OVERLAND PARK
KANSAS
ABOVE AND BEYOND. BY DESIGN.

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Residential Decks

Note: The information provided includes general requirements that should be considered as part of a project to construct, repair or replace a deck. This should not be considered as a complete list of code requirements. Complete information is available in the codes and ordinances adopted by the City. Code books can be obtained at City Hall or are available for review at the local public library. Some materials and construction methods may require the use of an architect, engineer or other design professional.

PLANS AND PERMITS

A building permit is required to construct or replace a deck. A site plan drawn to scale showing the location of the deck and setbacks from property lines and a construction plan showing the footings, columns, beams and joists sizes, spacing and connections is required to be submitted for review and approval with the permit application.

EXCEPTIONS TO PERMIT REQUIREMENT

Detached decks not exceeding 200 square feet in area, that are not more than 30 inches above grade measured 36 inches out from the perimeter of the deck at any point. The deck can not serve the required exit (front door). The deck can not be physically attached to the dwelling.

Repair of the deck walking surface; guards; or hand rails.

INSPECTIONS

Footings or pier holes are not required to be inspected for open decks. Footing inspections are required for covered decks. A separate framing (rough-in) inspection is required if the under-floor framing and connections cannot be easily inspected during the final inspection. A final inspection is required after all work is complete.

- Scheduling an inspection - Inspections can be requested by contacting the Building Safety Division at (913) 895-6220, option #2. Inspections are scheduled for the next day unless a later date is requested.

SETBACKS

The following setbacks only apply to R-1, RP-1, R-2 and RP-2 Zoning Districts:

- **Front Yard:** The setback for a front yard is 30 feet **or** plated building line from the deck to the front property line. Open decks and porches may project 6 feet into the **front** or **rear** yard setback, provided the area of the encroachment does not exceed 60 square feet.
- **Rear Yard:** The setback for a rear yard is 25 feet from the deck to the rear property line. Open decks and porches may project 6 feet into the **front** or **rear** yard setback, provided the area of the encroachment does not exceed 60 square feet.
- **Side Yard:** The setback for a side yard is a minimum of 7 feet, and the total width of both side yards must not be less than 20 percent of the width of the lot; 20 feet must be provided on the street side of a corner lot. Generally, decks shall not extend beyond platted building setback lines or into a platted landscape easement.

SETBACK EXCEPTIONS:

- Decks with a maximum height of less than 30 inches may be as close as 3 feet to the rear property line, provided a platted building setback line, landscape or tree preservation easement is not encroached upon.
- Open decks and porches may project 6 feet into the **front** or **rear** yard setback, provided the area of the encroachment does not exceed 60 square feet.
- Detached decks are permitted to be 3 feet from the rear property line, provided they are at least 20 feet from any street right-of-way and located less than 25 feet from the rear property line. A deck that is a distance of 5 feet or more is considered to be detached.
- Patios or similar structures that are at or below grade may be located in any side or rear yard area provided they are at least 3 feet from any property line.

Note: Some homes associations may have requirements other than those established by the City. Please contact your homes association if you have questions regarding its requirements.

BUILDING CODES

- Materials - The deck must be constructed of either a naturally decay-resistant lumber or a pressure-treated lumber (ACQ) and be designed to support a live load of 40 psf (see Span Table). All composite materials (not 100% wood) shall be labeled and listed to comply with ASTM D 7032.
- Electrical - All overhead power lines must be located at least 10 feet above the deck floor or be at least 3 feet horizontally away from the floor's surface. An exterior light for illumination of any steps is required.
- Where a deck is accessible from the inside of the dwelling an exterior GFCI electrical out let is required. The outlet shall be with in the perimeter of the deck and no more than 6 feet 6 inches above the deck walking surface. Where the deck is open a bubble type cover which will allow an electrical cord to be in use when the cover is closed is required. Where the deck is covered and creates only a damp condition an outlet cover that can be closed with out an electrical cord to be in use is permitted.
- Footings/Soil bearing - All decks must sit on footing or piers that are adequately designed to support the imposed loads (maximum assumed bearing capacity is 1500 pounds per square foot). Footings or piers shall extend 36 inches below the finished ground level.
- Guardrails - Porches, balconies or raised floor surfaces located more than 30 inches above the floor or grade with in 36 inches from the edge or perimeter of the deck below shall have guardrails not less than 36 inches in height. Open sides of stairs with a total rise of more than 30 inches above the floor or grade below shall have guardrails not less than 34 inches in height measured vertically from the nosing of the treads. Required guardrails on open sides of stairways, raised floor areas, balconies and porches shall have intermediate rails or ornamental closures that do not allow passage of an sphere 4 inches or more in diameter. The triangular openings formed by the riser, tread and bottom rail of a guard at the open side of a stairway shall not allow passage of an sphere 6 inches or more in diameter.
- Handrails – A graspable hand rail is required on at least one side for stairs with 4 or more risers regardless of the height of the stairs. Handrails shall be mounted a minimum 34 inches and a maximum 38 inches above the nosing of the treads and be continuous for the run of the stair and has no less than 1 ½" clearance from the wall or any obstruction. The handrail ends shall be returned or terminate in the newel post or safety terminal.
- Handrails with a circular cross-section shall have a minimum 1 ¼ inch and maximum 2 inch diameter. If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches and not greater than 6 ¼ inches with a maximum cross section dimension of 2 ¼ inches.

- Handrails (not circular) with a perimeter greater than 6 ¼ inches and a minimum 1 ¾ inches in height shall have a graspable finger groove on both sides of the profile starting within ¾" of the top of the handrail reaching a minimum depth of 5/16 inch with in a height of 7/8" for a minimum of 3/8" height for the full 5/16 inch groove depth.
- Handrails of composite material (not 100% wood) shall be labeled and listed to comply with ASTM D 7032.
- Handrails shall have a minimum radius on any edge of ¼" on the graspable portions of its surface.
- Stairways - If steps are provided the maximum rise of each step is 7 ¾ inches and the minimum depth of each tread is 10 inches. The width of the stairs must be at least 36 inches. A maximum 3/8-inch variation is permitted between the greatest and smallest rise and the greatest and smallest run of each flight of stairs. If four or more risers are provided on the stairs, a handrail/guardrail must be provided on both sides with a height of 34 to 38 inches above the nosing of the treads.
- Framing - Maximum span for decking shall comply with the decking span chart.
- Ledger - Where the ledger is attached directly to the house, care is required to provide an attachment method that will not cause deterioration of the house siding. Over standard panel siding we recommend adding the ledger directly over the batten board or for walls without batten boards; 1x furring strips be added at each lag screws or bolts location. This will minimize the potential for water accumulation. Where 1x-furring strips are added, they should be full depth of the ledger and beveled directing water away from the house (edges should be caulked prior to attachment). Where the house has stucco or lap siding the siding should be removed and the ledger attached directly to the rim joist. Flashing should be added to extend a minimum 1-1/2 inches under the siding and over the ledger. To eliminate the ledger, a beam line can be added 3 feet from the house and the deck cantilevered back towards the house. See detail "A". The bottom of piers cannot bear in the foundation back fill.

Note: See following diagrams.

SPAN TABLES

Tables are based on the *2012 International Residential Code (IRC)* for the species and grade of lumber shown. For other situations consult the tables in the code.

Table 1

Floor Joists - 40# LL & 10 #DL Decks			
Member	*Species/grade*	*Spacing*	*Max. span*
2x6	*SP#2 acq*	*12" o.c.*	*10'9"*
2x6	*SP#2 acq*	*16" o.c.*	*9'9"*
2x6	*SP#2 acq*	*24" o.c.*	*8'6"*
2x8	*SP#2 acq*	*12" o.c.*	*14'2"*
2x8	*SP#2 acq*	*16" o.c.*	*12'10"*
2x8	*SP#2 acq*	*24" o.c.*	*11'*
2x10	*SP#2 acq*	*12" o.c.*	*18'*
2x10	*SP#2 acq*	*16" o.c.*	*16'1"*
2x10	*SP#2 acq*	*24" o.c.*	*13'1"*
2x12	*SP#2 acq*	*12" o.c.*	*21'9"*
2x12	*SP#2 acq*	*16" o.c.*	*18'10"*
2x12	*SP#2 acq*	*24" o.c.*	*15'5"*
2x6	*Cedar#2*	*12" o.c.*	*9'2"*
2x6	*Cedar#2*	*16" o.c.*	*8'4"*
2x6	*Cedar#2*	*24" o.c.*	*7'3"*
2x8	*Cedar#2*	*12" o.c.*	*12'1"*
2x8	*Cedar#2*	*16" o.c.*	*11'*
2x8	*Cedar#2*	*24" o.c.*	*9'2"*
2x10	*Cedar#2*	*12" o.c.*	*15'5"*
2x10	*Cedar#2*	*16" o.c.*	*13'9"*
2x10	*Cedar#2*	*24" o.c.*	*11'3"*
2x12	*Cedar#2*	*12" o.c.*	*18'5"*
2x12	*Cedar#2*	*16" o.c.*	*15'11"*
2x12	*Cedar#2*	*24" o.c.*	*13'*
2x12	*Cedar#2*	*24" o.c.*	*13'*

Use the proper fasteners for joist hangers or other metal clips (no screws, roofing nails, non-galvanized fasteners). ACQ lumber requires the use of galvanized, stainless steel, or special-coated fasteners.

Table 2

Decking - 300# Concentrated Load		
Member	Species/grade	Max. span
2x6	SP #2 ACQ	3'-0"
2x6	Cedar #2	2'-6"
5/4x6	SP #2 ACQ	2'-3"
5/4x6	trex	1'-4"

Table 3
Deck Beam - Span Chart

Maximum Beam Span – Residential Decks (40 psf live load - /10 psf dead load)								
Southern Pine ACQ #2	Tributary Load Width (Tributary width is the portion of the joist span supported by the beam)[1]							
	Tributary width	**Tributary width**	**Tributary width**	**Tributary width**	**Tributary width**	**Tributary width**	**Tributary width**	**Tributary width**
Beam size	**4'**	**5'**	**6'**	**7'**	**8'**	**9'**	**10'**	**11'**
2x8	6' 5"	5' 2"	4' 3"	3' 8"	3' 2"	2' 10"	2' 7"	2' 4"
2-2x8	10' 1"	9' 1"	8' 3"	7' 4"	6' 5"	5' 8"	5' 2"	4' 8"
3-2x8	12'10"	11' 10"	10'10"	10'	9' 5"	8' 6"	7' 8"	7'
2x10	8' 2"	6' 6"	5' 5"	4' 8"	4'1"	3' 8"	3' 3"	3'
2-2x10	12' 0"	10' 9"	9' 10"	9' 2"	8' 2"	7' 3"	6' 6"	5'11"
3-2x10	15' 8"	14' 1"	12' 10"	11' 11"	11' 2"	10' 7"	9' 9"	8' 11"
2x12	9'11"	7' 11"	6' 7"	5' 8"	5'	4' 5"	4'	3' 7"
2-2x12	14' 0"	12' 7"	11' 6"	10' 8"	9' 11"	8'10"	7'11"	7' 3"

1. For simple spans the tributary width is ½ the joist length – for a center beam the tributary width is the sum of ½ the span from each side of the beam.

Table 4

Maximum Beam Spans - Residential Decks (40 psf live load - 10 psf dead load)								
Western Cedar	Tributary Load Width Tributary width is the portion of the joist span supported by the beam (for simple spans the tributary width is 1/2 the joist length - for a center beam the tributary width is the sum of 1/2 the span from each side)							
	Tributary width	**Tributary width**	**Tributary width**	**Tributary width**	**Tributary width**	**Tributary width**	**Tributary width**	**Tributary width**
Beam size	**4'**	**5'**	**6'**	**7'**	**8'**	**9'**	**10'**	**11'**
4x10	11'7"	10'5"	9'6"	8'10"	7' 11"	7'	6'4"	5'9"
6x10	12'8"	11'5"	10'6"	9'9"	9'1"	8'7"	8'2"	7'10"
6x12	15'3"	13'9"	12'7"	11'9"	11'0"	10'5"	9'10'	9'5"

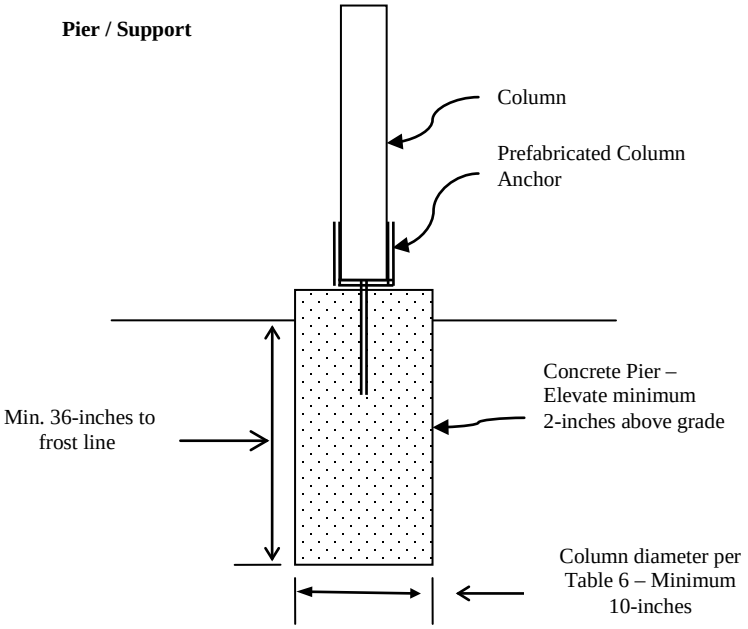
Table 5

On-center spacing of lag screws (inches)					
Lag size	**Joist span (feet)**				
½" Dia. Lag	**0-5 ft**	**6-7 ft**	**7-10 ft**	**11-14 ft**	**15-18 ft**
	32" o.c.	24" o.c.	16" o.c.	12" o.c.	8" o.c.
Equivalent spacing joists @ 16" o.c.	Every other joist space	Two every third joist spaces	Each joist space	Each joist space with two every other space	Two in each joist space
3/8" Dia. Lag	**0-4 ft**	**5-6 ft**	**7-8 ft**	**9-12 ft**	**13-18 ft**
Equivalent spacing joists @ 16" o.c.	24" o.c.	16" o.c.	12" o.c.	8" o.c.	6" o.c.
	Every other joist space	Each joist space	Each joist space with two every other space	Two in each joist space	Two each joist space with three every other space

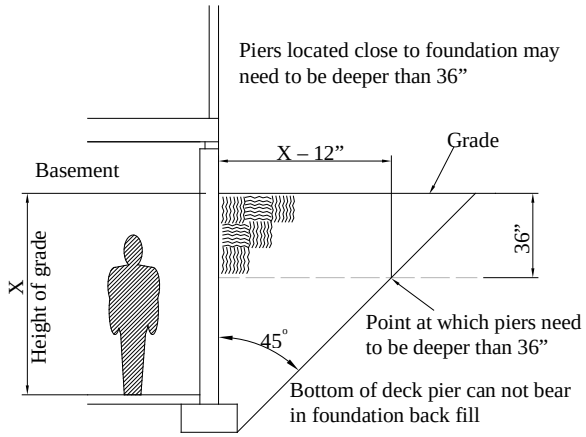
Table 6
Pier sizes required for supporting decks

Pier diameter	Maximum load (pounds)	Square footage of deck that can be supported (tributary area)
8"	525	11
10"	825	17
12"	1200	24
14"	1600	32
16"	2100	42
18"	2650	53
20"	3300	66
22"	4000	80
24"	4700	94

Pier / Support



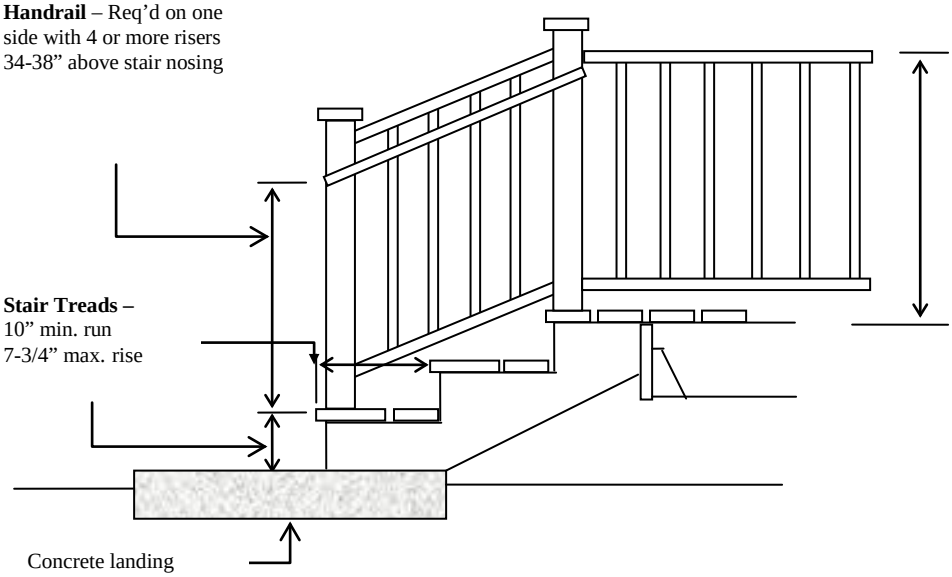
Pier Location Diagram



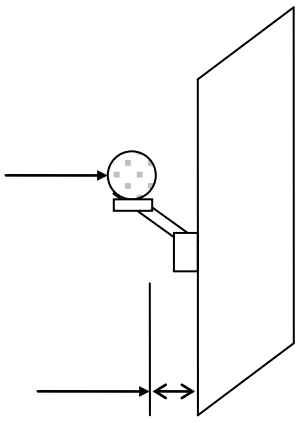
Handrail – Req’d on one side with 4 or more risers 34-38” above stair nosing

Guardrails – Min. 36” height where deck floor exceeds 30” above grade. Max. 4” space between each guardrail.

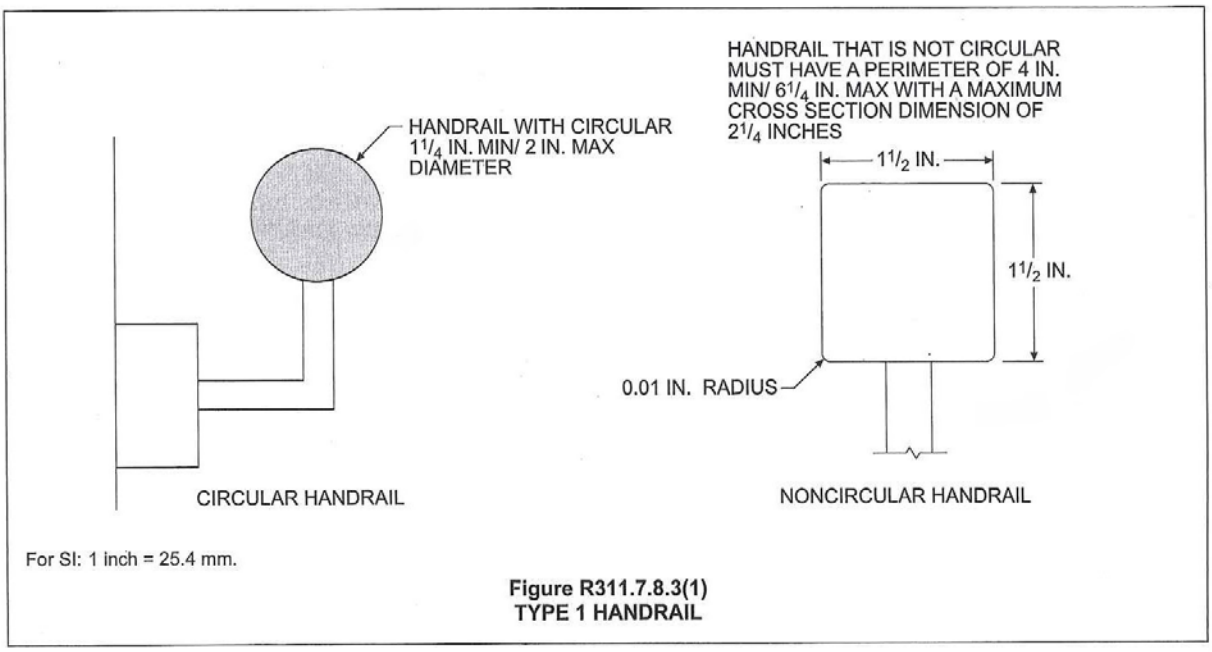
Stair Treads –
10” min. run
7-3/4” max. rise



Handrail Geometry –
Handrails shall have circular cross-section with diameter between
1-1/4 and 2-~~5/8~~ inches.

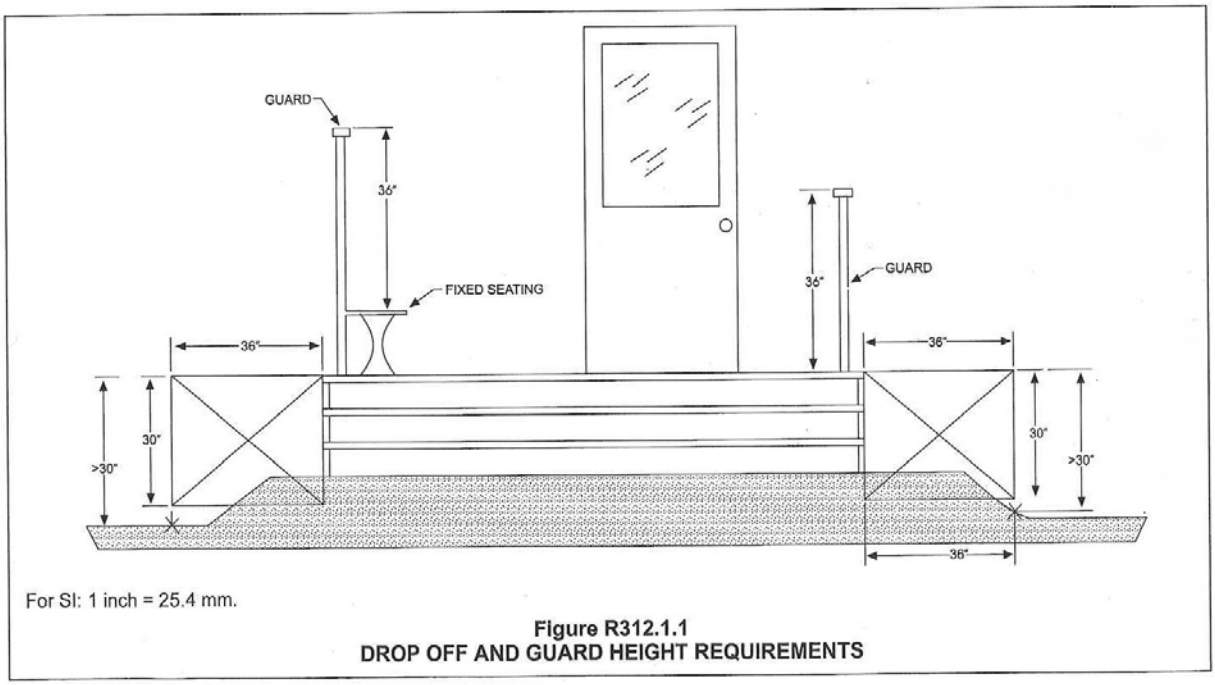


Minimum 1 1/2” clearance between handrail and adjacent framing.



For SI: 1 inch = 25.4 mm.

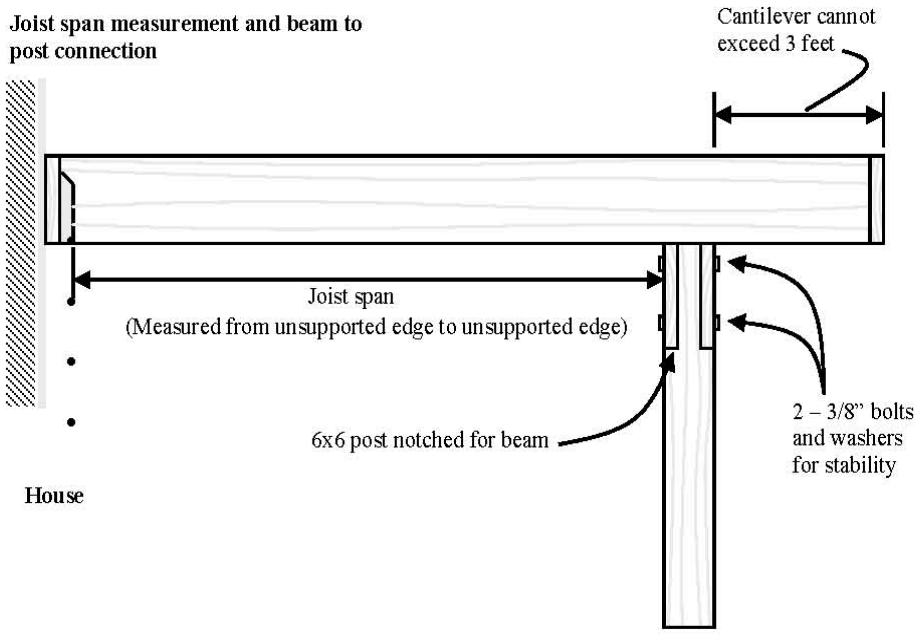
Figure R311.7.8.3(1)
TYPE 1 HANDRAIL



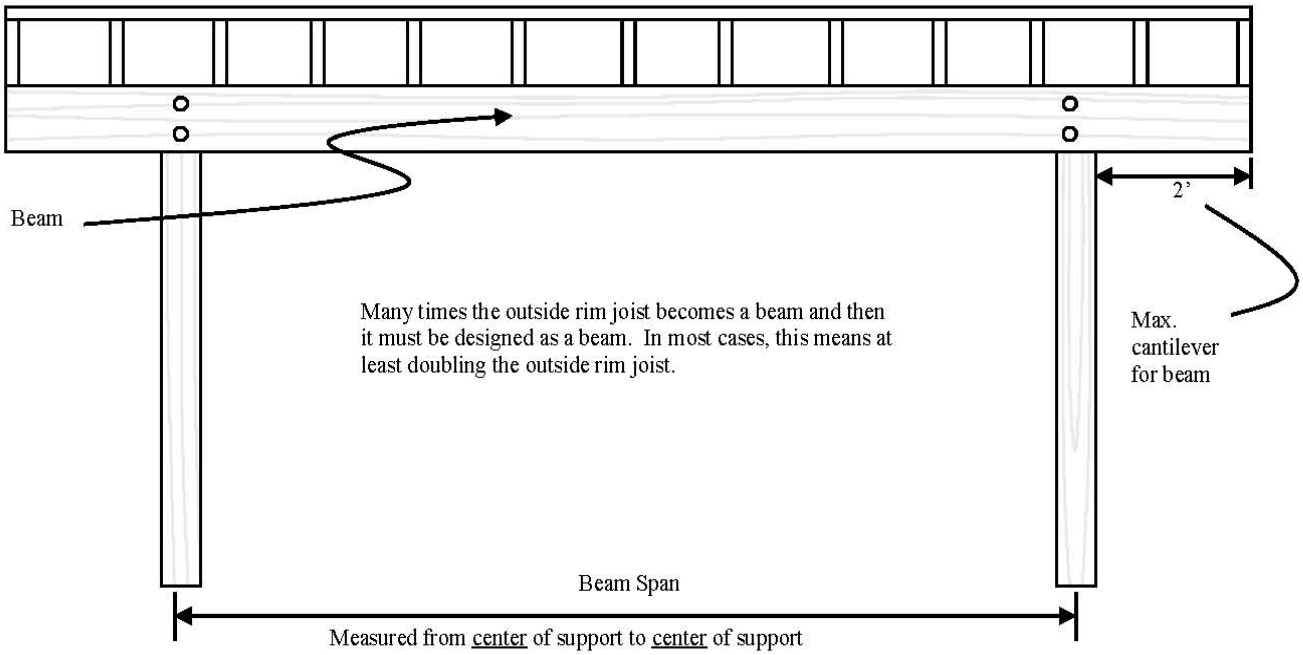
For SI: 1 inch = 25.4 mm.

Figure R312.1.1
DROP OFF AND GUARD HEIGHT REQUIREMENTS

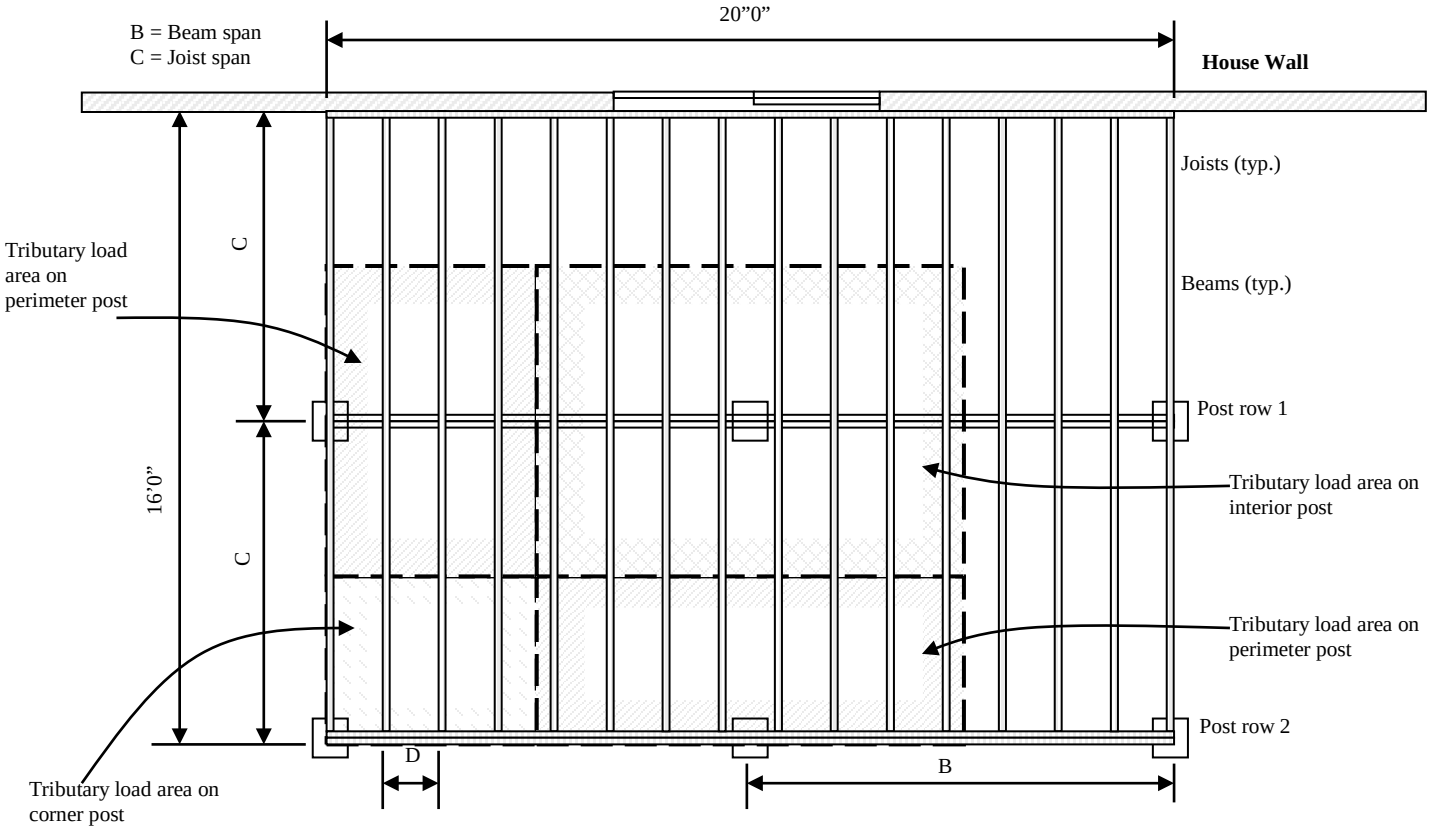
Joist span measurement and beam to post connection



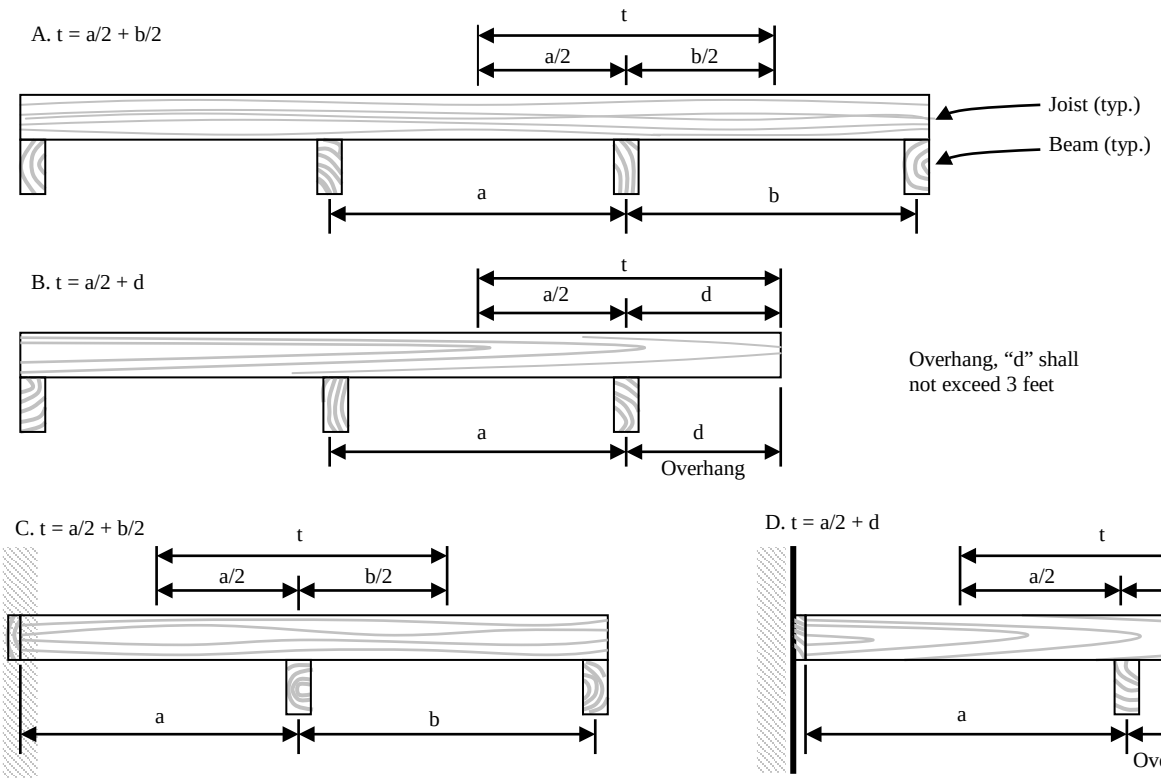
Measuring a beam span



Tributary load area for posts



Tributary load width (t) for deck beams



House