CODE CHANGE PROPOSAL FORM
(See instructions on page 2)

Code: IRC–12/13
Table R403.1(1)

Proponent: Charles S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee, James R. Baty II, Technical Director of Concrete Foundations Association, and Matthew R. Senecal, Senior Engineer, American Concrete Institute

1. Revise as follows:

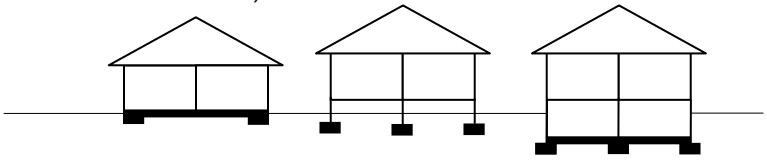
R403.1.1 Minimum size. The minimum ~~sizes~~ width, W, and thickness, T, for concrete ~~and masonry~~ footings shall be ~~as set forth~~ in accordance with Table R403.1(1) throuth R403.1(3) and Figure R403.1(1). The footing width~~, W,~~ shall be based on the load-bearing value of the soil in accordance with Table R401.4.1. ~~Spread footings shall be at least 6 inches (152 mm) in thickness, T.~~ Footing projections, P, shall be at least 2 inches (51 mm) and shall not exceed the thickness of the footing. Footing thickness and projection for fireplaces shall be in accordance with Section R1001.2. The size of footings supporting piers and columns shall be based on the tributary load and allowable soil pressure in accordance with Table R401.4.1. Footings for wood foundations shall be in accordance with the details set forth in Section R403.2, and Figures R403.1(2) and R403.1(3).

2. Delete Table R403.1 and replace with Tables R403.1(1) thru R403.1(3) as follows:

Table R403.1 (1)
MINIMUM WIDTH AND THICKNESS FOR CONCRETE FOOTINGS
for LIGHT FRAME CONSTRUCTION

Snow load or Roof Live Load	Story and Type of Structure with Light Frame	Load-Bearing Value of Soil (psf)					
		1500	2000	2500	3000	3500	4000
20 psf	1 story - slab on grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - with crawl space	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - plus basement	18 x 6	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - slab on grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - with crawl space	16 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - plus basement	22 x 6	16 x 6	13 x 6	12 x 6	12 x 6	12 x 6
	3 story - slab on grade	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story - with crawl space	19 x 6	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story - plus basement	25 x 8	19 x 6	15 x 6	13 x 6	12 x 6	12 x 6
30 psf	1 story - slab on grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - with crawl space	13 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - plus basement	19 x 6	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - slab on grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - with crawl space	17 x 6	13 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - plus basement	23 x 6	17 x 6	14 x 6	12 x 6	12 x 6	12 x 6
	3 story - slab on grade	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story - with crawl space	20 x 6	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story - plus basement	26 x 8	20 x 6	16 x 6	13 x 6	12 x 6	12 x 6
50 psf	1 story - slab on grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - with crawl space	16 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - plus basement	21 x 6	16 x 6	13 x 6	12 x 6	12 x 6	12 x 6
	2 story - slab on grade	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - with crawl space	19 x 6	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - plus basement	25 x 7	19 x 6	15 x 6	12 x 6	12 x 6	12 x 6
	3 story - slab on grade	17 x 6	13 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story - with crawl space	22 x 6	17 x 6	13 x 6	12 x 6	12 x 6	12 x 6
	3 story - plus basement	28 x 9	21 x 6	17 x 6	14 x 6	12 x 6	12 x 6
70 psf	1 story - slab on grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - with crawl space	18 x 6	13 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - plus basement	24 x 7	18 x 6	14 x 6	12 x 6	12 x 6	12 x 6
	2 story - slab on grade	16 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - with crawl space	21 x 6	16 x 6	13 x 6	12 x 6	12 x 6	12 x 6
	2 story - plus basement	27 x 9	20 x 6	16 x 6	14 x 6	12 x 6	12 x 6
	3 story - slab on grade	19 x 6	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story - with crawl space	25 x 7	18 x 6	15 x 6	12 x 6	12 x 6	12 x 6
	3 story - plus basement	30 x 10	23 x 6	18 x 6	15 x 6	13 x 6	12 x 6

1. Interpolation allowed. Extrapolation is not allowed
2. Based on 32 foot wide house with load bearing center wall that carries half of the tributary attic, and floor framing. For every 2 feet of adjustment to the width of the house add or subtract 2 inches of footing width and 1 inch of footing thickness (but not less than 6 inches thick).

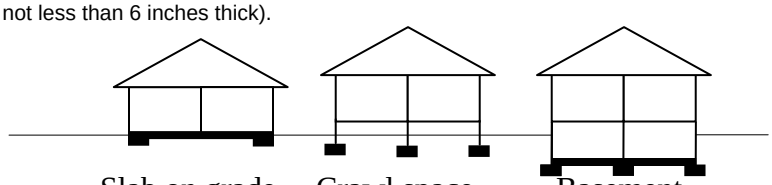


Slab on grade Crawl space Basement

Table R403.1 (2)
MINIMUM WIDTH AND THICKNESS FOR CONCRETE FOOTINGS for LIGHT FRAME CONSTRUCTION with BRICK VEENEER

Snow load or Roof Live Load	Story and Type of Structure with Brick Veneer	Load-Bearing Value of Soil (psf)					
		1500	2000	2500	3000	3500	4000
20 psf	1 story - slab on grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - with crawl space	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - plus basement	21 x 6	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - slab on grade	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - with crawl space	20 x 6	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - plus basement	26 x 8	20 x 6	16 x 6	13 x 6	12 x 6	12 x 6
	3 story - slab on grade	20 x 6	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story - with crawl space	26 x 8	19 x 6	15 x 6	13 x 6	12 x 6	12 x 6
	3 story - plus basement	32 x 11	24 x 7	19 x 6	16 x 6	14 x 6	12 x 6
30 psf	1 story - slab on grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - with crawl space	16 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - plus basement	22 x 6	16 x 6	13 x 6	12 x 6	12 x 6	12 x 6
	2 story - slab on grade	16 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - with crawl space	22 x 6	16 x 6	13 x 6	12 x 6	12 x 6	12 x 6
	2 story - plus basement	27 x 9	21 x 6	16 x 6	14 x 6	12 x 6	12 x 6
	3 story - slab on grade	21 x 6	16 x 6	13 x 6	12 x 6	12 x 6	12 x 6
	3 story - with crawl space	27 x 8	20 x 6	16 x 6	13 x 6	12 x 6	12 x 6
	3 story - plus basement	33 x 11	24 x 7	20 x 6	16 x 6	14 x 6	12 x 6
50 psf	1 story - slab on grade	13 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - with crawl space	18 x 6	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - plus basement	24 x 7	18 x 6	14 x 6	12 x 6	12 x 6	12 x 6
	2 story - slab on grade	18 x 6	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - with crawl space	24 x 7	18 x 6	14 x 6	12 x 6	12 x 6	12 x 6
	2 story - plus basement	29 x 10	22 x 6	18 x 6	15 x 6	13 x 6	12 x 6
	3 story - slab on grade	24 x 7	18 x 6	13 x 6	12 x 6	12 x 6	12 x 6
	3 story - with crawl space	29 x 9	22 x 6	17 x 6	14 x 6	12 x 6	12 x 6
	3 story - plus basement	35 x 12	26 x 8	21 x 6	17 x 6	15 x 6	13 x 6
70 psf	1 story - slab on grade	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - with crawl space	20 x 6	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - plus basement	26 x 8	20 x 6	16 x 6	13 x 6	12 x 6	12 x 6
	2 story - slab on grade	20 x 6	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - with crawl space	26 x 8	19 x 6	15 x 6	13 x 6	12 x 6	12 x 6
	2 story - plus basement	32 x 11	24 x 7	19 x 6	16 x 6	14 x 6	12 x 6
	3 story - slab on grade	26 x 8	19 x 6	15 x 6	13 x 6	12 x 6	12 x 6
	3 story - with crawl space	31 x 11	23 x 7	19 x 6	16 x 6	13 x 6	12 x 6
	3 story - plus basement	37 x 13	28 x 9	22 x 6	18 x 6	16 x 6	14 x 6

1. Interpolation allowed. Extrapolation is not allowed
2. Based on 32 foot wide house with load bearing center wall that carries half of the tributary attic, and floor framing. For every 2 feet of adjustment to the width of the house add or subtract 2 inches of footing width and 1 inch of footing thickness (but not less than 6 inches thick).

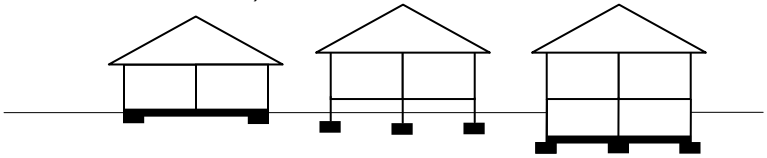


Slab on grade Crawl space Basement

Table R403.1 (3)
MINIMUM WIDTH AND THICKNESS FOR CONCRETE FOOTINGS
with CAST-IN-PLACE CONCRETE or
FULL MASONONRY WALL CONSTRUCTION

Snow load or Roof Live Load	Story and Type of Structure with CMU	Load-Bearing Value of Soil (psf)					
		1500	2000	2500	3000	3500	4000
20 psf	1 story - slab on grade	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - with crawl space	19 x 6	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - plus basement	25 x 8	19 x 6	15 x 6	13 x 6	12 x 6	12 x 6
	2 story - slab on grade	23 x 7	18 x 6	14 x 6	12 x 6	12 x 6	12 x 6
	2 story - with crawl space	29 x 9	22 x 6	17 x 6	14 x 6	12 x 6	12 x 6
	2 story - plus basement	35 x 12	26 x 8	21 x 6	17 x 6	15 x 6	13 x 6
	3 story - slab on grade	32 x 11	24 x 7	19 x 6	16 x 6	14 x 6	12 x 6
	3 story - with crawl space	38 x 14	28 x 9	23 x 6	19 x 6	16 x 6	14 x 6
	3 story - plus basement	43 x 17	33 x 11	26 x 8	22 x 6	19 x 6	16 x 6
30 psf	1 story - slab on grade	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - with crawl space	20 x 6	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - plus basement	26 x 8	20 x 6	16 x 6	13 x 6	12 x 6	12 x 6
	2 story - slab on grade	24 x 7	18 x 6	15 x 6	12 x 6	12 x 6	12 x 6
	2 story - with crawl space	30 x 10	22 x 6	18 x 6	15 x 6	13 x 6	12 x 6
	2 story - plus basement	36 x 13	27 x 8	21 x 6	18 x 6	15 x 6	13 x 6
	3 story - slab on grade	33 x 12	25 x 7	20 x 6	17 x 6	14 x 6	12 x 6
	3 story - with crawl space	39 x 14	29 x 9	23 x 7	19 x 6	17 x 6	14 x 6
	3 story - plus basement	44 x 17	33 x 12	27 x 8	22 x 6	19 x 6	17 x 6
50 psf	1 story - slab on grade	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - with crawl space	19 x 6	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - plus basement	23 x 7	18 x 6	14 x 6	12 x 6	12 x 6	12 x 6
	2 story - slab on grade	21 x 6	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story - with crawl space	25 x 8	19 x 6	15 x 6	13 x 6	12 x 6	12 x 6
	2 story - plus basement	30 x 10	23 x 6	18 x 6	15 x 6	13 x 6	12 x 6
	3 story - slab on grade	27 x 8	20 x 6	20 x 6	13 x 6	12 x 6	12 x 6
	3 story - with crawl space	32 x 11	24 x 7	19 x 6	16 x 6	14 x 6	12 x 6
	3 story - plus basement	36 x 13	27 x 9	22 x 6	18 x 6	16 x 6	14 x 6
70 psf	1 story - slab on grade	19 x 6	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story - with crawl space	25 x 7	18 x 6	15 x 6	12 x 6	12 x 6	12 x 6
	1 story - plus basement	30 x 10	23 x 6	18 x 6	15 x 6	13 x 6	12 x 6
	2 story - slab on grade	29 x 9	22 x 6	17 x 6	14 x 6	12 x 6	12 x 6
	2 story - with crawl space	34 x 12	26 x 8	21 x 6	17 x 6	15 x 6	13 x 6
	2 story - plus basement	40 x 15	30 x 10	24 x 7	20 x 6	17 x 6	15 x 6
	3 story - slab on grade	38 x 14	28 x 9	23 x 6	19 x 6	16 x 6	14 x 6
	3 story - with crawl space	43 x 16	32 x 11	26 x 8	21 x 6	18 x 6	16 x 6
	3 story - plus basement	49 x 19	37 x 13	29 x 10	24 x 7	21 x 6	18 x 6

3. Interpolation allowed. Extrapolation is not allowed
4. Based on 32 foot wide house with load bearing center wall that carries half of the tributary attic, and floor framing. For every 2 feet of adjustment to the width of the house add or subtract 2 inches of footing width and 1 inch of footing thickness (but not less than 6 inches thick).



Slab on grade Crawl space Basement

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 6 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

The existing table was based on:

- a snow load of 50 psf
- 20 feet of tributary roof area
- 16 feet of tributary floor area
- 10 feet first floor height
- 8 feet second and third floor heights

For some parts of the country, the table's assumptions may not "fit" well.

1. These new tables factor in four snow live load conditions that were not previously acknowledged: 20 psf (the minimum allowed per Table R301.6), 30 psf, 50 psf and 70 psf (the maximum to be designed prescriptively by R301.2.3). Between these increments, the table allows for interpolation.
2. The tables account for additional soil bearing conditions. They now provide sizing for 1500 psf, 2000 psf, 2500 psf, and 3000 psf, 3500 psf and 4000psf soil bearing locations.
3. The tables take into consideration the same three framing types as the current table:
    a. Conventional light framing,
    b. Conventional light framing with veneer, and
    c. Cast-in-place concrete or full masonry wall construction.
4. The new tables were expanded to cover more conditions. They now differentiate houses built:
    a. 1, 2 and 3 stories built slab on grade (without a first floor load),
    b. 1, 2 and 3 stories built over a crawl space (with a first floor load and foundation wall/footing),
    c. 1, 2 and 3 stories built with basement (with a first floor load and basement walls. Previously, the table was silent on how to handle the extra load from a masonry or concrete basement wall).
5. The tables also provide the width of the footing based on the loads and the minimum projection – whichever governs. 6" is the minimum thickness already required by Section R403.1.1.
6. The table are based on the loading case of: TL = DL + .75LL
7. General assumptions, formulas and example follow for peer review:

Example formulas and calcs

ASSUMPTIONS

House width	32	
Roof ground snow load	varies	psf
Roof dead load	10	psf
Rafter length of house	16	ft
Roof overhang	2	ft
Attic live load	15	psf
Attic dead load	10	psf
Attic tributary width	8	ft
Third floor wall height	8	ft
Third floor wall materials	15	#/ vert ft
Third floor with veneer	45	#/ vert ft
Third floor with cmu wall	100	#/ vert ft
Third floor live load	22.5	psf
Third floor dead load	15	psf
Third floor tributary length	8	ft
Second floor wall height	9	ft
Second floor wall materials	15	#/ vert ft
Second floor with veneer	45	#/ vert ft
Second floor with cmu wall	100	#/ vert ft
Second floor live load	22.5	psf
Second floor dead load	15	psf
Second floor tributary length	8	ft
First floor wall height	10	ft
First floor with light frame	15	#/ vert ft
First floor with veneer	45	#/ vert ft
First floor with cmu wall	100	#/ vert ft
First floor live load	30	psf
First floor dead load	15	psf
First floor tributary length	8	ft
Crawl wall height	3	ft
Basement wall height	10	ft
Wall thickness	10	in
Basement/crawl floor wall materials	125	pcf
Footing width (min)	12	in
Footing thickness (min)	6	in
Concrete weight	150	pcf
	0.0868	pci

SAMPLE CALCULATION WITH FORMULAS

CMU CONSTRUCTION BASED ON 50 psf SNOW LOAD

DESIGN PARAMETERS (variables)		1 story slab on grade		1 story with crawl		1 story with basement		2 story slab on grade		2 story with crawl		2 story with basement		3 story slab on grade		3 story with crawl		3 story with basement	
Roof load	(Roofspan/2 + Overhangspan) * (Roof-DL + (.75*Roof-LL))	855		855		855		855		855		855		855		855		855	
Attic Floor load	Roofspan/4 * (Attic-DL + .75(Attic-LL)	200		200		200		200		200		200		200		200		200	
TF Wall load	TFht * Wwt													480		480		480	
TF Floor load	Roofspan/4 * (TF-DL + (.75(TF-LL))													300		300		300	
SF Wall load	SFht * Wwt							540		540		540		540		540		540	
SF Floor load	Roofspan/4 * (SF-DL + (.75(SF-LL))							300		300		300		300		300		300	
FF Wall load	FFht * Wwt		600		600		600	600		600		600		600		600		600	
FF Floor load	Rspan/4 * (FF-DL + (.75FF-LL))		360		360		360		360		360		360		360		360		360
Crawl Wall load	Cht * Cth / 12 * Cwt		250		250				250						250				
Basement Wall load	Bth * Bthick / 12 * Bwt		833				833					833						833	
Footing	Footthick /12 * Footwidth / 12 * Wtcond	75	75	75		75	75	75		75		75		75		75		75	
CALCULATED LOAD (plf)		1730		2340		2923		2570		3180		3763		3350		3960		4543	
Soil bearing capacity variances (psf)	Footing width is the greater of: 6" minimum or (Footing width - wall thickness) / 2																		
	1500	14	6	19	6	23	7	21	6	25	8	30	10	27	8	32	11	36	13
	2000	10	6	14	6	18	6	15	6	19	6	23	6	20	6	24	7	27	9
	2500	8	6	11	6	14	6	12	6	15	6	18	6	16	6	19	6	22	6
	3000	7	6	9	6	12	6	10	6	13	6	15	6	13	6	16	6	18	6
	3500	6	6	8	6	10	6	9	6	11	6	13	6	11	6	14	6	16	6
	4000	5	6	7	6	9	6	8	6	10	6	11	6	10	6	12	6	14	6

Cost Impact: ??????????????????