City of Florissant

DECK PERMIT GUIDE

According to the 2021 International Residential Code (IRC) And 2020 National Electrical Code (NEC)

This document is meant to provide a general residential permitting guide and does NOT include all requirements.

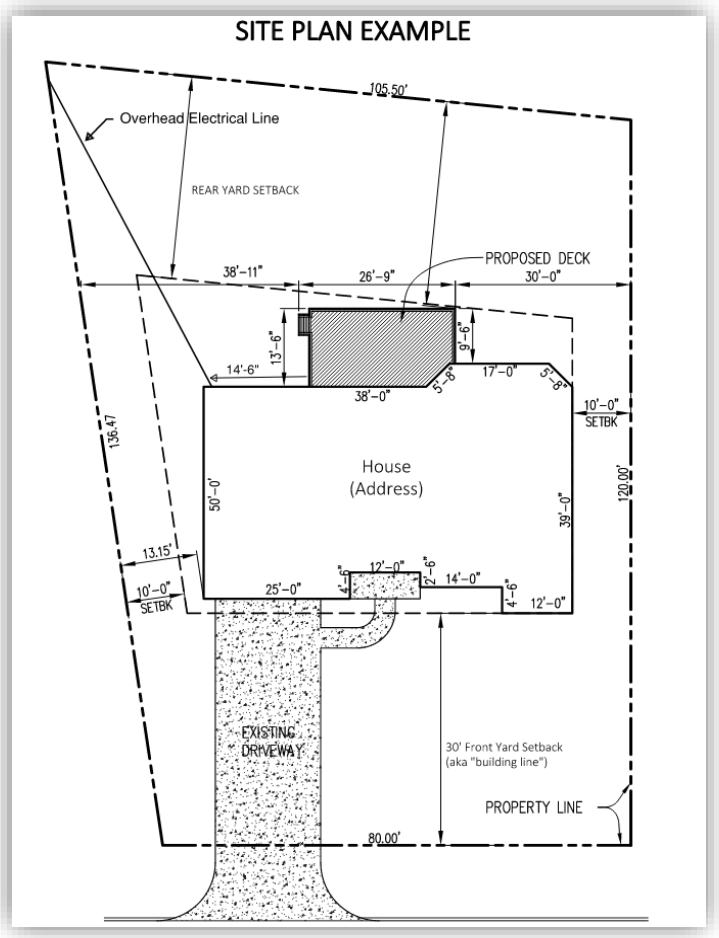
GENERAL

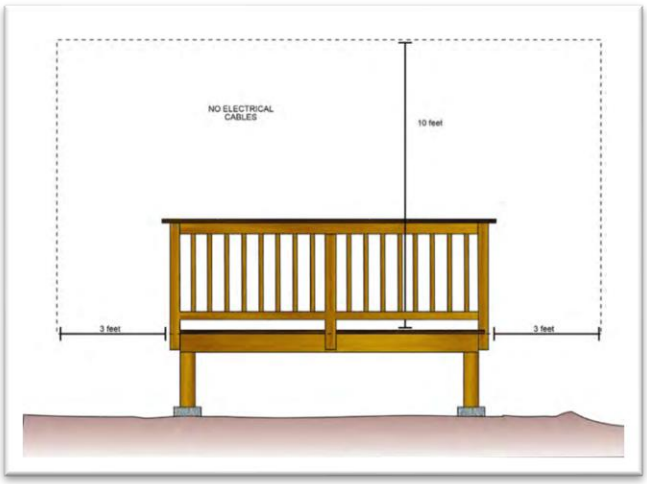
1. A Building Permit is required for the construction, alteration, or replacement of all decks. Apply using the online Portal: https://my.florissantmo.com. Supporting documents are uploaded in the portal during the application process.
2. All plans and work must comply with the 2021 International Residential Code, (Section 507 – Exterior Decks) and must be done in a workmanlike manner. **Note this on the plans.**
3. All deck plans require review and must be approved and paid for before a permit is issued.
4. A Building Permit is valid for 180 days. It shall become invalid unless the work is started within 180 days after issuance. Extensions can be granted upon request with a $40 fee.
5. Fees:
   a. The cost for a permit will be no less than $95 and is based on the total project cost. City Code Section 505.010
   b. There is a $40 fee for each submittal / plan revision.
   c. There is a $50 fee for extra inspections.
6. Inspections are assigned during plan review and will be listed on the permit placard. The minimum inspections for a typical deck are below:
   a. "Footing" – pier / foundation holes, open, without water or obstructions.
   b. "Final" – all is done, graded, seeded, cleaned up.
7. Before construction, call **1-800-DIG-RITE** to mark the location of the underground utilities.

DOCUMENTATION

1. Apply in the online portal: my.florissantmo.com. Supporting documents are uploaded in the portal during the application process.
2. Upload a **site plan** or Spot Survey of the lot, showing distances from the deck to overhead power lines, property lines, HVAC equipment and to all other structures.
3. **Front, side cross-section drawings, and details** are required and must be to scale with measurements.

4. **Detailed construction drawings and framing plans** are required with measurements for piers, foundation, posts, beam sizes and spans, joist sizes and spans, cantilever spans, decking, ledger, guards, stairs, landing, and details for all connections, hardware and fasteners.
5. Example drawings are provided in the body of this guide.





CONSTRUCTION

GENERAL

1. All lumber must be sized according to '21 IRC Chapter 507 – Exterior Decks.
2. All wood must be preservative-treated or naturally durable and must be rated for its use, ie. ground contact or direct burial respectively.
3. Decks may not be within 36" inches measured horizontally and 10' feet measured vertically, from overhead electrical wires.
4. Decks must be six (6) feet from lot lines.
5. The house must have one GFCI protected electrical receptacle accessible from the deck.
6. Deck stairs must be illuminated for safety.

JOISTS

1. Joists must be sized according to '21 IRC Chapter 507 – Exterior Decks.
2. Galvanized joist hangers, sized for the joist, are required wherever the joist bears on its end and must be fastened with manufacturer's hardware.
3. Wind uplift (aka "Hurricane") clips or code-compliant toe-nailing is required where joists sit on a beam.

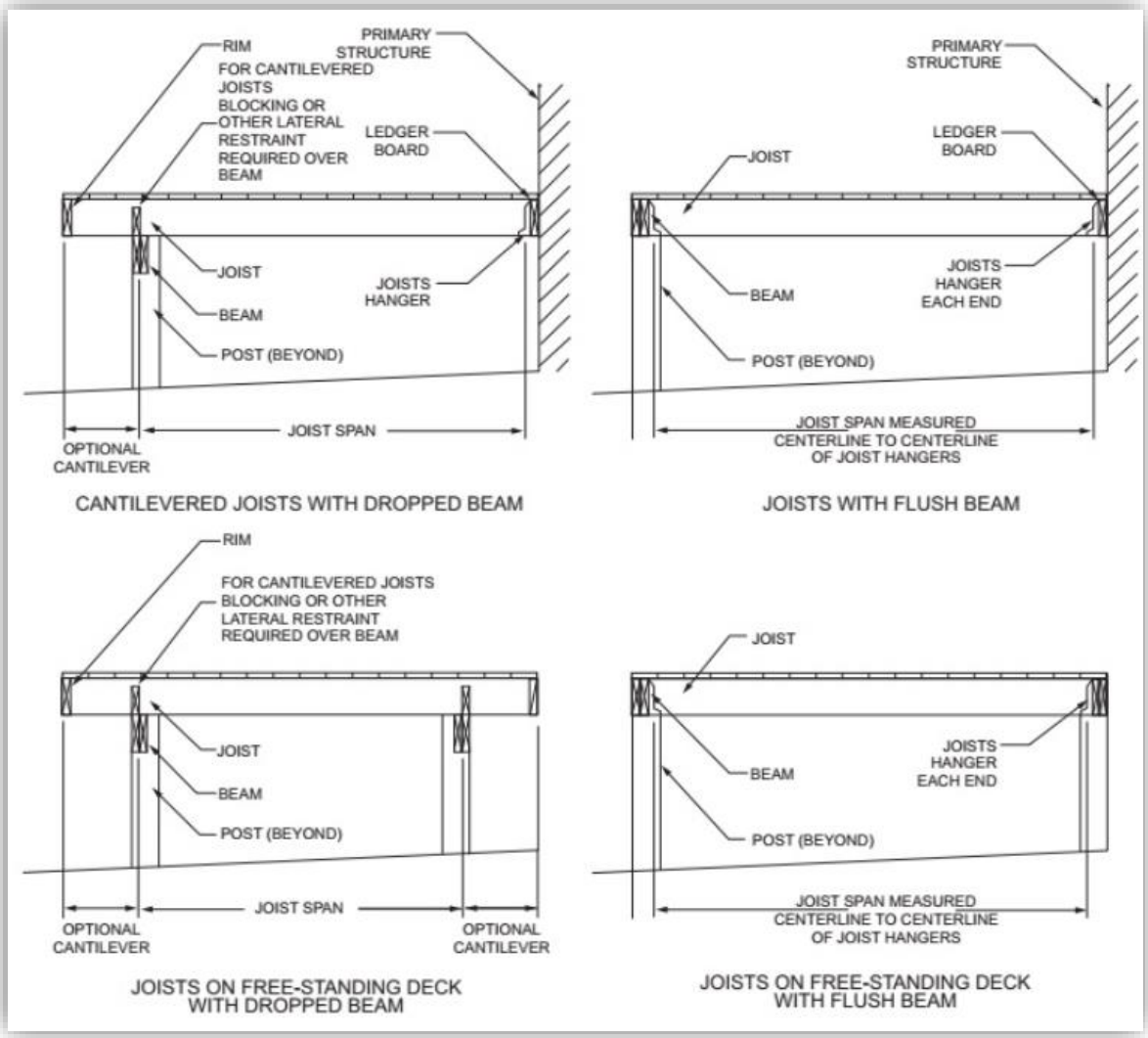


TABLE R507.6
MAXIMUM DECK JOIST SPANS

LOAD[a] (psf)	JOIST SPECIES[b]	JOIST SIZE	ALLOWABLE JOIST SPAN[b, c] (feet-inches)			MAXIMUM CANTILEVER[d,f] (feet-inches)							
			Joist spacing (inches)			Joist back span[g] (feet)							
			12	16	24	4	6	8	10	12	14	16	18
40 live load	Southern pine	2 × 6	9-11	9-0	7-7	1-0	1-6	1-5	NP	NP	NP	NP	NP
		2 × 8	13-1	11-10	9-8	1-0	1-6	2-0	2-6	2-3	NP	NP	NP
		2 × 10	16-2	14-0	11-5	1-0	1-6	2-0	2-6	3-0	3-4	3-4	NP
		2 × 12	18-0	16-6	13-6	1-0	1-6	2-0	2-6	3-0	3-6	4-0	4-1
	Douglas fir-larch[e] Hem-fir[e] Spruce-pine-fir[e]	2 × 6	9-6	8-4	6-10	1-0	1-6	1-4	NP	NP	NP	NP	NP
		2 × 8	12-6	11-1	9-1	1-0	1-6	2-0	2-3	2-0	NP	NP	NP
		2 × 10	15-8	13-7	11-1	1-0	1-6	2-0	2-6	3-0	3-3	NP	NP
		2 × 12	18-0	15-9	12-10	1-0	1-6	2-0	2-6	3-0	3-6	3-11	3-11
	Redwood[f] Western cedars[f] Ponderosa pine[f] Red pine[f]	2 × 6	8-10	8-0	6-10	1-0	1-4	1-1	NP	NP	NP	NP	NP
		2 × 8	11-8	10-7	8-8	1-0	1-6	2-0	1-11	NP	NP	NP	NP
		2 × 10	14-11	13-0	10-7	1-0	1-6	2-0	2-6	3-0	2-9	NP	NP
		2 × 12	17-5	15-1	12-4	1-0	1-6	2-0	2-6	3-0	3-6	3-8	NP

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.
NP = Not Permitted.
a. Dead load = 10 psf. Snow load not assumed to be concurrent with live load.
b. No. 2 grade, wet service factor included.
c. $L/\Delta = 360$ at main span.
d. $L/\Delta = 180$ at cantilever with a 220-pound point load applied to end.
e. Includes incising factor.
f. Incising factor not included.
g. Interpolation allowed. Extrapolation is not allowed.

BEAMS

1. Beams must be sized according to '21 IRC Chapter 507 – Exterior Decks.
2. All manufactured lumber must be accompanied with the appropriate manufacturer's "SPAN CHART" for the specific piece of lumber chosen.
3. Posts must be fully notched for all beams or fastened on the top with a post cap. Side bolting is not permitted. 2, ½" inch through bolts with flat washers are required for each post / beam connection.

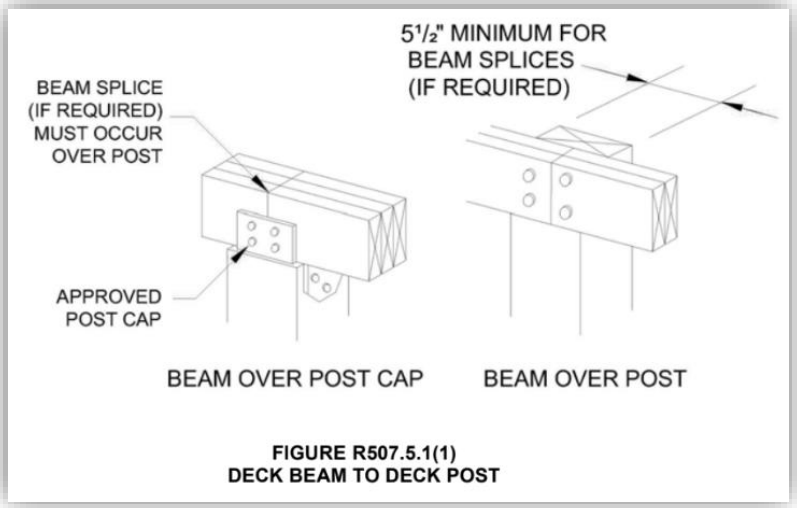


FIGURE R507.5.1(1)
DECK BEAM TO DECK POST

TABLE R507.5(1)
MAXIMUM DECK BEAM SPAN—40 PSF LIVE LOAD[c]

BEAM SPECIES[d]	BEAM SIZE[e]	EFFECTIVE DECK JOIST SPAN LENGTH[a, i, j] (feet)						
		6	8	10	12	14	16	18
		MAXIMUM DECK BEAM SPAN LENGTH (feet-inches)[a, b, f]						
Southern pine	1 – 2 × 6	4-7	4-0	3-7	3-3	3-0	2-10	2-8
	1 – 2 × 8	5-11	5-1	4-7	4-2	3-10	3-7	3-5
	1 – 2 × 10	7-0	6-0	5-5	4-11	4-7	4-3	4-0
	1 – 2 × 12	8-3	7-1	6-4	5-10	5-5	5-0	4-9
	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	7-5	7-0
	3 – 2 × 6	8-6	7-5	6-8	6-1	5-8	5-3	4-11
	3 – 2 × 8	10-11	9-6	8-6	7-9	7-2	6-8	6-4
	3 – 2 × 10	13-0	11-2	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

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. Interpolation permitted. Extrapolation not permitted.
b. Beams supporting a single span of joists with or without cantilever.
c. Dead load = 10 psf, $L/\Delta = 360$ at main span, $L/\Delta = 180$ at cantilever. Snow load is not assumed to be concurrent with live load.
d. No. 2 grade, wet service factor included.
e. Beam depth shall be equal to or greater than the depth of intersecting joist for a flush beam connection.
f. Beam cantilevers are limited to the adjacent beam's span divided by 4.
g. Includes incising factor.
h. Incising factor not included.
i. Deck joist span as shown in Figure R507.5.
j. For calculation of effective deck joist span, the actual joist span length shall be multiplied by the joist span factor in accordance with Table R507.5(5).

POSTS, BEAM, PIER CONNECTIONS

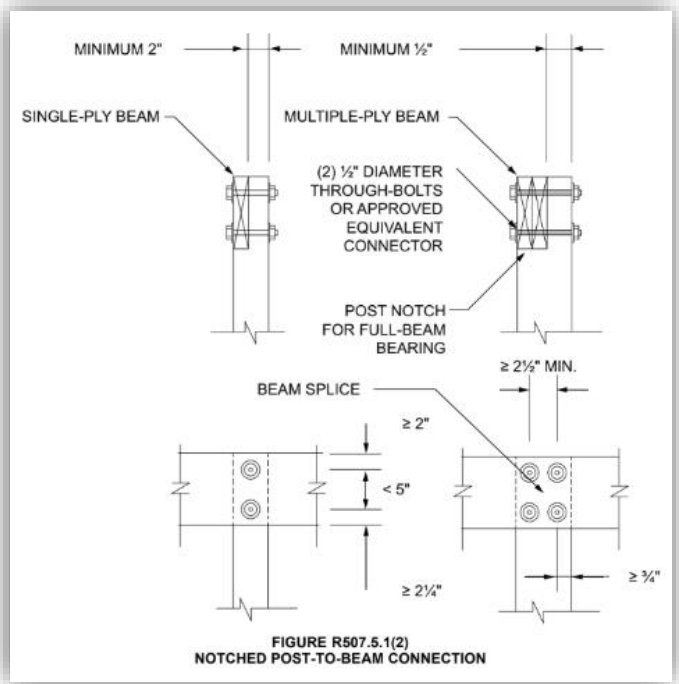
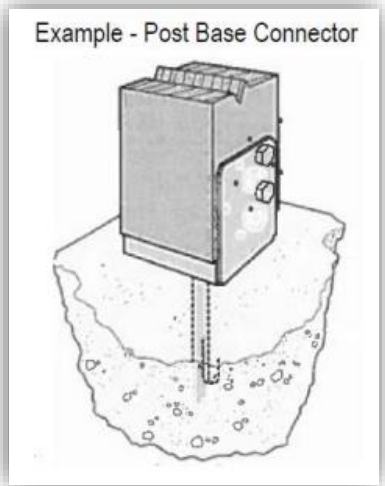


FIGURE R507.5.1(2)
NOTCHED POST-TO-BEAM CONNECTION



PIERS / FOOTING

1. Typical piers or footings must extend 30” inches below finished grade and be “belled” at the base to 16” inches minimum. Piers with a roof or extra loads must be sized by a licensed design professional.

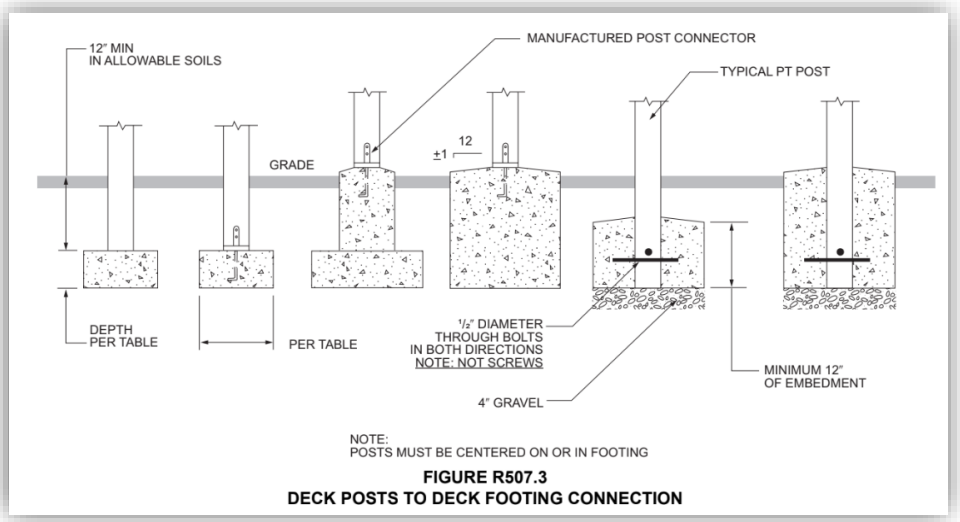
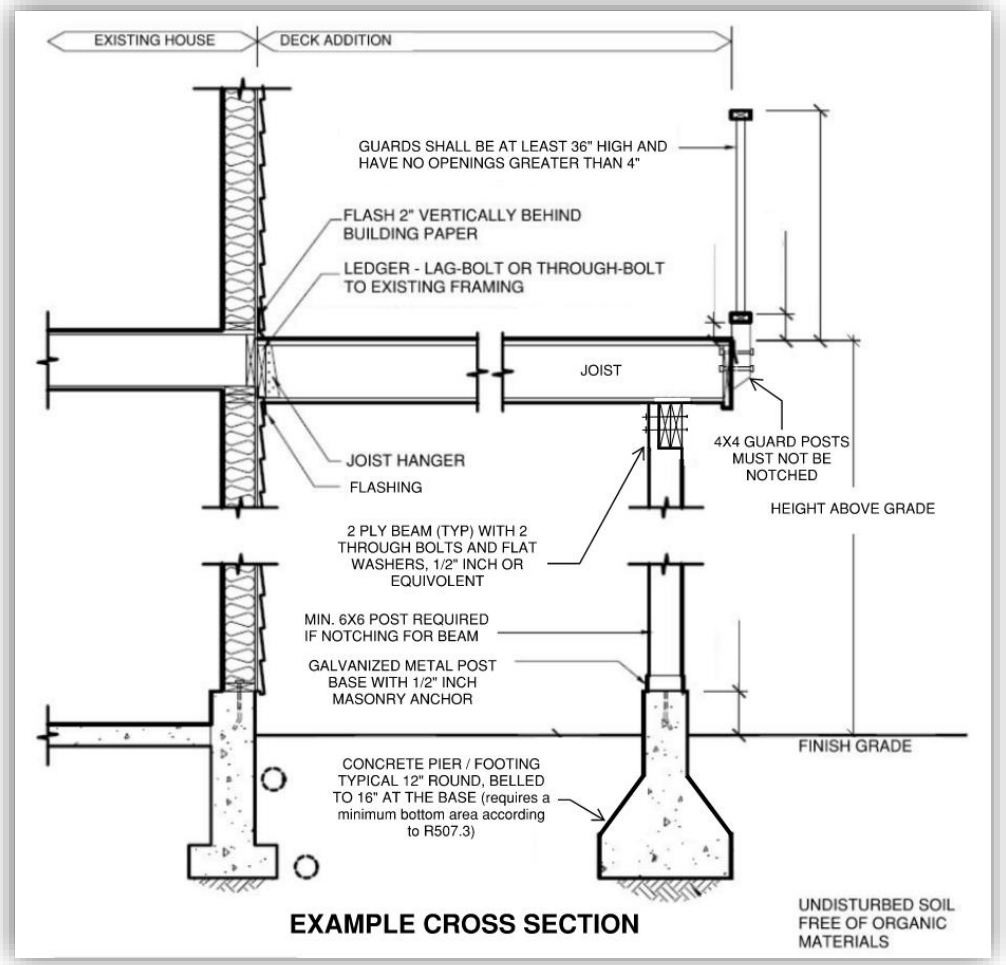
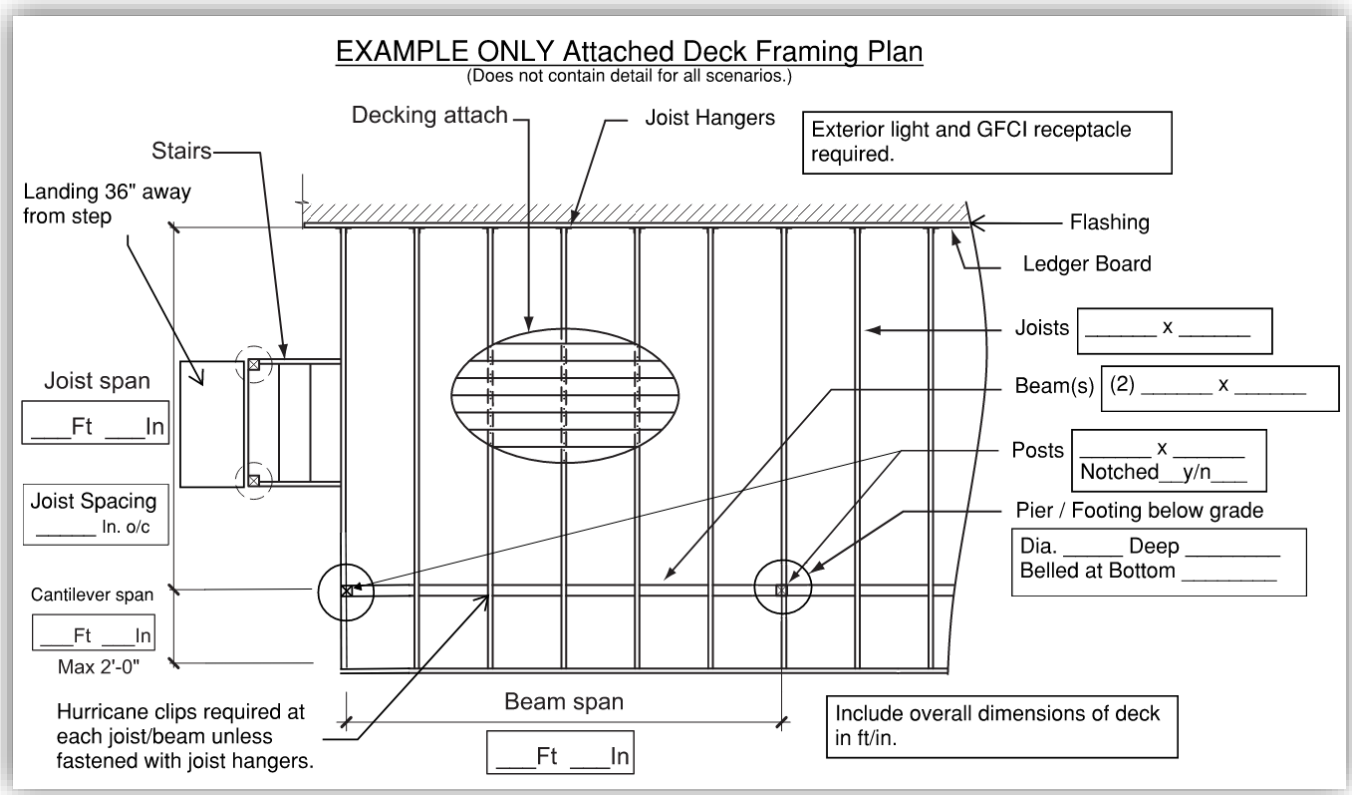


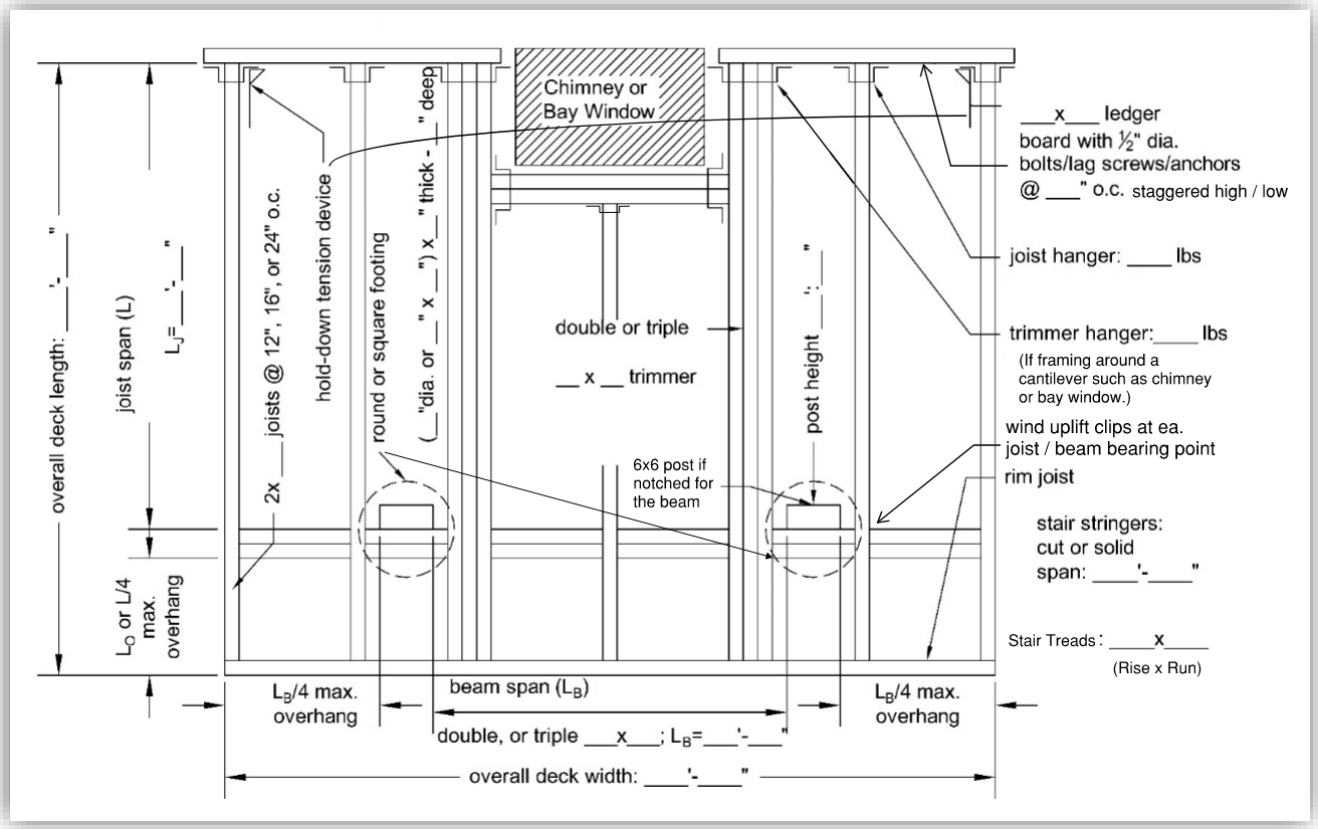
FIGURE R507.3
DECK POSTS TO DECK FOOTING CONNECTION



EXAMPLE CROSS SECTION

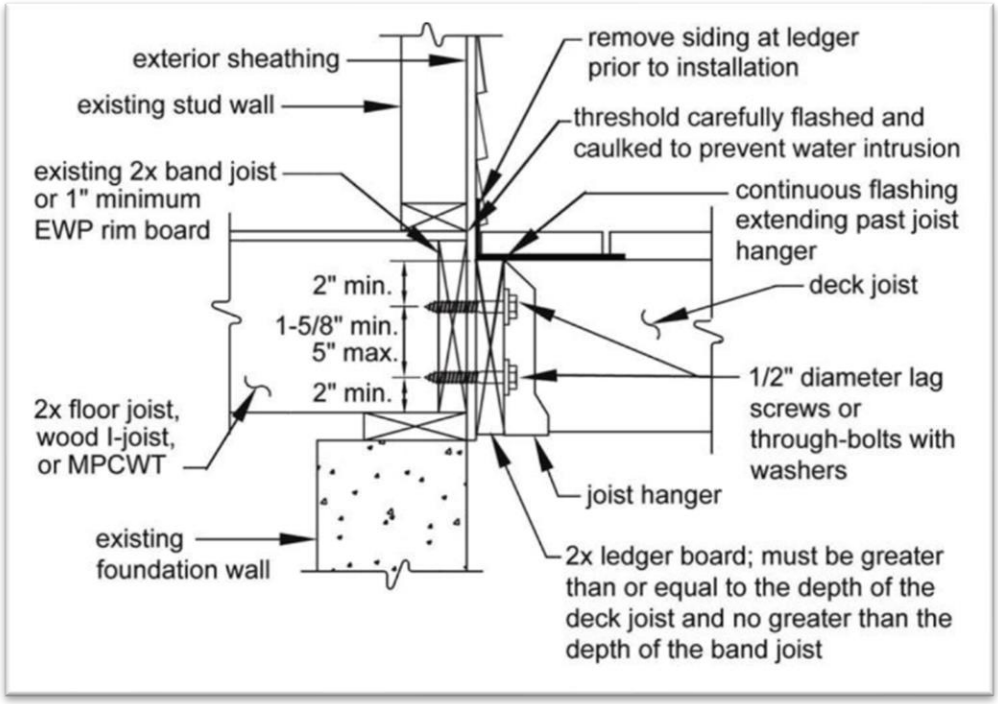
FRAMING PLAN

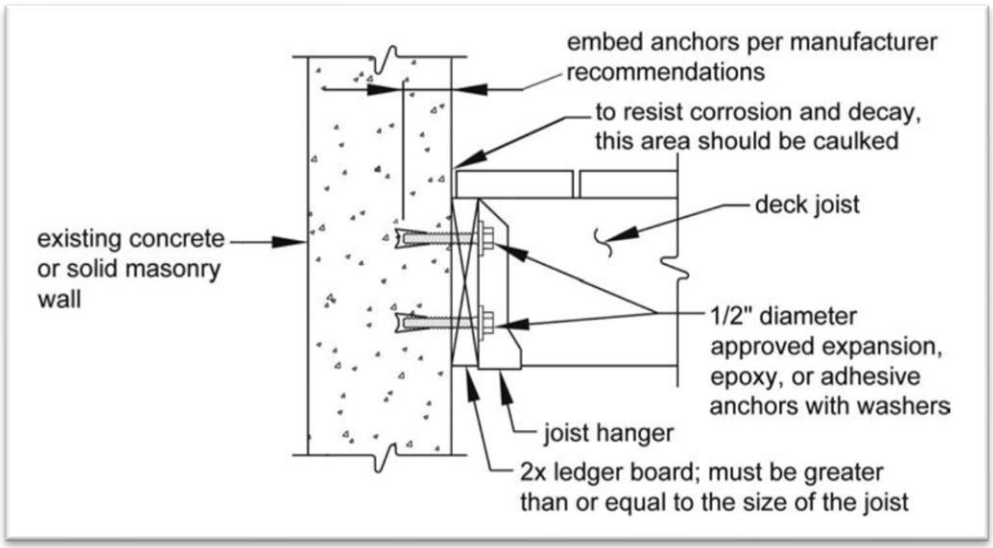


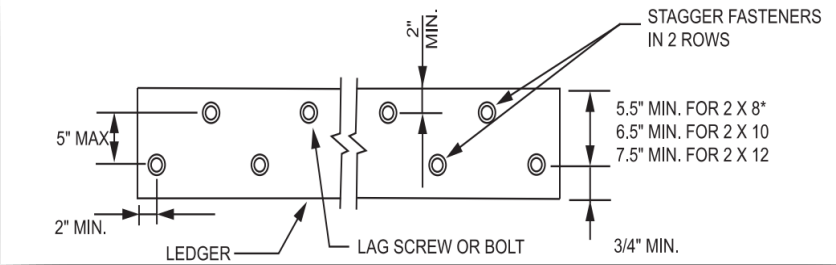


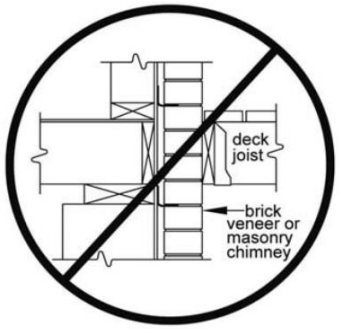
LEDGER BOARD

1. The ledger board attachment must be minimum ½" inch lag bolts or code-approved equivalent, hot dipped galvanized or stainless.
2. Fasteners must be staggered high/low and fastened according to '21 IRC Table R507.9.3(1) and not be supported on stone or masonry veneer without appropriate hardware
3. All ledger boards shall have appropriate flashing.









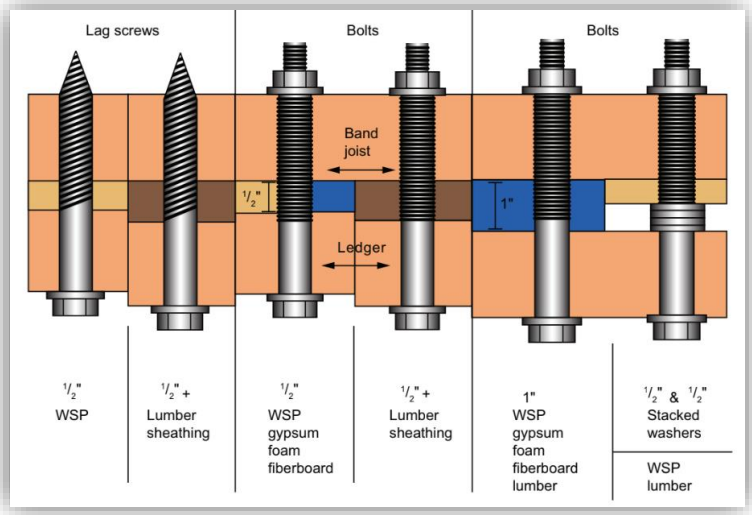


TABLE R507.9.1.3(1)
DECK LEDGER CONNECTION TO BAND JOIST

LOAD[c] (psf)	JOIST SPAN[a] (feet)	ON-CENTER SPACING OF FASTENERS[b] (inches)		
		1/2-inch diameter lag screw with 1/2-inch maximum sheathing[d, e]	1/2-inch diameter bolt with 1/2-inch maximum sheathing[e]	1/2-inch diameter bolt with 1-inch maximum sheathing[f]
40 live load	6	30	36	36
	8	23	36	36
	10	18	34	29
	12	15	29	24
	14	13	24	21
	16	11	21	18
	18	10	19	16

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

a. Interpolation permitted. Extrapolation is not permitted.
b. Ledgers shall be flashed in accordance with Section R703.4 to prevent water from contacting the house band joist.
c. Dead Load = 10 psf. Snow load shall not be assumed to act concurrently with live load.
d. The tip of the lag screw shall fully extend beyond the inside face of the band joist.
e. Sheathing shall be wood structural panel or solid sawn lumber.
f. 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 R507.9.1.3(2)
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]	3/4 inch	2 inches[b]	1 5/8 inches[b]
Band Joist[c]	3/4 inch	2 inches	2 inches[b]	1 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 R507.9.1.3(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 R507.9.1.3(1).

LATERAL LOAD CONNECTION

1. If the lateral load connection in figure R507.9.2(1) is used then no less than two (2) hold-down devices must be used within 24" inches of each end with a stress design capacity of not less than 1500 pounds.
2. If the lateral load connection is figure R507.9.2(2) is used then no less than four (4) hold-down devices must be used with a minimum of 750-pound design capacity, evenly distributed, with two (2) installed within 24" inches of each end.

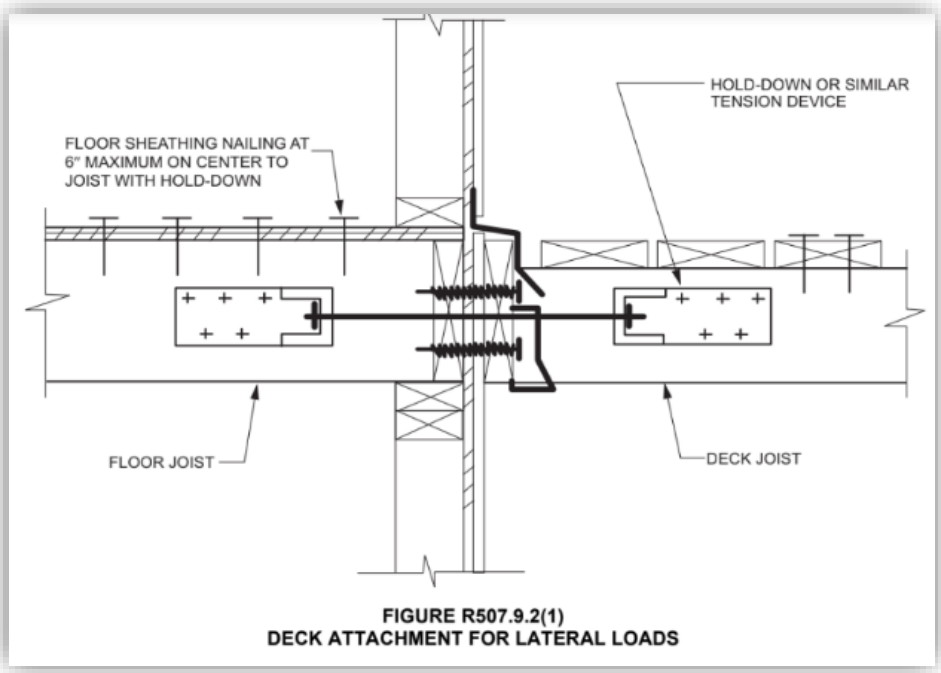


FIGURE R507.9.2(1)
DECK ATTACHMENT FOR LATERAL LOADS

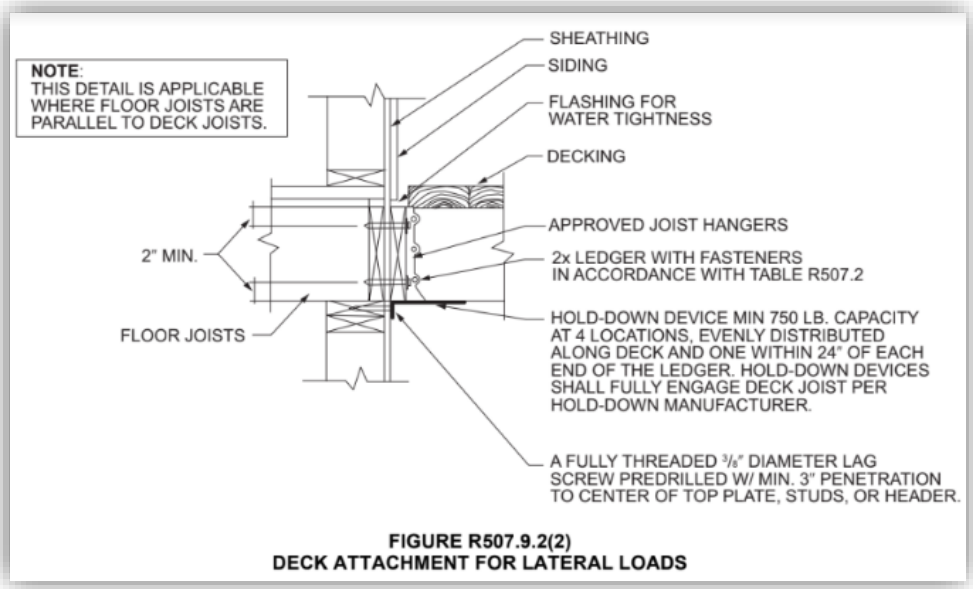
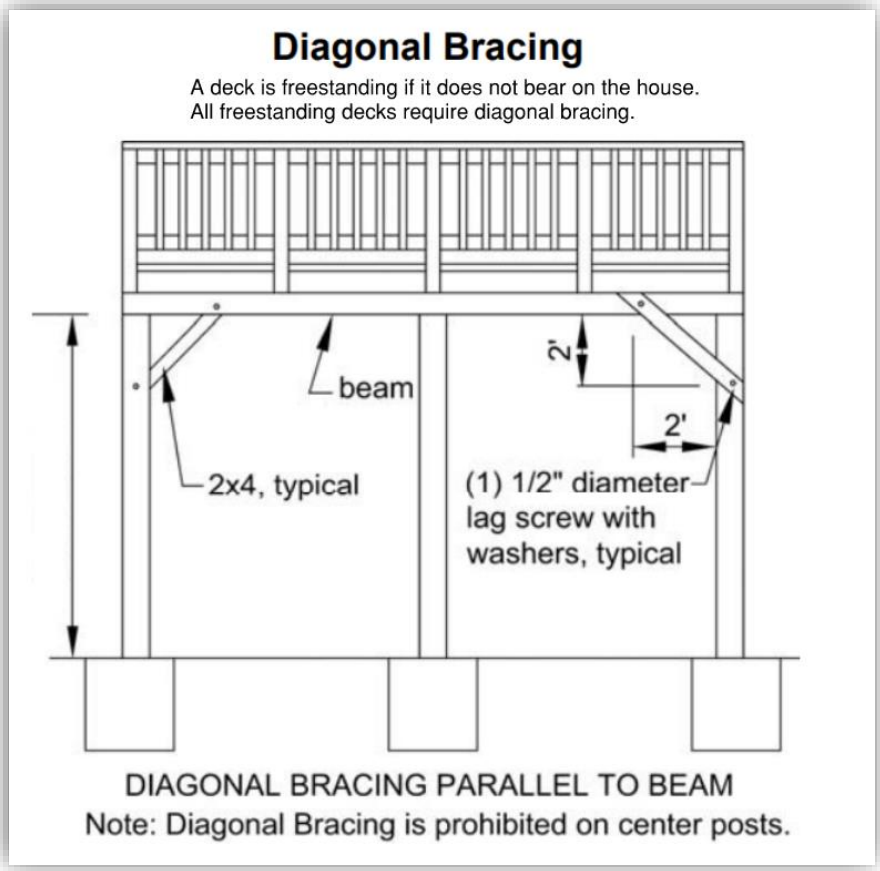


FIGURE R507.9.2(2)
DECK ATTACHMENT FOR LATERAL LOADS

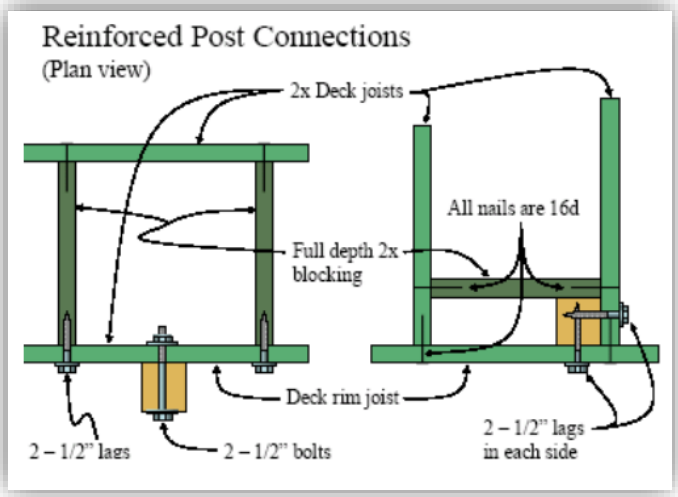
FREESTANDING DECKS

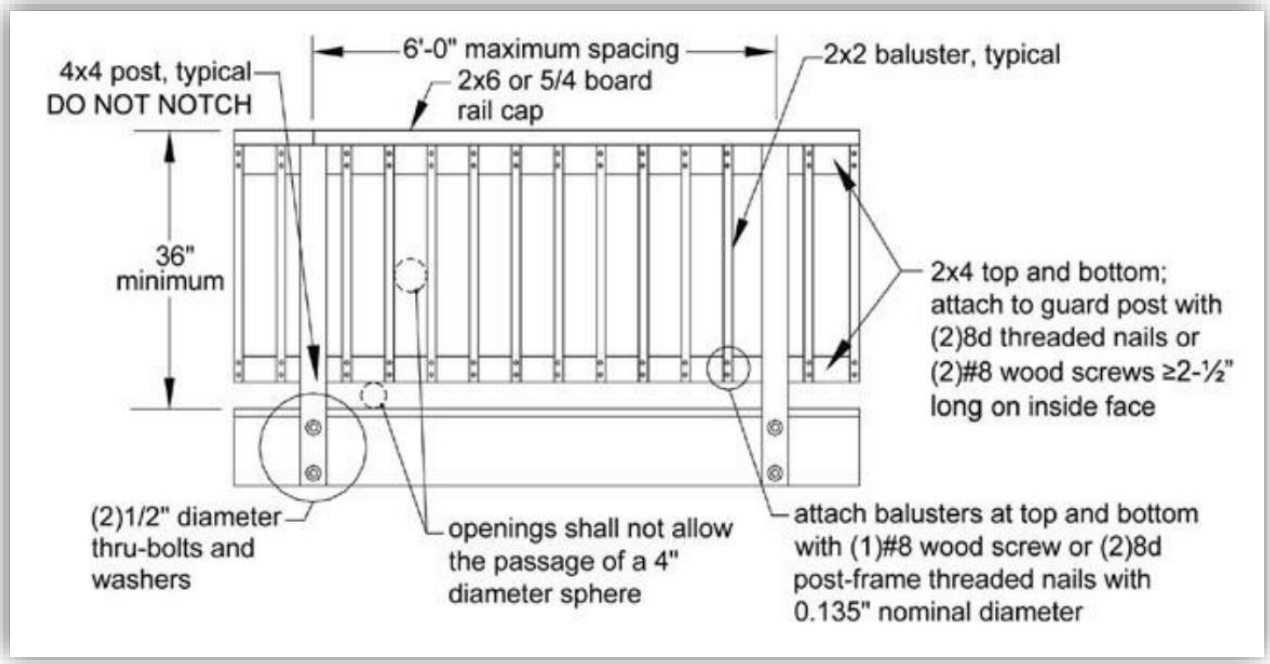
1. All freestanding decks must have cross bracing to resist racking.



GUARDS

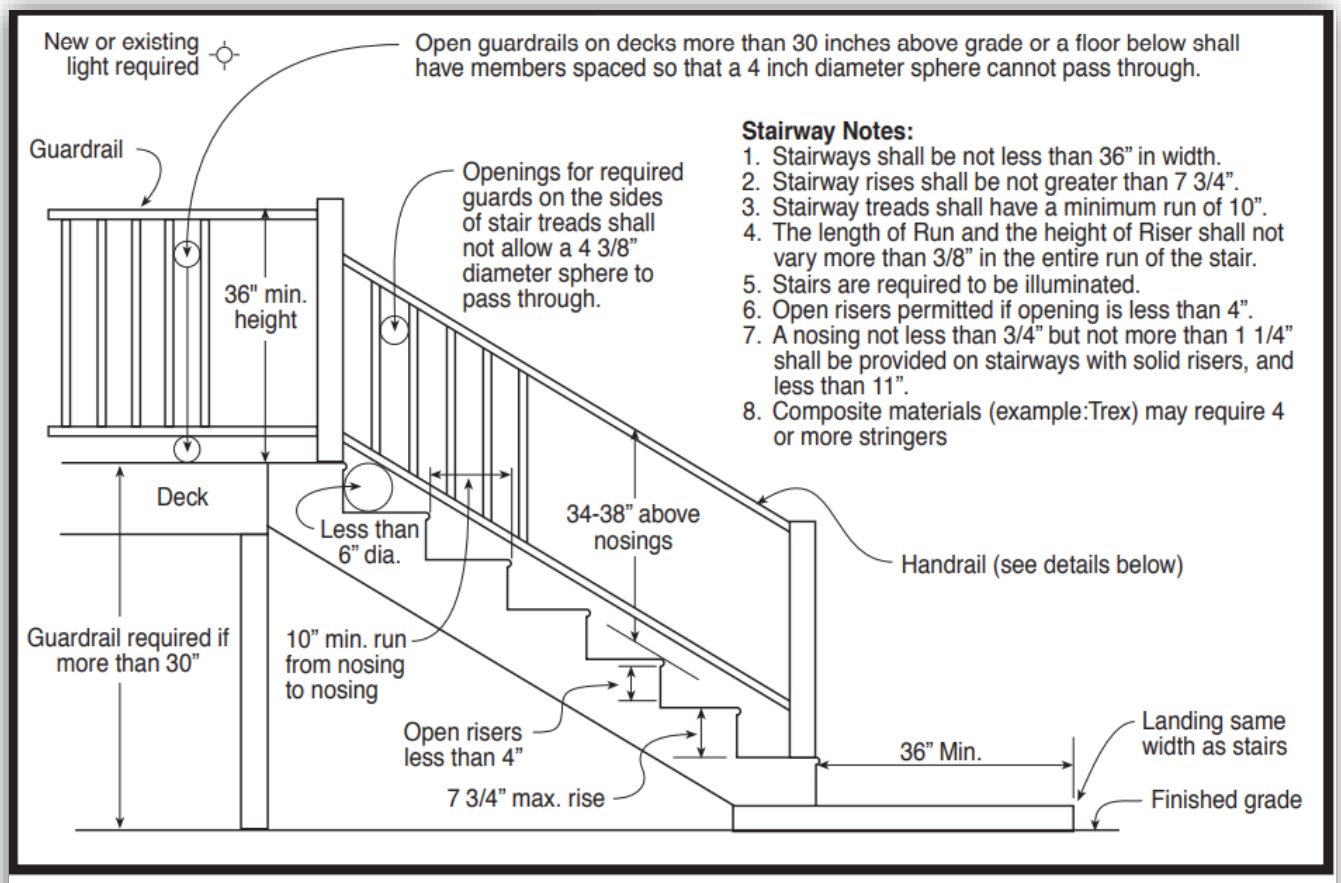
1. Guardrails must be a minimum of 36 inches high and are required when the walking surface is 30” inches or greater from grade.
2. Guardrail baluster spacing must not exceed 4 inches.
3. Guard post spacing must not exceed 6’ feet.
4. 4x4 guard posts may not be notched. Two (2) ½” through bolts with flat washers at each guard post / joist connection are required. Blocking is required to adjacent joists / beams to prevent rotation.





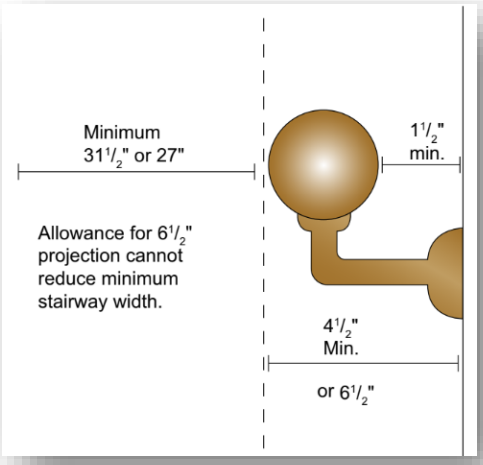
STAIRS / HANDRAIL / LANDING

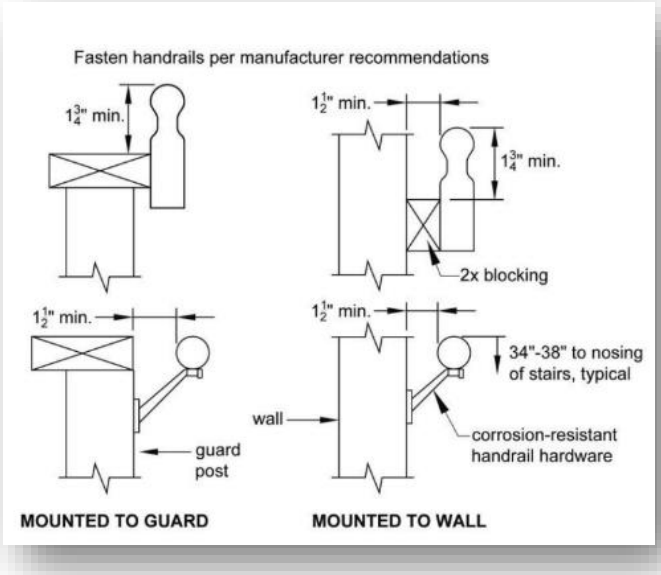
1. Stair risers must have openings of 4” inches maximum.
2. Stair riser height must not exceed 7 ¾” inches and the tread depth must be a minimum of 10” inches
3. A graspable handrail is required on one (1) side of 4 or more steps and must be 34”- 38” inches above the tread nosing and extend from the top to the bottom stair tread and must “return”.
4. Steps must have a concrete landing measured 36” from the stair tread, the width of the stairs.



Handrail Notes:

1. Handrails shall be continuous on at least one side of stairs with 4 or more risers.
2. Top of the handrails shall be placed not less than 34 inches nor more than 38 inches above stair nosings.
3. The handgrip portion of handrails shall be not less than 1-1/4 inches nor more than 2 1/4 inches in cross section for non circular handrails
4. Handrails shall be placed not less than 1-1/2 inches from any wall or other surface.
5. Handrails to be returned to wall, post or safety terminal (per 311.7.8.4 IRC)





HELPFUL LINKS

1. Online Permitting Portal: https://my.florissantmo.com
2. City of Florissant City Code: https://ecode360.com/FL3301
3. City of Florissant Website: https://www.florissantmo.com
4. 2021 International Residential Code: https://codes.iccsafe.org/content/IRC2021P1
5. 2021 IRC R311 – Means of Egress (stairs, landing, handrail)
6. 2021 IRC R507 – Exterior Decks
7. Construction Permit Base Pricing: https://ecode360.com/38145405

For further assistance call: (314) 839-7648, email: publicworks@florissantmo.com

Updated 6/19/24