76 mm) 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.

R507.7.1 Deck post to deck beam. Deck beams shall be attached to deck posts in accordance with Figure R507.7.1 or by other equivalent means capable to resist lateral displacement. Manufactured post-to-beam connectors shall be sized for the post and beam sizes. All bolts shall have washers under the head and nut.

Exception: Where deck beams bear directly on footings in accordance with Section R507.8.1.

R507.8 Deck posts. For single-level wood-framed decks with beams sized in accordance with Table R507.6, deck post size shall be in accordance with Table R507.8.

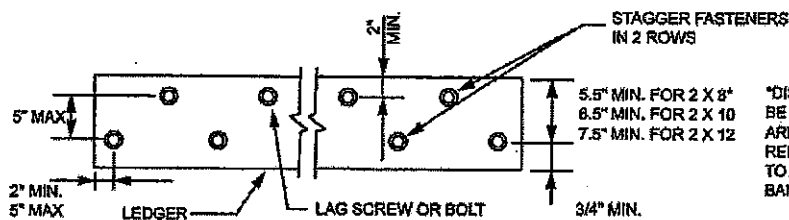
**TABLE R507.8
DECK POST HEIGHT.**

Deck Post Size	Maximum Height ^a
4 x 4	8'
4 x 6	8'
6 x 6	14'

For SI: 1 foot = 304.8 mm.

a. Measured to the underside of the beam.

R507.8.1 Deck post to deck footing. Posts shall bear on footings in accordance with Section R403 and Figure R507.8.1. Posts shall be restrained to prevent lateral displacement at the bottom support. Such lateral restraint shall be provided by manufactured connectors installed in accordance with Section R507 and the manufacturers' instructions or a minimum post embedment of 12 inches (305 mm) in surrounding soils or concrete piers.

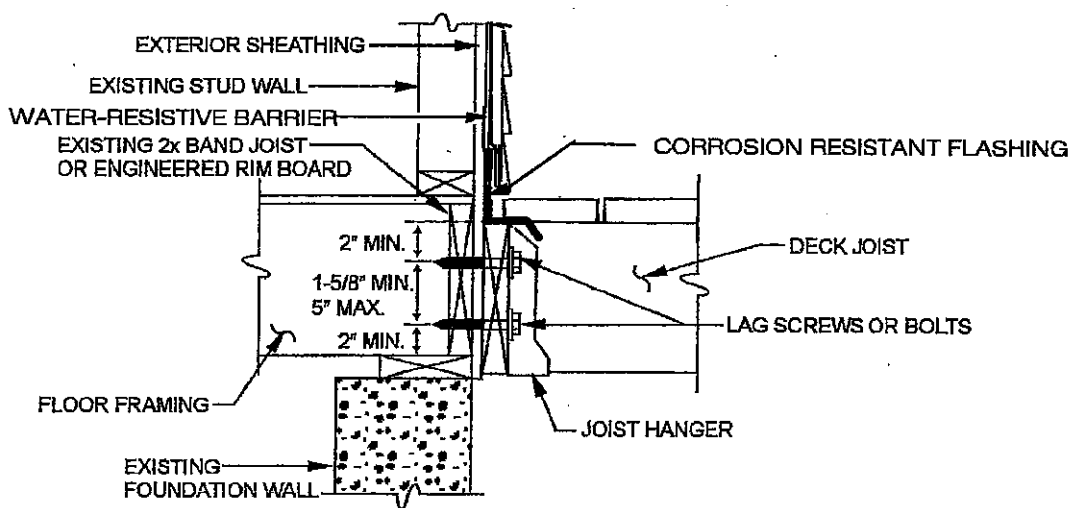


*DISTANCE SHALL BE PERMITTED TO BE REDUCED TO 4.5" IF LAG SCREWS ARE USED OR BOLT SPACING IS REDUCED TO THAT OF LAG SCREWS TO ATTACH 2 X 8 LEDGERS TO 2 X 8 BAND JOISTS.

For SI: 1 inch = 25.4 mm.

FIGURE R507.2.1(1)
PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS

R 408.30523



For SI: 1 inch = 25.4 mm.

FIGURE R507.2.1(2)
PLACEMENT OF LAG SCREWS AND BOLTS IN BAND JOISTS

TABLE R507.2
DECK LEDGER CONNECTION TO BAND JOIST^{a, b}
(Deck live load = 40 psf, deck dead load = 10 psf, snow load ≤ 40 psf)

CONNECTION DETAILS	JOIST SPAN						
	6' and less	6'1" to 8'	8'1" to 10'	10'1" to 12'	12'1" to 14'	14'1" to 16'	16'1" to 18'
	On-center spacing of fasteners						
1/2-inch diameter lag screw with 1/2-inch maximum sheathing ^{c, d}	30	23	18	15	13	11	10
1/2-inch diameter bolt with 1/2-inch maximum sheathing ^d	36	36	34	29	24	21	19
1/2-inch diameter bolt with 1-inch maximum sheathing ^e	36	36	29	24	21	18	16

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Ledgers shall be flashed in accordance with Section R703.8 to prevent water from contacting the house band joist.

b. Snow load shall not be assumed to act concurrently with live load.

c. The tip of the lag screw shall fully extend beyond the inside face of the band joist.

d. Sheathing shall be wood structural panel or solid sawn lumber.

e. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, lumber or foam sheathing. Up to 1/2-inch thickness of stacked washers shall be permitted to substitute for up to 1/2 inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.

TABLE 507.2.1
PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS

MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS				
	TOP EDGE	BOTTOM EDGE	ENDS	ROW SPACING
Ledger ^a	2 inches ^d	$\frac{3}{4}$ inch	2 inches ^b	$1\frac{5}{8}$ inches ^b
Band Joist ^c	$\frac{3}{4}$ inch	2 inches	2 inches ^b	$1\frac{5}{8}$ inches ^b

For SI: 1 inch = 25.4 mm.

- a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.2.1(1).
b. Maximum 5 inches.
c. For engineered rim joists, the manufacturer's recommendations shall govern.
d. The minimum distance from bottom row of lag screws or bolts to the top edge of the ledger shall be in accordance with Figure R507.2.1(1).

TABLE R507.4
MAXIMUM JOIST SPACING

MATERIAL TYPE AND NOMINAL SIZE	MAXIMUM ON-CENTER JOIST SPACING	
	Perpendicular to joist	Diagonal to joist ^a
$1\frac{1}{4}$ -inch-thick wood	16 inches	12 inches
2-inch-thick wood	24 inches	16 inches
Plastic composite	In accordance with Section R507.3	In accordance with Section R507.3

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 degree = 0.01745 rad.

- a. Maximum angle of 45 degrees from perpendicular for wood deck boards

TABLE R507.5
DECK JOIST SPANS FOR COMMON LUMBER SPECIES^f (ft. - in.)

SPECIES ^a	SIZE	SPACING OF DECK JOISTS WITH NO CANTILEVER ^b (inches)			SPACING OF DECK JOISTS WITH CANTILEVERS ^c (inches)		
		12	16	24	12	16	24
Southern pine	2 × 6	9-11	9-0	7-7	6-8	6-8	6-8
	2 × 8	13-1	11-10	9-8	10-1	10-1	9-8
	2 × 10	16-2	14-0	11-5	14-6	14-0	11-5
	2 × 12	18-0	16-6	13-6	18-0	16-6	13-6
Douglas fir-larch ^d , hem-fir ^d spruce-pine-fir ^d	2 × 6	9-6	8-8	7-2	6-3	6-3	6-3
	2 × 8	12-6	11-1	9-1	9-5	9-5	9-1
	2 × 10	15-8	13-7	11-1	13-7	13-7	11-1
	2 × 12	18-0	15-9	12-10	18-0	15-9	12-10
Redwood, western cedars, ponderosa pine ^e , red pine ^e	2 × 6	8-10	8-0	7-0	5-7	5-7	5-7
	2 × 8	11-8	10-7	8-8	8-6	8-6	8-6
	2 × 10	14-11	13-0	10-7	12-3	12-3	10-7
	2 × 12	17-5	15-1	12-4	16-5	15-1	12-4

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

- a. No. 2 grade with wet service factor.
b. Ground snow load, live load = 40 psf, dead load = 10 psf, $L/\Delta = 360$.
c. Ground snow load, live load = 40 psf, dead load = 10 psf, $L/\Delta = 360$ at main span, $L/\Delta = 180$ at cantilever with a 220-pound point load applied to end.
d. Includes incising factor.
e. Northern species with no incising factor
f. Cantilevered spans not exceeding the nominal depth of the joist are permitted.

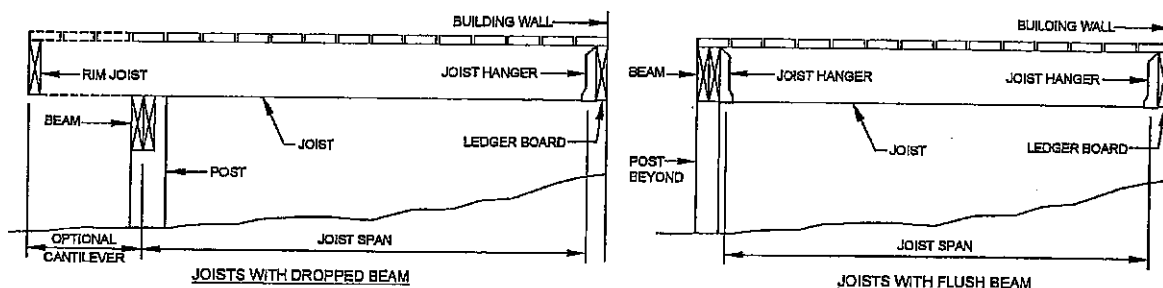


FIGURE R507.5
TYPICAL DECK JOIST SPANS

TABLE R507.6
DECK BEAM SPAN LENGTHS^{a, b} (ft. - in.)

SPECIES ^c	SIZE ^d	DECK JOIST SPAN LESS THAN OR EQUAL TO: (feet)						
		6	8	10	12	14	16	18
Southern pine	2-2 × 6	6-11	5-11	5-4	4-10	4-6	4-3	4-0
	2-2 × 8	8-9	7-7	6-9	6-2	5-9	5-4	5-0
	2-2 × 10	10-4	9-0	8-0	7-4	6-9	6-4	6-0
	2-2 × 12	12-2	10-7	9-5	8-7	8-0	7-6	7-0
	3-2 × 6	8-2	7-5	6-8	6-1	5-8	5-3	5-0
	3-2 × 8	10-10	9-6	8-6	7-9	7-2	6-8	6-4
	3-2 × 10	13-0	11-3	10-0	9-2	8-6	7-11	7-6
	3-2 × 12	15-3	13-3	11-10	10-9	10-0	9-4	8-10
Douglas fir-larch ^e , hem-fir ^e , spruce-pine-fir ^e , redwood, western cedars, ponderosa pine ^f , red pine ^f	3 × 6 or 2-2 × 6	5-5	4-8	4-2	3-10	3-6	3-1	2-9
	3 × 8 or 2-2 × 8	6-10	5-11	5-4	4-10	4-6	4-1	3-8
	3 × 10 or 2-2 × 10	8-4	7-3	6-6	5-11	5-6	5-1	4-8
	3 × 12 or 2-2 × 12	9-8	8-5	7-6	6-10	6-4	5-11	5-7
	4 × 6	6-5	5-6	4-11	4-6	4-2	3-11	3-8
	4 × 8	8-5	7-3	6-6	5-11	5-6	5-2	4-10
	4 × 10	9-11	8-7	7-8	7-0	6-6	6-1	5-8
	4 × 12	11-5	9-11	8-10	8-1	7-6	7-0	6-7
	3-2 × 6	7-4	6-8	6-0	5-6	5-1	4-9	4-6
	3-2 × 8	9-8	8-6	7-7	6-11	6-5	6-0	5-8
	3-2 × 10	12-0	10-5	9-4	8-6	7-10	7-4	6-11
	3-2 × 12	13-11	12-1	10-9	9-10	9-1	8-6	8-1

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

- a. Ground snow load, live load = 40 psf, dead load = 10 psf, $L/\Delta = 360$ at main span, $L/\Delta = 180$ at cantilever with a 220-pound point load applied at the end.
b. Beams supporting deck joists from one side only.
c. No. 2 grade, wet service factor.
d. Beam depth shall be greater than or equal to depth of joists with a flush beam condition.
e. Includes incising factor.
f. Northern species. Incising factor not included.

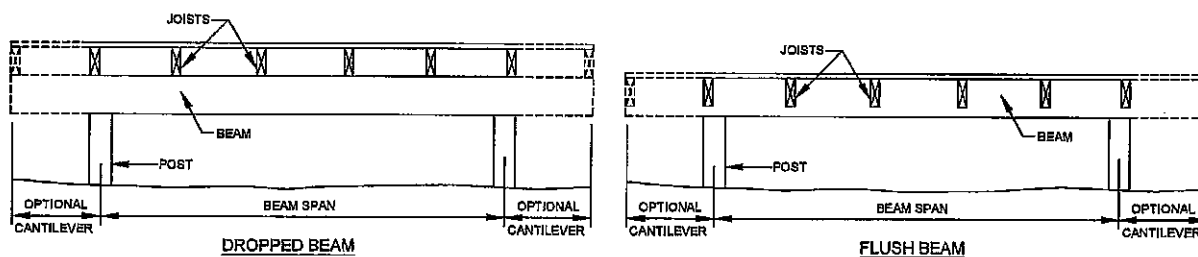
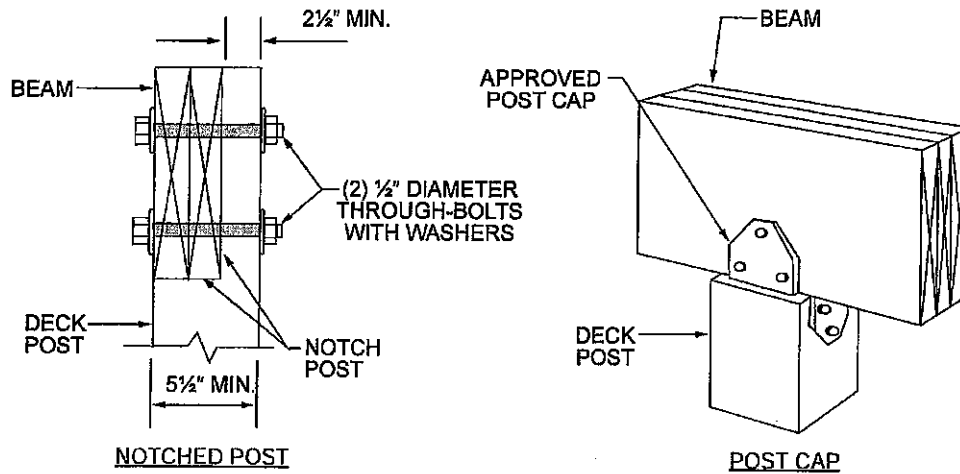


FIGURE R507.6
TYPICAL DECK BEAM SPANS

FLOORS



For SI: 1 inch = 25.4 mm.

FIGURE R507.7.1
DECK BEAM TO DECK POST

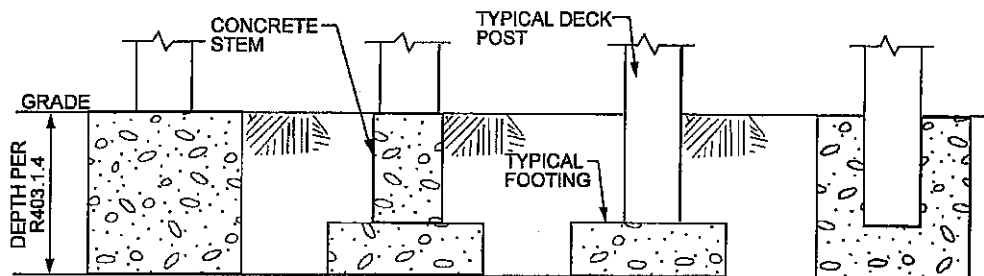


FIGURE R507.8.1
TYPICAL DECK POSTS TO DECK FOOTINGS