

Building Standards Guide For Tall Walls

The National Building Code of Canada limits the height of wood framed walls to a maximum of 3.6 m (12'). Building Standards will permit walls taller than those prescribed under NBC Table 9.23.10.1 provided they comply with the following conditions and tables.

1. Full height studs only. Except as permitted in item 16 below, stacked wall configurations are **not** considered in the requirements below. Refer to Table 1 & Table 3 for stud size, maximum height and spacing requirements. Staggered horizontal blocking at 48" o.c. is required for exterior and loadbearing walls; 84" maximum o.c. for non-loadbearing walls. Loadbearing walls supporting only roof loads are allowed.
2. Typical residential ceiling assemblies using gypsum board for lateral support at the top of exterior or loadbearing tall walls are **not** acceptable. Exterior or loadbearing tall wall framing must connect to wood trusses perpendicular to and secured at the top of the wall or secured to the outlook framing.
3. Except as permitted in item 16 below, tall walls must be framed full height to the underside of wood outlook framing where trusses are parallel to the tall wall. Stacked trusses or gable ends on top of exterior or loadbearing tall walls are **not** allowed in this guideline.
4. All studs, plates, lintels and jamb components must be a minimum of SPF #2 or BTR. 1.5E grade structural composite lumber members (LSL, LVL or PSL) of equal size may be substituted. OSB or plywood sheathing is required for exterior or loadbearing tall walls.
5. Framing nails must be a minimum of 3¼" 12D (⅛" diameter). 3, 4 and 5- 3¼" 12D end nails per 2x4, 2x6 and 2x8 studs respectively. Required mechanical fasteners must use manufacturer's specified nails and fill all nail holes.
6. Top and bottom wall plates to match stud size. Staggered stud configurations using oversized plates are **not** included in this guideline.
7. Lintel size supporting roof load must comply with 2015 NBC. Lintels must be supported from the underside using cripple studs.
8. Lintel horizontal plates for openings: refer to Tables 2B, and 2C for requirements. Maximum height of any individual opening is 10'-0".
9. Full height king studs are required each side of openings. Number of plies, maximum width of an individual opening and jamb member requirements as per Table 2A. Sum of all openings in any tall wall shall not exceed 75% of the wall width.
10. 1 & 2 ply king stud assembly: 2 - 3¼" 12D nails at 16" o.c. 4 - 3¼" 12D end nails per stud to top and bottom plates. Blocking as per item 1 above.
11. 3 & 4 ply king stud assembly: 2 - ½" diameter thru-bolts 3" above and below each lintel plate, 6" from top and bottom of wall and a maximum 48" o.c.. Countersink as required. Blocking as per item 1 above.
12. 3 & 4 ply king studs to be connected w/ 2- Simpson LS50 clips (or approved equal) at bottom & top plates for 2x6 tall walls and LS70 clips for 2x8 tall walls in addition to end nailing as per item 10 above.
13. Trusses or outlook framing supported on tall walls shall be connected with Simpson L50 clip (or approved equal) at top plate.
14. Bottom plates nailed to solid blocking below floor sheathing: 4 - 3¼" 12D nails per ply of king stud placed symmetrically either side, 3" apart in addition to typical 4 - 3¼" 12D nails per stud space. Anchorage of bottom plate to foundation walls as per NBC 9.23.
15. Maximum permitted deflection is span/180. Acceptable wall finishes include gypsum board, siding and stucco. Masonry veneer including brick and cultured stone are **not** permitted on walls with this deflection magnitude.
16. For tall walls less than 8 feet wide, the framing alternate *figure 1* may be used provided all noted requirements are met.

Table 1: Exterior & Loadbearing Full Height Studs^{1, 2}

Stud Size	Spacing	Maximum Height
2x6	12"	18'
	16"	14'
2x8	12"	22'-0"
	16"	18'-1"

- 1) Only one bottom and two top horizontal wall plates are permitted. Maximum stud height is measured between wall plates.
- 2) Only trusses or outlook ladder framing for gable configurations placed perpendicular to wall top plates and fastened using Simpson L50 clips (or approved equal) are acceptable. Gypsum board ceilings are NOT acceptable for lateral support.
- 3) Where stud height and/or spacing exceed this table, signed and sealed drawings are required.

Table 2A - Maximum Opening Widths^{1, 2}

Number of Full Height Studs Each Side ^{3, 4}			
Stud Spacing	2-ply	3-ply ³	4-ply ³
12"	36"	60"	84"
16"	48"	80"	112"

- 1) Sum of all openings shall not exceed 75% of total wall width.
- 2) All wall framing must be as required in Table 1.
- 3) End nailing studs to top and bottom plates without also installing metal connectors is allowed for 1 & 2 ply king studs only. For 3&4 ply king stud assemblies, see sentence 12 on page 1.
- 4) Where values exceed this table, signed and sealed drawings are required.

Table 2B – Plates for Openings

(Top and Bottom of Lintel)

Plate Member	Maximum Spans
1-2x6	9'-11"
2-2x6	13'-6"
1-2x8	12'-0"
2-2x8	14'-0"

Table 2C – Nailing at Plates for Openings-Opening Plate Connections

(Top and Bottom of Lintel)

Plate Member	Connections
1-2x6	4- 3.25" 12d (min. 1/8"Ø) end nails ea. end to jamb
2-2x6	Simpson L50 framing clip each end to jamb
1-2x8	5- 3.25" 12d (min. 1/8"Ø) end nails ea. end to jamb
2-2x8	Simpson L70 framing clip each end to jamb

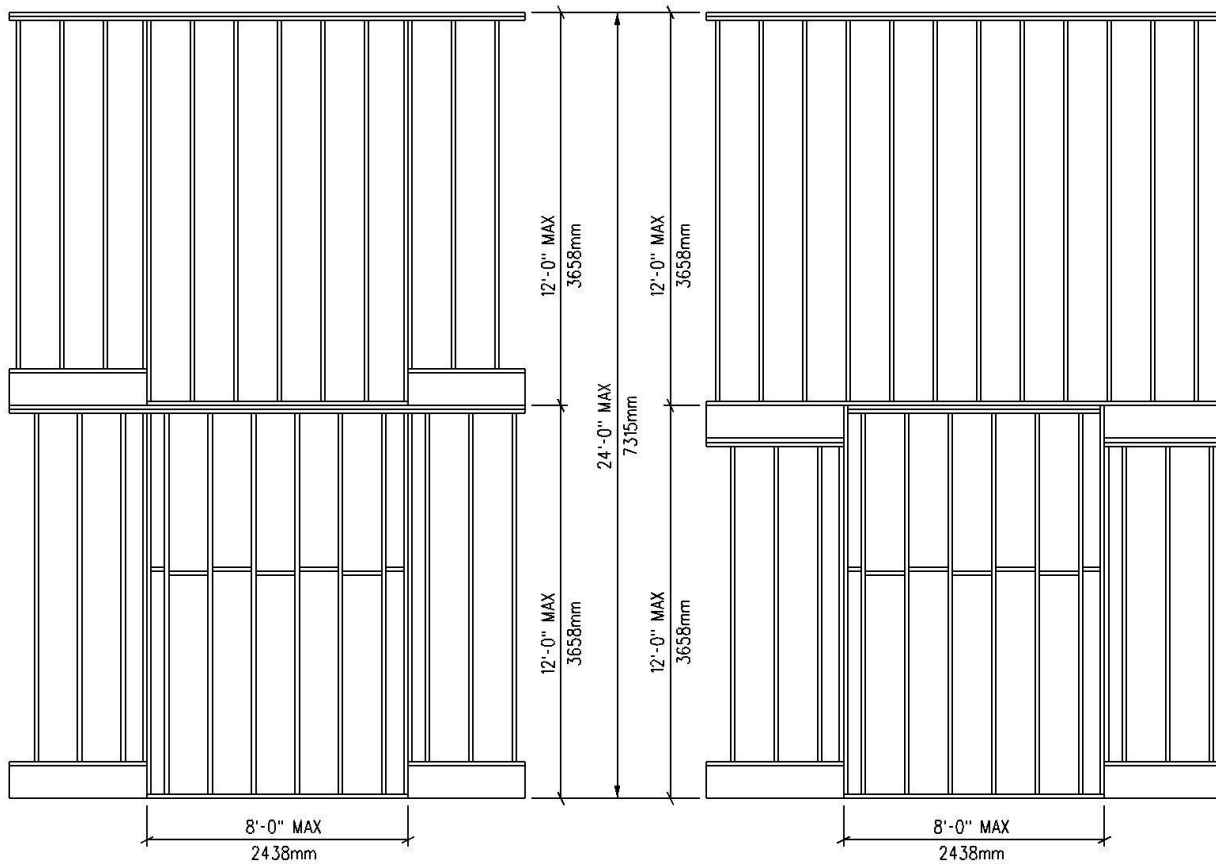
Table 3 – Non-Loadbearing Full Height Studs^{1, 2, 3, 4}

(Interior walls only)

Stud Size	Spacing	Maximum Height
2x4	12"	18'
	16"	14'
2x6	12"	22'-0"
	16"	18'-1"

- 1) Non-loadbearing tall walls may be considered laterally supported at the top if they are secured to a floor system as per NBC 9.23 or to an engineered truss system as approved by the truss supplier.
- 2) All studs, plates, lintels and jamb components must be a minimum of SPF #2 or BTR. Engineered composite wood members may be substituted. Where stud height and/or spacing exceed this table, signed and sealed drawings are required.
- 3) Items 1, 5, 6 on page 1 apply. Bottom plates must be secured as per NBC 9.23.
- 4) Double wall assemblies do not increase maximum permitted height of individual members.

TALL WALL FRAMING ALTERNATE
FOR WALLS < 8' WIDE
Figure 1



NOTE:

1. Maximum total height = 24 ft (7.3 m)
2. Maximum stacked wall width = 8 ft (2.4 m)
3. Minimum 2x6 studs at maximum 16" (406 mm) on centre
4. No splices are permitted in wall plates and within two stud spaces either side of the break in the rim joist
5. Mechanically fastened and sheathed interior walls not less than 5 ft (1.5 m) in length are required both sides of the tall wall on any floor level