

UNION COUNTY ENGINEER

DIVISION OF BUILDING REGULATIONS

Residential Deck and Covered Porch Requirements
2019 Residential Code of Ohio

Application Procedures

- *A nonrefundable application fee of \$35.00 is due at the time of application.
- *A nonrefundable \$105.00 plan review fee is due at the time of application.
 - *Due at time of submittal: \$141.40*
- Building and electrical (if applicable) permit fees are to be paid at the time the permit is issued. Fees are based on the square footage.
- **All fees (plan review and permit fees) will be assessed a 1% fee collected on behalf of the Ohio Board of Building Standards.*
- Permit is issued after plans are reviewed, approved and fees are paid.
- A separate deck permit is not required when the deck is constructed as part of a new home. The deck will be included in the permit for structure if it is shown on the approved plans and associated fees are paid.
- Submit a zoning permit from your township or city (required in most jurisdictions).
- Health department site plan approval, for properties with well and septic systems.
- Submit site plans showing the house and deck location.
- Submit two building plans of deck to be built.
 - Plans are to include deck layout, post location, concrete footing size and post to beam connection details.
 - *Also, to include the location of GFCI electrical outlet installed within the perimeter of any balcony, deck or porch as required by the 2017 National Electric Code.*

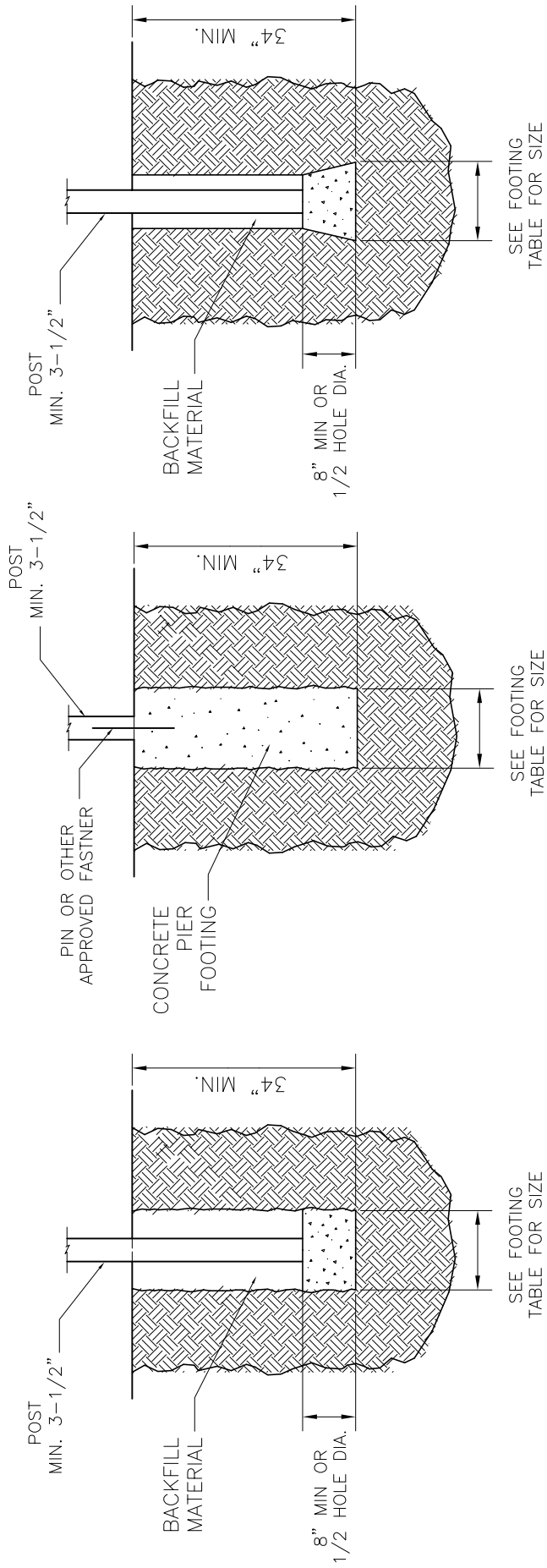
Inspection Procedures

- Call for post hole inspection after all holes have been dug and before any concrete has been placed, holes must be clear of any debris.
- Call for frame inspection if the bottom of the deck joists is less 36" above grade. If the joists are over 36" above grade the frame inspection can be done with the final inspection.
- Call for a final inspection when the deck is complete, all handrails/guardrails and steps/stair have been installed.

TO SCHEDULE AN INSPECTION

Schedule through your online portal at: <https://unioncountyoh.portal.opengov.com>

ACCEPTABLE FOOTING TYPES

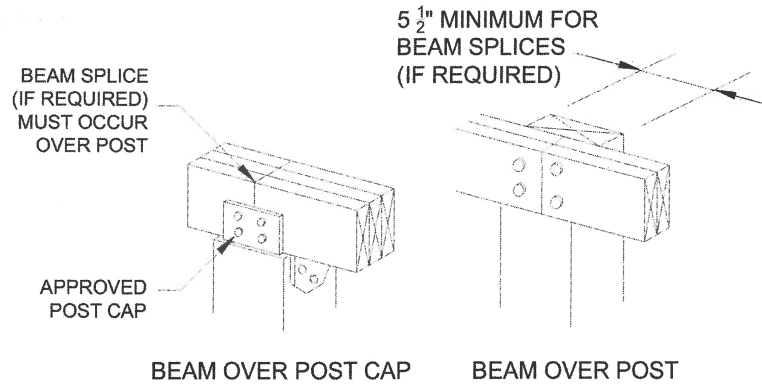


OPTION #1

OPTION #2

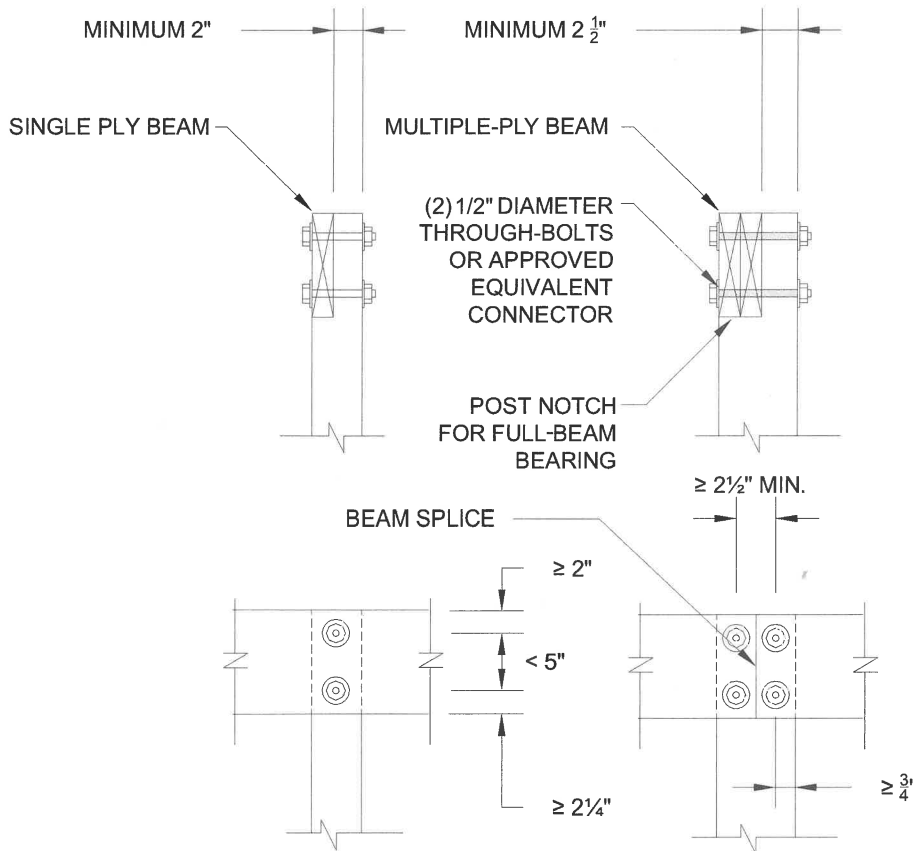
OPTION #3

Note: R403.1.4 exception #2 states: Decks not supported by a dwelling need not be provided with footings that extend below the frost line: minimum post hole depth 12".



For SI: 1 inch = 25.4 mm.

**FIGURE 507.5.1(1)
DECK BEAM TO DECK POST**



For SI: 1 inch = 25.4 mm.

**FIGURE 507.5.1(2)
NOTCHED POST-TO-BEAM CONNECTION**

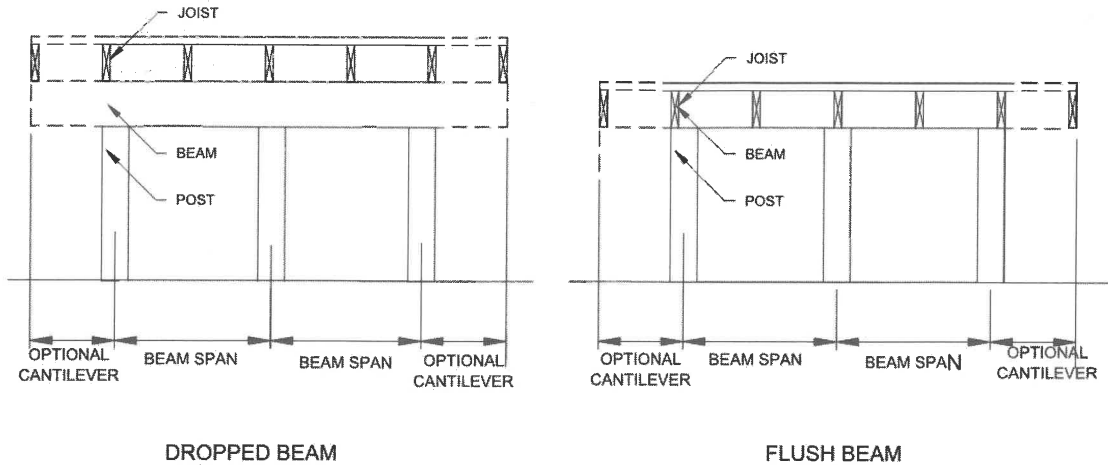


FIGURE 507.5
TYPICAL DECK JOIST SPANS

TABLE 507.5
DECK BEAM SPAN LENGTHS ^{a, b, g} (feet - inches)

SPECIES ^c	SIZE ^d	DECK JOIST SPAN LESS THAN OR EQUAL TO: (feet)						
		6	8	10	12	14	16	18
Southern pine	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	6-4	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	5-8	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	
Douglas fir-larch ^e , hem-fir ^e , spruce-pine-fir ^e , redwood, western cedars, ponderosa pine ^f , red pine ^f	3x6 or 2-2x6	5-5	4-8	4-2	3-10	3-6	3-1	2-9
	3x8 or 2-2x8	6-10	5-11	5-4	4-10	4-6	4-1	3-8
	3x10 or 2-2x10	8-4	7-3	6-6	5-11	5-6	5-1	4-8
	3x12 or 2-2x12	9-8	8-5	7-6	6-10	6-4	5-11	5-7
	4x6	6-5	5-6	4-11	4-6	4-2	3-11	3-8
	4x8	8-5	7-3	6-6	5-11	5-6	5-2	4-10
	4x10	9-11	8-7	7-8	7-0	6-6	6-1	5-8
	4x12	11-5	9-11	8-10	8-1	7-6	7-0	6-7
	3-2x6	7-4	6-8	6-0	5-6	5-1	4-9	4-6
	3-2x8	9-8	8-6	7-7	6-11	6-5	6-0	5-8
	3-2x10	12-0	10-5	9-4	8-6	7-10	7-4	6-11
3-2x12	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.
- g. Beam cantilevers are limited to the adjacent beam's span divided by 4.

TABLE 507.9.1.3(1)
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.

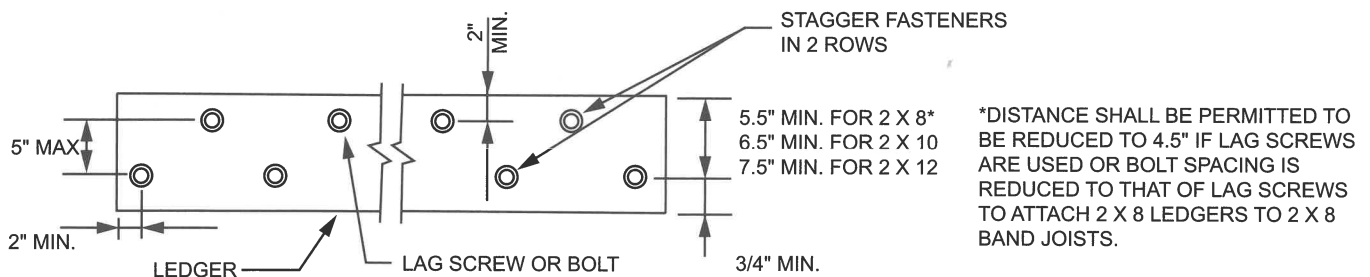
- a. Ledgers shall be flashed in accordance with Section 703.4 to prevent water from contacting the house band joist.
- b. Snow load shall not be assumed to act concurrently with live load.
- c. The tip of the lag screw shall fully extend beyond the inside face of the band joist.
- d. Sheathing shall 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 507.9.1.3(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 3/8 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 507.9.1.3(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 507.9.1.3(1).



For SI: 1 inch = 25.4 mm.

FIGURE 507.9.1.3(1)
PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS

FLOORS

**TABLE 507.6
DECK JOIST SPANS FOR COMMON LUMBER SPECIES (ft. - in.)**

SPECIES ^a	SIZE	ALLOWABLE JOIST SPAN ^b			MAXIMUM CANTILEVER ^{c, f}		
		SPACING OF DECK JOISTS (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	1-3	1-4	1-6
	2 × 8	13-1	11-10	9-8	2-1	2-3	2-5
	2 × 10	16-2	14-0	11-5	3-4	3-6	2-10
	2 × 12	18-0	16-6	13-6	4-6	4-2	3-4
Douglas fir-larch ^d , hem-fir ^d , spruce-pine-fir ^d ,	2 × 6	9-6	8-8	7-2	1-2	1-3	1-5
	2 × 8	12-6	11-1	9-1	1-11	2-1	2-3
	2 × 10	15-8	13-7	11-1	3-1	3-5	2-9
	2 × 12	18-0	15-9	12-10	4-6	3-11	3-3
Redwood, western cedars, ponderosa pine ^e , red pine ^e	2 × 6	8-10	8-0	7-0	1-0	1-1	1-2
	2 × 8	11-8	10-7	8-8	1-8	1-10	2-0
	2 × 10	14-11	13-0	10-7	2-8	2-10	2-8
	2 × 12	17-5	15-1	12-4	3-10	3-9	3-1

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. 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.

**TABLE 507.7
MAXIMUM JOIST SPACING FOR DECKING**

DECKING MATERIAL TYPE AND NOMINAL SIZE	MAXIMUM ON-CENTER JOIST SPACING	
	Decking perpendicular to joist	Decking diagonal to joist ^a
1 1/2 -inch-thick wood	16 inches	12 inches
2-inch-thick wood	24 inches	16 inches
Plastic composite	In accordance with Section 507.2	In accordance with Section 507.2

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

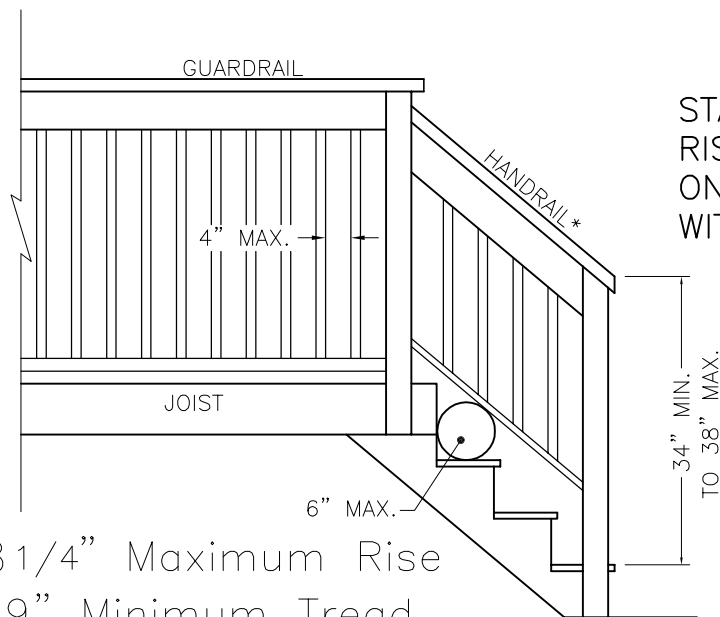
- a. Maximum angle of 45 degrees from perpendicular for wood deck boards

SUBMIT THIS SHEET WITH APPLICATION

Residential Deck

GUARDRAIL/HANDRAIL/STAIRS DETAIL

CIRCLE EACH DETAIL THAT APPLIES



STAIRS WITH 4 OR MORE
RISERS REQUIRE HANDRAIL
ON AT LEAST ONE SIDE,
WITH ADEQUATE GRASPABILITY.

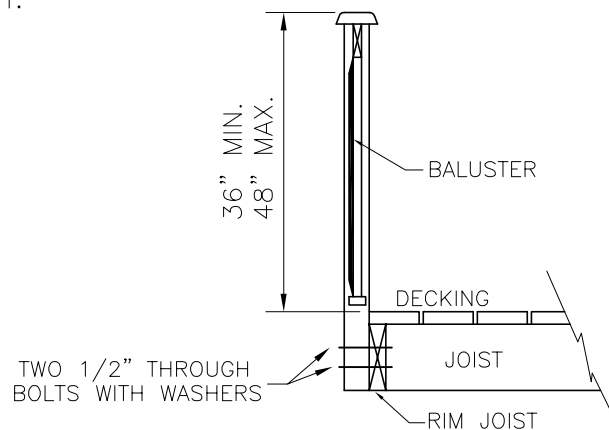
*SEE HANDRAIL DETAIL SHEET

8 1/4" Maximum Rise

9" Minimum Tread

No more than 3/8" variation
between all steps in run.

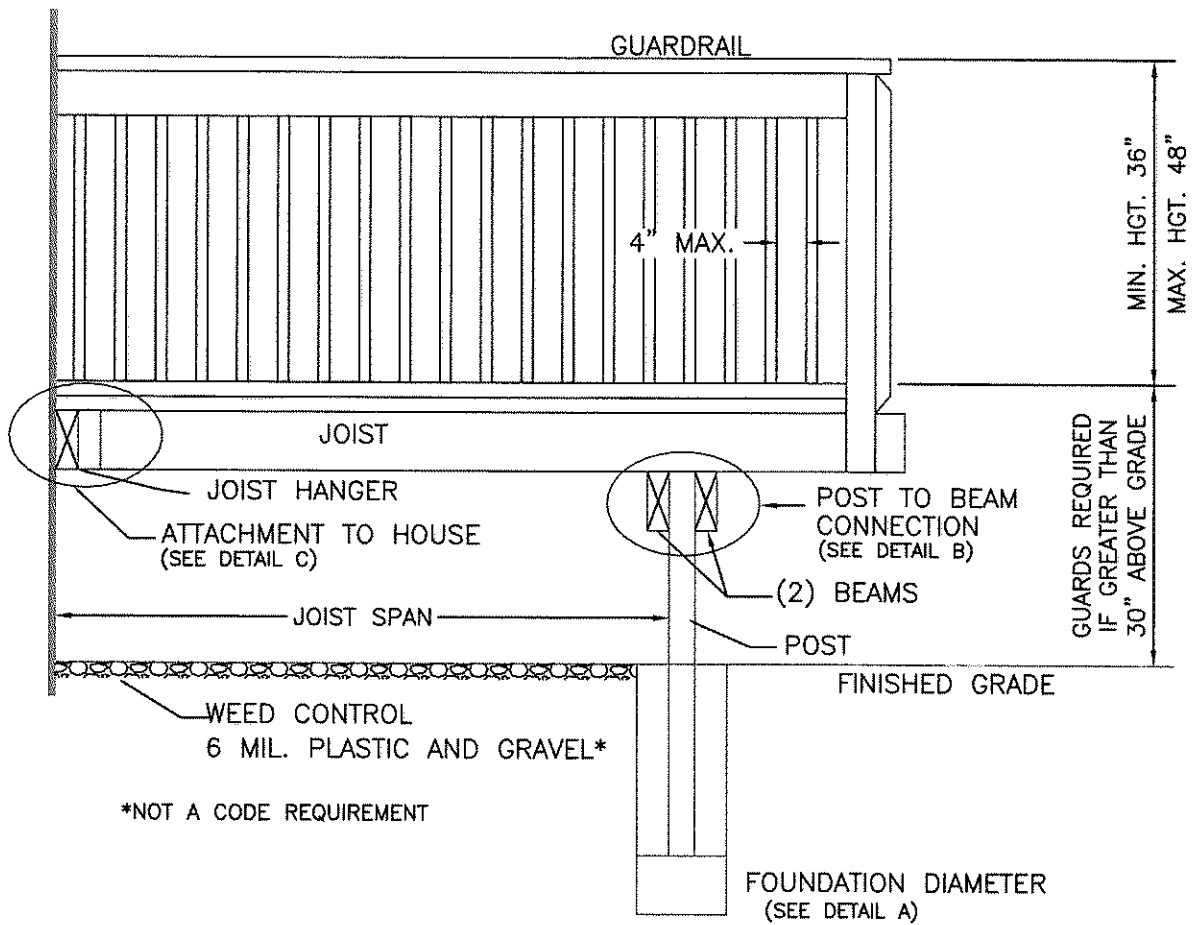
DETAIL E



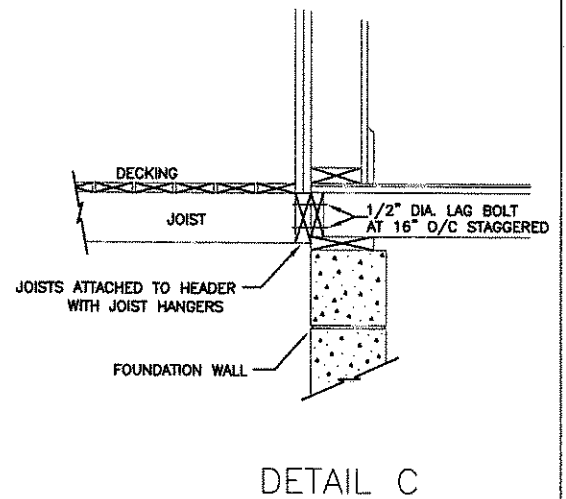
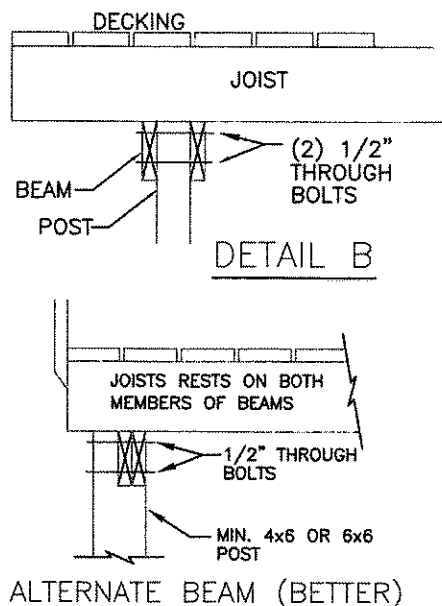
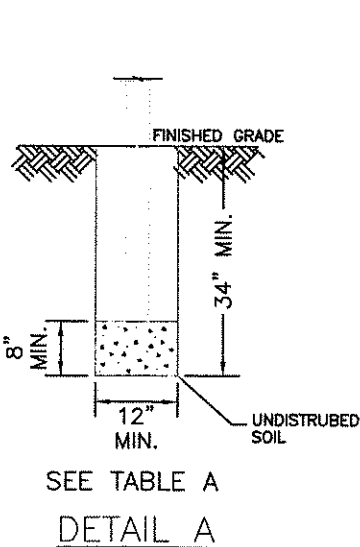
DETAIL D

SUBMIT THIS SHEET WITH APPLICATION

Residential Deck



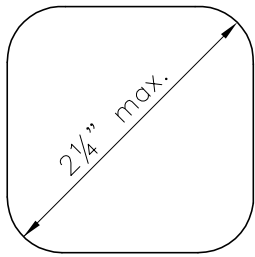
CIRCLE EACH DETAIL THAT APPLIES



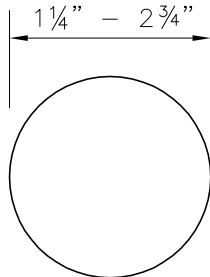
Residential Deck

HANDRAIL DETAIL SHEET

OPTION 1



NONCIRCULAR
Perimeter: 4"–6 1/4"

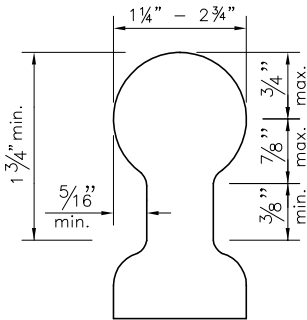


CIRCULAR
Perimeter: 4"–6 1/4"

OPTION 2



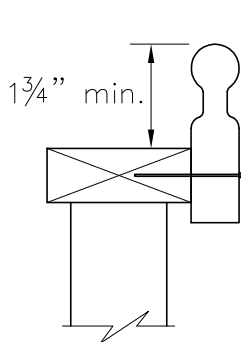
2x4 or 2x6 "grooved" for ease of gripping.



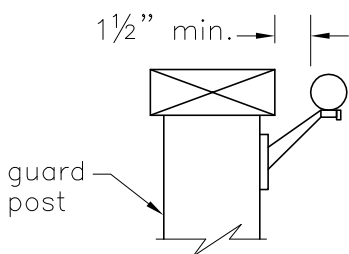
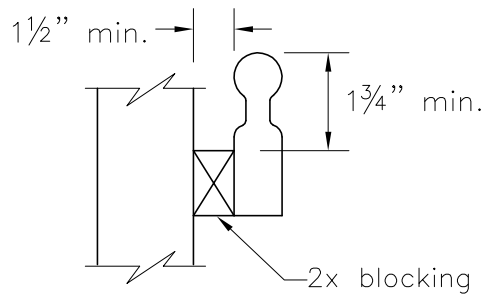
RECESSED
Perimeter: >6 1/4"

Note: Handrails shall run continuously from a point directly over the lowest riser to a point directly over the highest riser and shall return to the guard at each end. Handrails may be interrupted by a guard posts only at a turn in the stair. A 2x4 or 2x6 can only be used as a handrail if it is grooved to provide a graspable finger recess area.

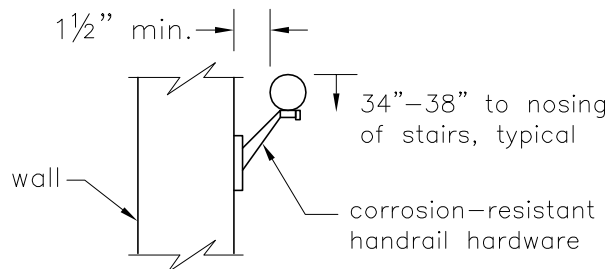
HANDRAIL GRASPABILITY TYPES/GEOMETRY



8d nails @
16" o.c.,
typical



MOUNTED TO GUARD

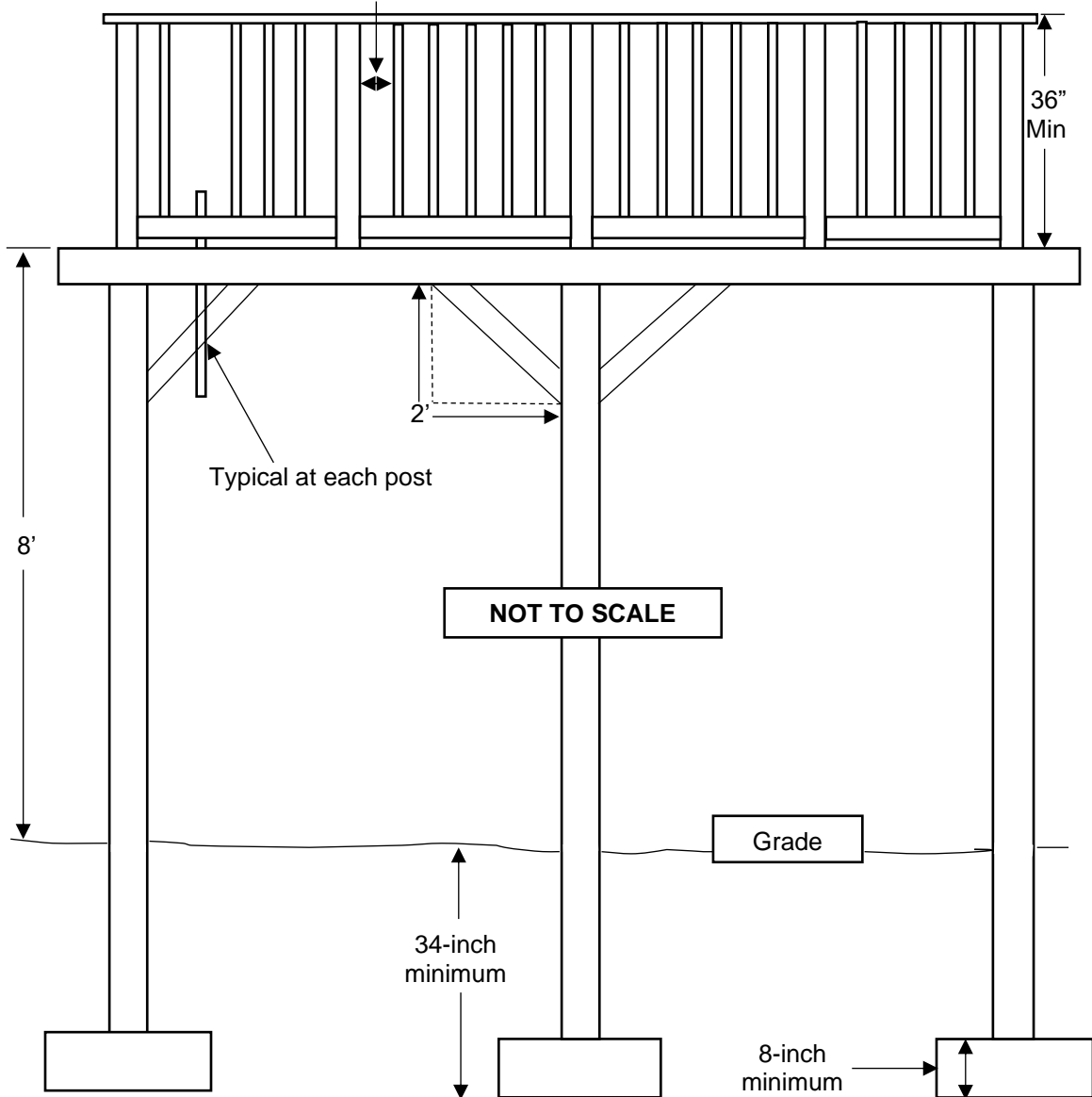


MOUNTED TO WALL

HANDRAIL REQUIREMENTS

DIAGONAL BRACING REQUIREMENTS

Openings shall not allow passage of a sphere 4-inches in diameter



**DECKS GREATER THAN 4 FEET ABOVE GRADE
SHALL BE PROVIDED WITH DIAGONAL BRACING**

Provide blocking when the floor joists do not align with the posts