



LIMIT STATES DESIGN
CANADA



TALL WALL SPECIFIER GUIDE STUD & COLUMN DESIGN





Makes Designing Homes Easier

Architects, engineers, and designers trust Boise Cascade's engineered wood products to provide a better system for framing floors, roofs and walls.

It's the SIMPLE FRAMING SYSTEM®, featuring beams, joists, studs, columns and rim boards that work together as a system, so you spend less time cutting and fitting. In fact, the SIMPLE FRAMING SYSTEM® uses fewer pieces and longer lengths than conventional framing, so you'll complete jobs in less time.

You'll Build Better Homes with the SIMPLE FRAMING SYSTEM®

Now it's easier than ever to design and build better floor systems. When you specify the SIMPLE FRAMING SYSTEM®, your clients will have fewer problems with squeaky floors and ceiling gypsum board cracks. The SIMPLE FRAMING SYSTEM® also means overall better floor, roof and wall framing than dimension lumber allows.

Better Framing Doesn't Have to Cost More

Boise Cascade EWP SIMPLE FRAMING SYSTEM® often costs less than conventional framing methods when the resulting reduced labor and materials waste are considered. There's less sorting and cost associated with disposing of waste because you order only what you

need. Although our longer lengths help your clients get the job done faster, they cost no more.

Environmentally Sound

As an added bonus, floor, roof and wall systems built with Boise Cascade Joists require about half the number of trees as those built with dimension lumber. This helps you design a home both you and future generations will be proud to own.

What Makes the SIMPLE FRAMING SYSTEM® So Simple?

☑ Floor and Roof Framing with Boise Cascade Joists

Light in weight, but heavy-duty, Boise Cascade Joists have a better strength / weight ratio than dimension lumber. Knockouts can be removed for cross-ventilation and wiring.

☑ Ceilings Framed with Boise Cascade Joists

The consistent size of Boise Cascade Joists helps keep gypsum board flat and free of unsightly nail pops and ugly shadows, while keeping finish work to a minimum.

☑ VERSA-LAM® Beams for Floor and Roof Framing

☑ VERSA-STUD® and VERSA-LAM® Columns for wall Framing

These highly-stable beams are free of the large-scale defects that plague dimension beams. The result is quieter, flatter floors (no camber) and no shrinkage-related call-backs.

☑ Boise Cascade Rimboard

Boise Cascade EWP offer several engineered rimboard products regionally, including BC RIM BOARD® OSB, VERSA-RIM®, VERSA-STRAND™ 0.8 (check supplier or Boise Cascade EWP representative for availability). These products work with Alljoist® and BCI® Joists to provide a solid connection at the critical floor/wall intersection.

Table of Contents	<i>The SIMPLE FRAMING SYSTEM®</i>	2
	<i>Product Profiles</i>	3
	<i>Prescriptive Design</i>	4
	<i>Engineered Design Assumptions for Load Tables</i>	5
	<i>Wall Deflection</i>	6
	<i>Determining Wind Load / Snow Load</i>	7
	<i>Design Properties</i>	8-9
	<i>VERSA-STUD® Allowable Holes and Notches</i>	9
	<i>Stud & King Stud Design Examples</i>	10
	<i>Column Design Example</i>	11
<i>Stud Load Tables - 1 & 2 Ply</i>	12	

<i>Stud Load Tables - 3 & 4 Ply</i>	13
<i>King Stud Tables - 2 & 3 Ply</i>	14
<i>King Stud Table - 4 Ply</i>	15
<i>Built-Up Column Load Table - 2 Ply</i>	16
<i>Built-Up Column Load Table - 3 Ply</i>	17
<i>Built-Up Column Load Table - 4 Ply</i>	18
<i>Solid Column Load Table</i>	19
<i>VERSA-STUD® & VERSA-LAM® Column Details</i>	20
<i>Factored Uplift /Wind/Vertical Forces For Connectors</i>	21
<i>Connectors</i>	22-23
<i>Information and Support</i>	Back cover

VERSA-STUD®
2400/2650Fb-1.7E

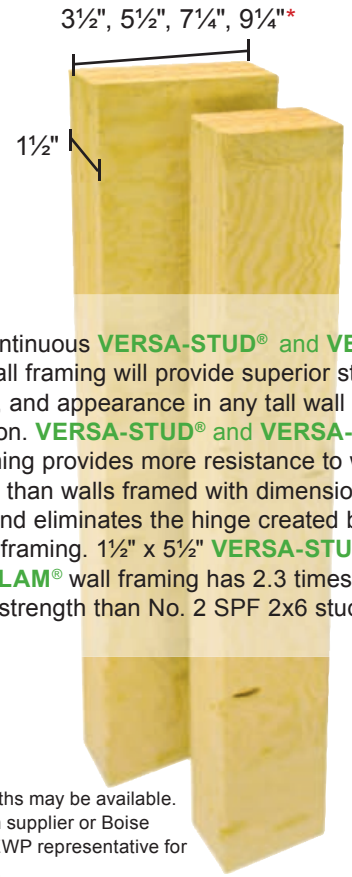
Engineered Studs for Tall Walls

Laminated veneer lumber wall framing is engineered for the high quality builder who wants . . .

- Stronger walls to resist wind loads
- Stiffer walls for a solid feel
- Straight walls for a high quality finish



Building Code Approved for Both Prescriptive and Engineered Wall Stud Design

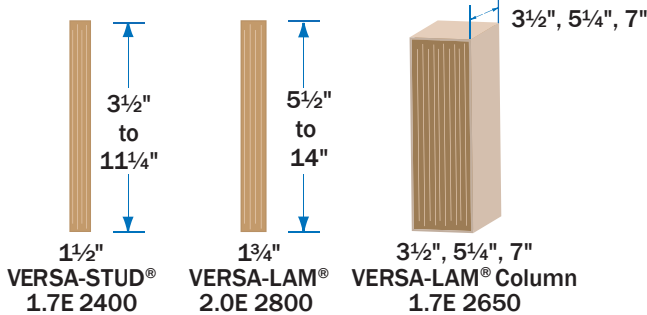


Long, continuous **VERSA-STUD®** and **VERSA-LAM®** wall framing will provide superior strength, stiffness, and appearance in any tall wall application. **VERSA-STUD®** and **VERSA-LAM®** wall framing provides more resistance to wind pressure than walls framed with dimension lumber and eliminates the hinge created by platform framing. 1 1/2" x 5 1/2" **VERSA-STUD®** and **VERSA-LAM®** wall framing has 2.3 times more bending strength than No. 2 SPF 2x6 studs.

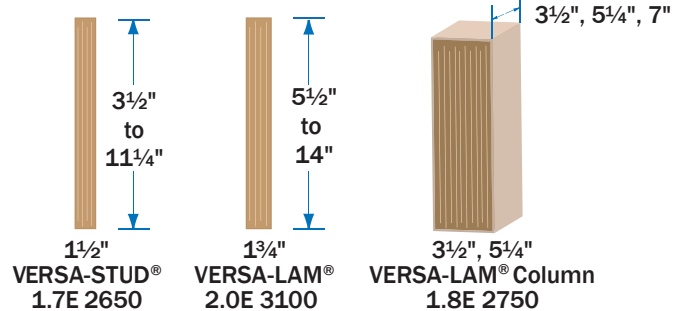
* 1 1/4" depths may be available. Check with supplier or Boise Cascade EWP representative for availability.

VERSA-LAM®, VERSA-STUD® & VERSA-LAM® Column Product Profiles

Western



Eastern



Lifetime Guaranteed Quality and Performance

Boise Cascade warrants its BCI® Joist, VERSA-LAM®, and ALLJOIST® products to comply with our specifications, to be free from defects in material and workmanship, and to meet or exceed our performance specifications for the normal and expected life of the structure when correctly stored, installed and used according to our Installation Guide.

For information about Boise Cascade's Engineered Wood Products, including sales terms and conditions, warranties and disclaimers, visit our website at

www.BCewp.com

Boise Cascade Chain-of-Custody Certifications

Boise Cascade has a proven track record of providing quality wood products and a nationwide building materials distribution network for our customers, helping them to enhance their own businesses.

Boise Cascade Engineered Wood Products build better homes with stronger, stiffer floors using only wood purchased in compliance with a number of green building programs. Take a moment to view our sustainability certification site at <http://www.bc.com/sustainability/certification.html> or view our green brochure at http://www.bc.com/wood/ewp/Boise_EWP_Green.html.

Boise Cascade Engineered Wood Products throughout North America can now be ordered FSC® Chain-of-Custody (COC) certified, enabling homebuilders to achieve LEED® point residential and commercial green building programs including LEED for Homes and LEED for New Construction. Boise Cascade Engineered Wood Products are available as PEFC® Chain-of-Custody certified, SFI® Chain-of-Custody certified and SFI® Fiber-Sourcing certified, as well as NAHB Research Center Green Approved, enabling homebuilders to also obtain green building points through the Green Building Standards.

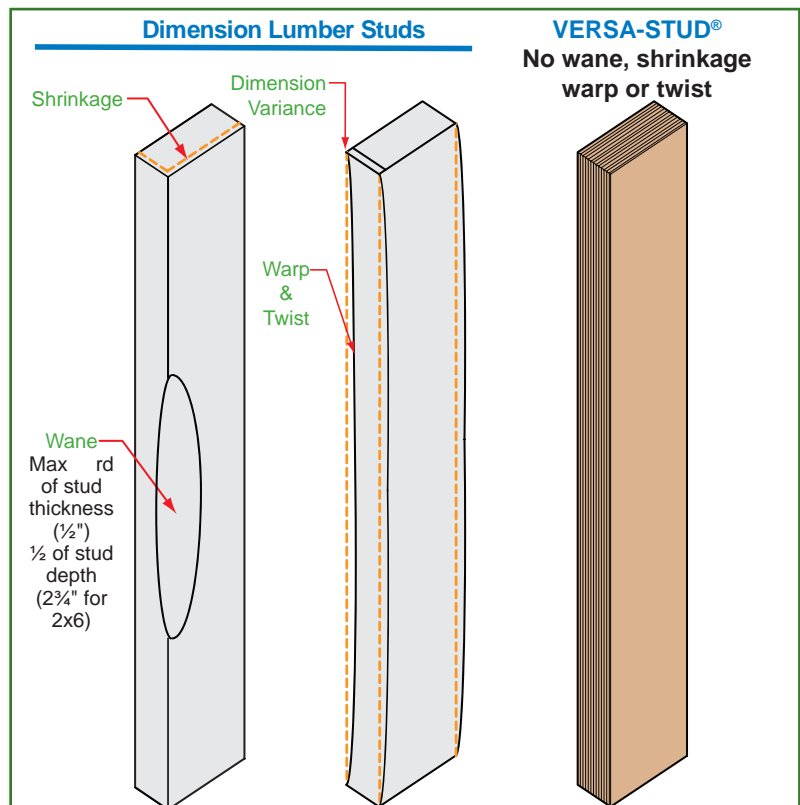
VERSA-STUD® and VERSA-LAM® may be used as wall studs in accordance with the prescriptive requirements in section 9.23.10 of NBCC 2010. For conventional construction, the size and spacing of studs should conform to the table shown below.

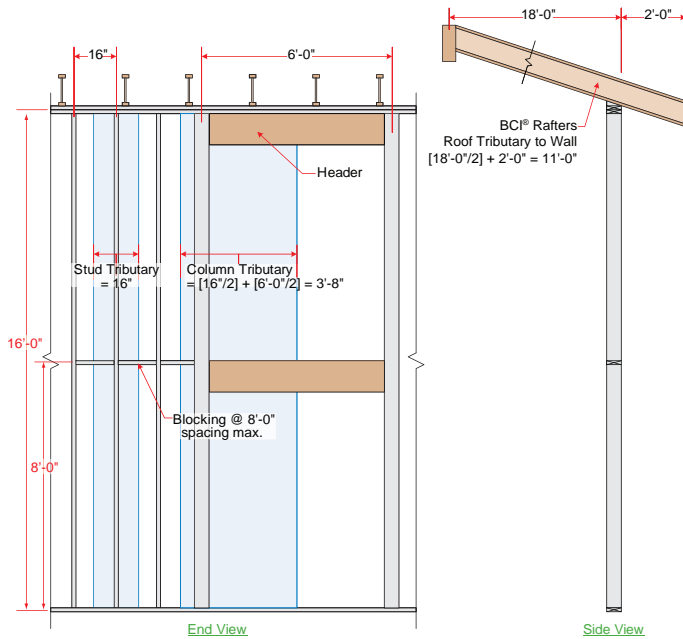
Size and Spacing of Studs: NBCC 2010, Part 9, section 9.23.10

Wall Type	Supported Loads (including dead loads)	Min. Width (in)	Min. Depth (in)	Max. Stud Spacing (in)	Max. Unsupported Height (in)	Max. Unsupported Height (ft-in)
Interior	Attic not accessible by a stairway	1½	2½	24	118	9'-10"
		1½	3½	24	142	11'-10"
	Attic accessible by a stairway plus on floor Roof loads plus one floor Attic not accessible by stairway plus 2 floors	1½	3½	16	142	11'-10"
		1½	2½	16	94	7'-10"
	3½		24	142	11'-10"	
	Attic accessible by a stairway plus 2 floors Roof loads plus 2 floors	1½	3½	12	142	11'-10"
		2½		16	142	11'-10"
		3½		16	165	13'-9"
Attic accessible by a stairway plus 3 floors Roof loads plus 3 floors	1½	5½	12	165	13'-9"	
Exterior	Roof with or without attic storage	1½	2½	16	94	7'-10"
			3½	24	118	9'-10"
	Roof with or without attic storage plus 1 floor	1½	3½	16	118	9'-10"
			5½	24	118	9'-10"
	Roof with or without attic storage plus 2 floors	1½	3½	12	118	9'-10"
		2½	3½	16	118	9'-10"
		1½	5½	16	142	11'-10"
Roof with or without attic storage plus 3 floors	1½	5½	12	71	5'-11"	

Using VERSA-STUD® for Cabinet and Tile Walls

Dimension lumber can exceed 30% moisture content. Wood dries to a moisture content of 10-12% once the building is finished. Shrinkage and warping of 2x studs is a problem in walls where cabinets are hung or tile is installed. Though 2x studs cost less, added labor from shimming cabinets, straightening walls and drywall repairs can quickly add up. VERSA-STUD® eliminate these issues, providing a straight and true wall every time.





- Roof slope = 12/12
- Wall tributary width (from the roof) ≤ 18 ft. (including the 2 ft. overhang)
- Roof standard dead load = 10 psf
- Roof standard live load = 10 psf
- Roof snow load ≤ 50 psf
- Wind load is acting on the face of the wall

- Load table values are based upon axial loads applied at the top of the stud and lateral wind loads perpendicular to the wall (out of plane loading). Lateral loads parallel to the wall (in-plane loading), caused by seismic and wind, shall be designed by the project's design professional of record.
- Wind and axial loads are based upon the design provisions of Part 9 of 2010 National Building Code of Canada and CSA O86-09.
- Studs and King-Studs are braced laterally in the narrow dimension
- Blocking between studs is required at a maximum spacing as shown below:

Stud total width (in)	Blocking: max. spacing (ft)
1½", 1¾"	6'
3" to 7"	8'

- Maximum opening height for Built-up or Solid Columns should be 75% of the stud/column height or 10 feet, whichever is lower.
- Eccentric axial loading of 1/8 of the stud/column depth considered.
- P-Δ was also considered (combined action of factored axial loads and factored wind loads on the face of the stud including the effect of the axial load acting on the deflected shape due to the wind loads).
- Load table values are based upon assumption that stud walls have structural sheathing applied to one side or a combination of non-structural sheathing on the exterior side and gypsum wallboard on the interior side.

- The factored wind uplift loads minus the factored dead load were also calculated using a principal load factor of 0.9.
- Studs/Columns are considered fixed at both ends ($K_e = 1.0$).
- Single stud members shall not be used between openings.
- If the walls are located in high/extreme seismic regions and are constructed of heavy materials, the out-of-plane lateral seismic load from the heavy wall may need to be considered in the design of the studs.

Category	Wind	Seismic-light	Seismic- heavy	Requirement to resist lateral loads due to wind and earthquake
	1 in 50 yr hourly wind pressure, q_{50} kPa	Spectral response acceleration at 0.2 sec, $S_a(0.2)$		
LOW	$q_{50} < 0.8$	$S_a(0.2) \leq 0.7$	$S_a(0.2) \leq 0.7$	The same for 2005/2010 NBCC
HIGH	$0.8 \leq q_{50} < 1.2$	$0.7 \leq S_a(0.2) \leq 1.2$	$0.7 \leq S_a(0.2) \leq 1.1$	9.23.13 (new subsection) 2010 NBCC
EXTREME	$q_{50} \geq 1.2$	$S_a(0.2) > 1.2$	$S_a(0.2) > 1.1$	Part 4 of NBCC 2010 or accepted practices

Load Combinations

- The effect of the factored principal plus companion loads combinations for ultimate limit state (ULS), and the principal plus companion loads for the serviceability limit states (SLS) was determined as per NBCC 2010 and CSA O86-09 load combinations. Specifically for wall applications the following loading cases were considered:

Ultimate Limit States:

- 1.25D + 1.5L + 0.5S
 - 1.25D/0.9D* + 1.5L + 0.4W
 - 1.25D + 1.5S + 0.5L
 - 1.25D/0.9D* + 1.5S + 0.4W
 - 1.25D/0.9D* + 0.5L + 1.4W
 - 1.25D/0.9D* + 0.5S + 1.4W
- * for uplift calculations

Serviceability Limit States:

- D + L + 0.5S
- D + L + 0.4W
- D + 0.5L + S
- D + S + 0.4W
- D + 0.5L + 1.4W
- D + 0.5S + 1.4W

Wall studs shall be continuous for the full storey height except at openings and shall not be spliced.

Since the lintel spanning the opening is not more than 10 feet, an additional ply should be added to the King-Stud/Column on each side of the opening so that:

1. The inner ply on each side extend from the bottom of the support lintel to the top of the bottom wall plate.
2. The (outer) stud/column on each side extends from the bottom of the top wall plate to the bottom wall plate.

The maximum deflection^{(1), (2)} resulting from the specified wind and axial loads should not exceed the followings:

- L/360 for exterior walls with brick veneer
- L/180 for all other exterior walls

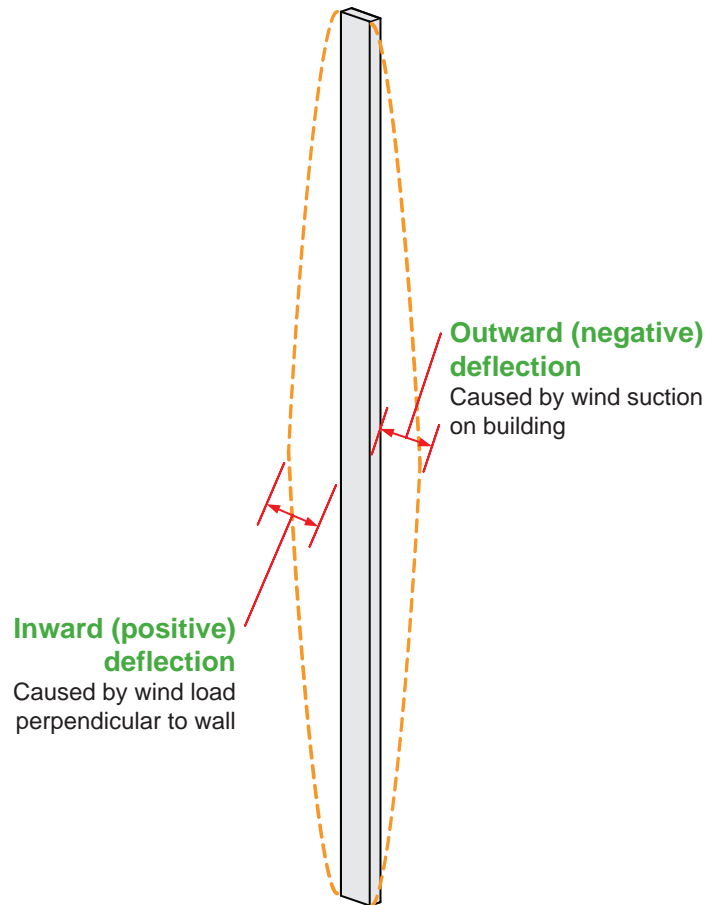
Wall stud deflection may occur both into the structure (positive pressure) or out from the structure (negative pressure). Thus, the total amount of possible movement is actually almost twice the deflection value shown in the design tables (see detail below).

The maximum height tables shown on pages 11-19 provide the maximum stud/column heights for total deflections of L/360 and L/180. As is the case with floors, the deflection of tall walls should be considered in the design phase of the project.

Deflection criteria is used to limit serviceability issues such as doors and windows binding, cracking of exterior and interior surface materials, perceived sounds due to wall movement,

glass breaking, wall vibration and movement when pushed on. Wind produces pressure and suction loads on a wall producing deflection inward and outward. Vibration of walls can occur with high span/depth ratios much like a floor joist where depth equals the wall thickness. For further information on wall vibration, please contact Boise Cascade EWP Engineering.

In regards to brick veneer, though a deflection limit of L/360, is required the Brick Industry Association (BIA) recommends designing studs to a deflection limit of L/600 to limit cracking of the veneer caused by excessive deflection.



(1) *Engineering Guide for Wood Frame Construction, 2009 Edition*

(2) *User's Guide – NBCC 2005 Structural Commentaries (Part 4 of Division B)*

Wind and Snow loads tables for each province are available on Boise Cascade's web site at : <http://www.bc.com/wood/ewp/guides-resources/guides/Canada/Canada-English.html>

Open terrain is level terrain with only scattered buildings, trees or other obstructions, and near open water or shorelines.

Rough terrain is suburban, urban or wooded terrain extending upwind from the building uninterrupted for at least 1 km or 20 times the building height (in meters), whichever is greater. For the wind conditions outside the scope of this literature, contact your local Boise Cascade EWP representative. Importance factor for wind was equal to 1 for ULS and 0.75 for SLS.

Determining Snow Load

Snow loads were calculated using the procedures for "Snow Loads" in Subsection 9.4.2.2 of the 2010 National Building Code ($C_b = 0.55$). Importance factor for snow was equal to 1 for ULS and 0.9 for SLS.

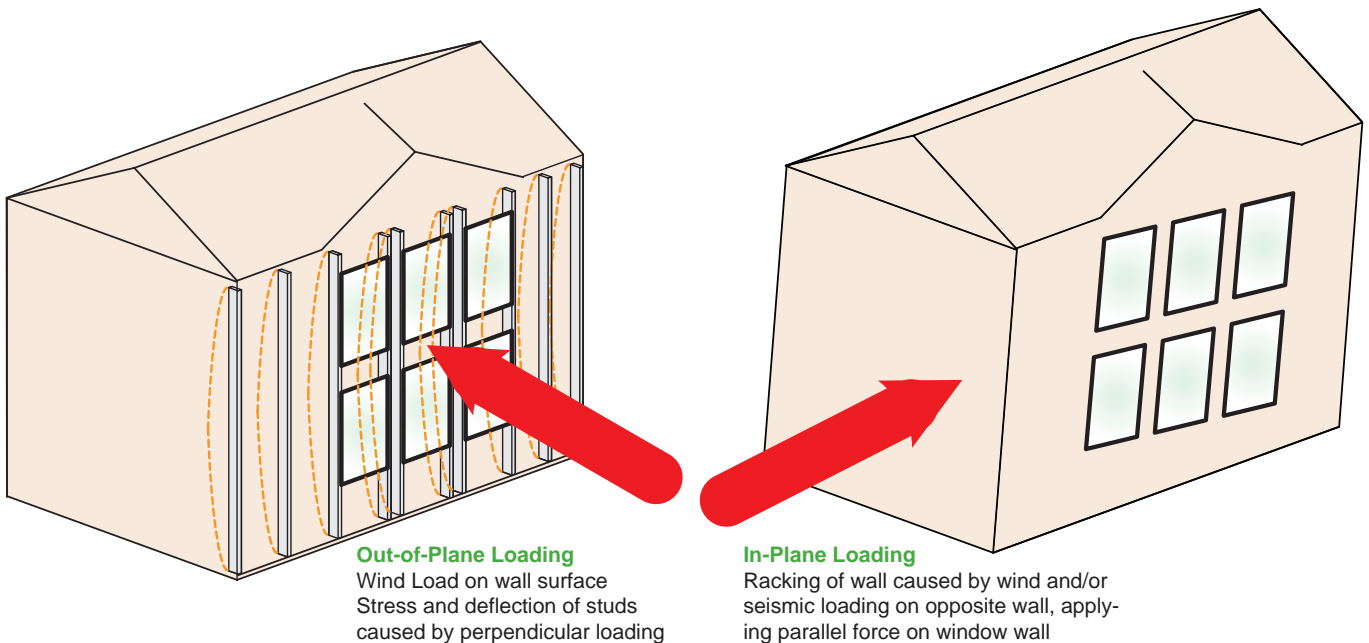
In-Plane Loading: Lateral loads applied along the length of the wall are referred to as in-plane loading (see detail below). Wind loading applied parallel to the wall length must be determined by the design professional of record. Bracing, braced wall panels and tie-down anchors at corners shall be determined by design professional of record and be in accordance with applicable building code.

Out-of-Plane Loading: Wind loading perpendicular to the wall length (see detail below). Tables shown in this guide are based on out-of-plane loading only.

Wind loads were calculated using the procedures for "Wind Loads" in Part 9 and Subsection 4.1.7 of the 2010 National Building Code of Canada, using the following factors:

Open Terrain	
C_e exposure factor	1.0
Rough Terrain	
C_e exposure factor	0.7

$+C_p C_g$, external pressure coefficient and gust factor	2.0
$-C_p C_g$, external pressure coefficient and gust factor	-2.1
C_{gi} , internal gust factor	2.0
$+C_{pi}$, internal pressure coefficient	0.3
$-C_{pi}$, internal pressure coefficient	-0.45
$+C_{pi} C_{gi}$, internal pressure coefficient and gust factor	0.60
$-C_{pi} C_{gi}$, internal pressure coefficient and gust factor	-0.90



Design Properties

VERSA-STUD® 1.7E-2650Fb Design Properties

Width	Depth	Size Factor	Weight	Modulus of Elasticity, E	Specified Bending Strength Edge, f_b	Specified Shear Strength Edge, f_v	Specified Compression Parallel to Grain, f_c	Specified Compression Perpendicular to Grain, f_{cp}	Factored Shear Resistance Edge, V_r	Factored Bending Resistance Edge, M_r	Stiffness, EI
(in)	(in)		(lb/ft)	(x10 ⁶ psi)	(psi)	(psi)	(psi)	(psi)	(lb)	(lb-ft)	(x10 ⁶ lb.in ²)
1½	3½	1.15	1.5	1.7	5 280	580	4 400	1 525	1 827	1 391	9.1
1½	5½	1.09	2.4	1.7	5 280	580	4 400	1 525	2 871	3 266	35.4
1½	7¼	1.06	3.1	1.7	5 280	580	4 400	1 525	3 785	5 503	81.0
1½	9¼	1.03	4.0	1.7	5 280	580	4 400	1 525	4 829	8 719	168.2
1½	11¼	1.01	4.9	1.7	5 280	580	4 400	1 525	5 873	12 620	302.6

VERSA-STUD® 1.7E-2400Fb Design Properties

1½	3½	1.15	1.3	1.7	4 802	580	4 400	1 525	1 827	1 265	9.1
1½	5½	1.09	2.1	1.7	4 802	580	4 400	1 525	2 871	2 970	35.4
1½	7¼	1.06	2.8	1.7	4 802	580	4 400	1 525	3 785	5 005	81.0
1½	9¼	1.03	3.6	1.7	4 802	580	4 400	1 525	4 829	7 930	168.2
1½	11¼	1.01	4.3	1.7	4 802	580	4 400	1 525	5 873	11 477	302.6

VERSA-LAM® Column 1.8E-2750Fb Design Properties

3½	5¼	1.10	5.3	1.8	5 615	580	5 295	1 525	6 395	7 422	76.0
3½	7	1.06	7.1	1.8	5 615	580	5 295	1 525	8 526	12 780	180.1
5¼	5¼	1.10	7.9	1.8	5 615	580	5 295	1 525	9 592	11 133	114.0
5¼	7	1.06	10.6	1.8	5 615	580	5 295	1 525	12 789	19 170	270.1

VERSA-LAM® Column 1.7E-2650Fb Design Properties

3½	5¼	1.10	4.7	1.7	5 281	580	4 396	1 525	6 395	6 981	71.7
3½	7	1.06	6.3	1.7	5 281	580	4 396	1 525	8 526	12 020	170.1
5¼	5¼	1.10	7.1	1.7	5 281	580	4 396	1 525	9 592	10 471	107.6
5¼	7	1.06	9.4	1.7	5 281	580	4 396	1 525	12 789	18 030	255.1
7	7	1.06	12.6	1.7	5 281	580	4 396	1 525	17 052	24 040	340.1

VERSA-LAM® 2.0E-3100Fb Design Properties

1¾	5½	1.09	2.8	2.0	6 270	580	5 300	1 525	3 350	4 525	48.5
1¾	7¼	1.06	3.7	2.0	6 270	580	5 300	1 525	4 415	7 624	111.1
1¾	9¼	1.03	4.7	2.0	6 270	580	5 300	1 525	5 633	12 080	230.8
1¾	9½	1.03	4.8	2.0	6 270	580	5 300	1 525	5 786	12 704	250.1
1¾	11¼	1.01	5.7	2.0	6 270	580	5 300	1 525	6 851	17 484	415.3
1¾	11⅝	1.00	6.0	2.0	6 270	580	5 300	1 525	7 232	19 364	488.4
1¾	14	0.98	7.1	2.0	6 270	580	5 300	1 525	8 526	26 426	800.3

VERSA-LAM® 2.0E-2800Fb Design Properties

1¾	5½	1.09	2.5	2.0	5 704	580	5 300	1 525	3 350	4 116	48.5
1¾	7¼	1.06	3.3	2.0	5 704	580	5 300	1 525	4 415	6 936	111.1
1¾	9¼	1.03	4.2	2.0	5 704	580	5 300	1 525	5 633	10 989	230.8
1¾	9½	1.03	4.3	2.0	5 704	580	5 300	1 525	5 786	11 557	250.1
1¾	11¼	1.01	5.1	2.0	5 704	580	5 300	1 525	6 851	15 905	415.3
1¾	11⅝	1.00	5.3	2.0	5 704	580	5 300	1 525	7 232	17 616	488.4
1¾	14	0.98	6.3	2.0	5 704	580	5 300	1 525	8 526	24 041	800.3

NOTES:

- Design values as per CCMC 12472-R
- Repetitive member factor has not been applied to the Factored Bending Resistance
- Size factors have been applied to the Factored Bending Resistance
- Specified compression perpendicular to grain on plank orientation (plate) is 809 psi

Specified Strengths and Modulus of Elasticity Comparison

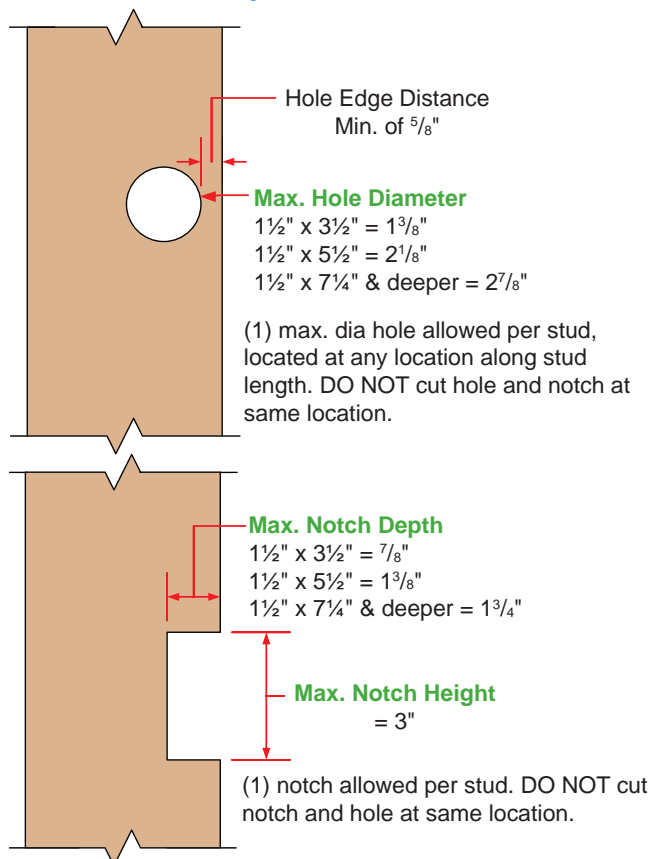
Product	Modulus of Elasticity, E	Specified Bending Strength Edge, f_b	Specified Shear Strength Edge, f_v	Specified Compression Parallel to Grain, f_c	Specified Compression Perpendicular to Grain, f_{cp}
	(x10 ⁶ psi)	(psi)	(psi)	(psi)	(psi)
VERSA-STUD® 1.7E-2650Fb	1.7	5 280	580	4 400	1 525
VERSA-STUD® 1.7E-2400Fb	1.7	4 802	580	4 400	1 525
VERSA-LAM® Column 1.8E-2750Fb	1.8	5 615	580	5 295	1 525
VERSA-LAM® Column 1.7E-2650Fb	1.7	5 281	580	4 396	1 525
VERSA-LAM® 2.0E-3100Fb	2.0	6 270	580	5 300	1 525
VERSA-LAM® 2.0E-2800Fb	2.0	5 704	580	5 300	1 525
S-P-F No. 1/No. 2	1.4	1 711	218	1 668	769
S-P-F SS	1.5	2 393	218	2 103	769
Hem-Fir No. 1/No. 2	1.6	1 595	232	2 147	667
Hem-Fir SS	1.7	2 321	232	2 553	667
D Fir-L No. 1/No. 2	1.6	1 450	276	2 031	1 015
D Fir-L SS	1.7	2 393	276	2 756	1 015

NOTE:

- Specified strengths and modulus of elasticity for sawn lumber as per CSA O86-09 (Table 5.3.1A)

VERSA-STUD® / Allowable Holes and Notches

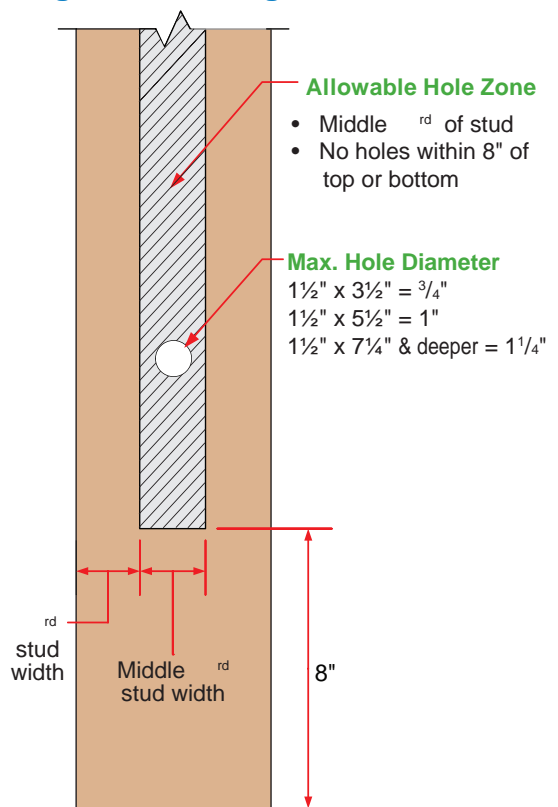
Prescriptive Provisions



NOTES:

- 1) Provisions valid only for studs within prescriptive design (see page 4).
- 2) Shield plates or nail stops to prevent nailing into wiring or piping shall be installed per the governing building code.

Engineered Design Provisions



NOTES:

- 1) DO NOT drill more than 3 holes in any 4-foot-long section of stud.
- 2) The vertical distance between adjacent holes must be at least 2 times the size of the larger hole.
- 3) Holes no greater than $\frac{3}{4}$ " dia may be cut in the hole zone shown in VERSA-LAM® columns.
- 4) For notches and larger holes, contact Boise EWP Engineering.

Stud & King Stud Design Examples

STUD Design

Given:

Wall Height 16'-0"
 Preliminary Stud Spacing 16" o.c.
 Wall Tributary Width (from roof) ≤18 ft. (including 2 ft. overhang)
 Maximum Roof Slope 12/12
 Roof Standard Live Load 10 psf
 Roof Standard Dead Load 10 psf
 Roof Standard Snow Load ≤50 psf
 = 40 psf (as an example)

Wind Load = 20 psf (as an example)
 Deflection Limit: L/360 (assuming brittle finishes)

Solution: 1½" x 7¼" , VERSA-STUD® 2400/2650Fb - 1.7E

VERSA-STUD® 2400/2650Fb - 1.7E						
Maximum Stud Height (ft-in): Max. deflection = L/360						
Snow load: ≤50 psf						
Stud Size	Spacing (in)	Wind Load (psf)				
		20	25	30	35	40
1½" x 3½"	12	8'-11"	8'-4"	—	—	—
1½" x 5½"	12	14'-5"	13'-5"	12'-8"	12'-1"	11'-6"
	16	12'-11"	12'-1"	11'-5"	10'-10"	10'-5"
1½" x 7¼"	12	19'-3"	17'-11"	16'-11"	16'-1"	15'-5"
	16	17'-4"	16'-2"	15'-3"	14'-6"	13'-10"
1½" x 9¼"	12	24'-8"	23'-0"	21'-8"	20'-8"	19'-9"
	16	22'-4"	20'-10"	19'-7"	18'-8"	17'-10"
	24	19'-3"	18'-00"	17'-00"	16'-2"	15'-5"

KING-STUD Design (openings on one side only)

Given:

Wall Height: 16'-0"
 King-Stud Tributary Width = [6'-0"/2] + [16"/2] = 3'-8" = 4'-0" (rounded up)
 Wall Tributary Width (from roof) ≤18 ft. (including 2 ft. overhang)
 Maximum Roof Slope 12/12
 Roof Standard Live Load 10 psf
 Roof Standard Dead Load 10 psf
 Roof Standard Snow Load ≤ 50 psf
 = 40 psf (as an example)

Wind Load = 20 psf (as an example)
 Deflection Limit: L/360 (assuming brittle finishes)

Solution: 1½" x 9¼" - 2 ply , VERSA-STUD® 2400/2650Fb - 1.7E

VERSA-STUD® 2400/2650Fb - 1.7E						
Maximum King-Stud Height (ft-in): Max. deflection = L/360						
Snow load: ≤ 50 psf						
Stud Size	Tributary width (ft)	Wind load (psf)				
		20	25	30	35	40
1½" x 5½" - 2 ply	3'	12'-4"	11'-6"	10'-11"	10'-5"	10'-0"
	4'	11'-1"	10'-4"	9'-9"	9'-4"	8'-11"
	5'	10'-2"	9'-6"	9'-0"	8'-7"	8'-3"
	6'	9'-5"	8'-10"	8'-4"	8'-0"	
1½" x 7¼" - 2 ply	3'	16'-7"	15'-5"	14'-7"	13'-10"	13'-4"
	4'	14'-11"	13'-11"	13'-1"	12'-6"	12'-0"
	5'	13'-8"	12'-9"	12'-1"	11'-6"	11'-1"
	6'	12'-9"	11'-11"	11'-3"	10'-9"	10'-4"
1½" x 9¼" - 2 ply	3'	21'-5"	19'-11"	18'-10"	17'-11"	17'-2"
	4'	19'-3"	18'-0"	17'-0"	16'-2"	15'-5"
	5'	17'-9"	16'-7"	15'-8"	14'-11"	14'-3"
	6'	16'-7"	15'-6"	14'-8"	13'-11"	13'-4"
	8'	14'-10"	13'-10"	13'-1"	12'-6"	12'-0"
	10'	13'-7"	12'-9"	12'-1"	11'-6"	11'-1"

Studs that could also be used as Built-up columns (with openings on both sides)

COLUMN DESIGN (openings on both sides)

Given:

Wall Height = 16'-0"
 Column Tributary Width = 4'-0"
 Wall Tributary Width (from roof) ≤ 18 ft. (including 2 ft. overhang)
 Maximum Roof Slope = 12/12
 Roof Standard Live Load = 10 psf
 Roof Standard Dead Load = 10 psf
 Roof Standard Snow Load ≤ 50 psf
 = 40 psf (as an example)

Wind Load = 20 psf (as an example)
 Deflection Limit: L/360 (assuming brittle finishes)

Solution: 5¼" x 7" (solid section), VERSA-LAM® 2650 Fb - 1.7E / 2750Fb - 1.8E

VERSA-STUD® 2650Fb - 1.7E / 2750Fb-1.8E						
Maximum Column Height (ft-in): Max. deflection = L/360						
Snow load: ≤ 50 psf						
Solid Column Size	Tributary width (ft)	Wind load (psf)				
		20	25	30	35	40
3½" x 5¼"	3'	12'-6"	11'-7"	11'-0"	10'-6"	10'-0"
	4'	11'-2"	10'-5"	9'-11"	9'-5"	9'-0"
	5'	10'-3"	9'-7"	9'-1"	8'-8"	8'-4"
	6'	9'-6"	8'-11"	8'-5"	8'-0"	
3½" x 7"	3'	16'-11"	15'-9"	14'-11"	14'-2"	13'-7"
	4'	15'-3"	14'-2"	13'-5"	12'-9"	12'-3"
	5'	14'-0"	13'-1"	12'-4"	11'-9"	11'-3"
	6'	13'-0"	12'-2"	11'-6"	11'-0"	10'-6"
	8'	11'-8"	10'-11"	10'-4"	9'-10"	9'-5"
5¼" x 5¼"	3'	14'-6"	13'-6"	12'-9"	12'-2"	11'-8"
	4'	13'-1"	12'-2"	11'-6"	10'-11"	10'-6"
	5'	12'-0"	11'-2"	10'-7"	10'-1"	9'-8"
	6'	11'-2"	10'-5"	9'-11"	9'-5"	9'-0"
	8'	10'-0"	9'-4"	8'-10"	8'-5"	8'-1"
5¼" x 7"	3'	19'-7"	18'-3"	17'-3"	16'-4"	15'-8"
	4'	17'-8"	16'-6"	15'-7"	14'-9"	14'-2"
	5'	16'-4"	15'-2"	14'-4"	13'-8"	13'-1"
	6'	15'-3"	14'-2"	13'-5"	12'-9"	12'-3"
	8'	13'-8"	12'-9"	12'-0"	11'-6"	11'-0"
	10'	12'-6"	11'-8"	11'-1"	10'-7"	10'-2"
7" x 7"	3'	21'-8"	20'-2"	19'-0"	18'-1"	17'-4"
	4'	19'-7"	18'-3"	17'-3"	16'-4"	15'-8"
	5'	18'-1"	16'-10"	15'-11"	15'-2"	14'-6"
	6'	16'-11"	15'-9"	14'-11"	14'-2"	13'-7"
	8'	15'-3"	14'-2"	13'-5"	12'-9"	12'-3"
	10'	14'-0"	13'-1"	12'-4"	11'-9"	11'-3"

Stud Load Tables - 1 & 2 Ply

VERSA-STUD® 2400/2650Fb - 1.7E											
Snow load: ≤ 50 psf											
Stud Size	Spacing (in)	Wind Load (psf)									
		Maximum Stud Height (ft-in): Max. deflection = L/180					Maximum Stud Height (ft-in): Max. deflection = L/360				
		20	25	30	35	40	20	25	30	35	40
1½" x 3½"	12"	11'-6"	10'-9"	10'-2"	9'-8"	9'-3"	8'-11"	8'-4"			
	16"	10'-4"	9'-8"	9'-1"	8'-8"	8'-4"					
1½" x 5½"	12"	18'-6"	17'-2"	16'-3"	15'-5"	14'-9"	14'-5"	13'-5"	12'-8"	12'-1"	11'-6"
	16"	16'-8"	15'-6"	14'-7"	13'-11"	13'-4"	12'-11"	12'-1"	11'-5"	10'-10"	10'-5"
	24"	14'-4"	13'-5"	12'-7"	12'-0"	11'-6"	11'-1"	10'-4"	9'-9"	9'-4"	8'-11"
1½" x 7¼"	12"	24'-6"	22'-10"	21'-7"	20'-6"	19'-7"	19'-3"	17'-11"	16'-11"	16'-1"	15'-5"
	16"	22'-2"	20'-8"	19'-6"	18'-6"	17'-9"	17'-4"	16'-2"	15'-3"	14'-6"	13'-10"
	24"	19'-2"	17'-10"	16'-10"	16'-0"	15'-5"	14'-11"	13'-11"	13'-1"	12'-6"	12'-0"
1½" x 9¼"	12"	26'-0"	26'-0"	26'-0"	26'-0"	25'-1"	24'-8"	23'-0"	21'-8"	20'-8"	19'-9"
	16"	26'-0"	26'-0"	25'-0"	23'-9"	22'-9"	22'-4"	20'-10"	19'-7"	18'-8"	17'-10"
	24"	24'-9"	23'-0"	21'-9"	20'-8"	19'-9"	19'-3"	18'-0"	17'-0"	16'-2"	15'-5"

VERSA-STUD® 2400/2650Fb - 1.7E											
Snow load: ≤ 50 psf											
Stud Size	Spacing (in)	Wind Load (psf)									
		Maximum Stud Height (ft-in): Max. deflection = L/180					Maximum Stud Height (ft-in): Max. deflection = L/360				
		20	25	30	35	40	20	25	30	35	40
1½" x 3½" - 2 ply	12"	14'-8"	13'-10"	13'-0"	12'-5"	11'-10"	11'-6"	10'-9"	10'-2"	9'-8"	9'-3"
	16"	13'-4"	12'-6"	11'-9"	11'-2"	10'-8"	10'-5"	9'-8"	9'-2"	8'-9"	8'-4"
	24"	11'-5"	10'-9"	10'-2"	9'-8"	9'-3"	8'-10"	8'-4"			
1½" x 5½" - 2 ply	12"	22'-11"	21'-11"	20'-8"	19'-8"	18'-9"	18'-6"	17'-2"	16'-3"	15'-5"	14'-9"
	16"	21'-4"	19'-10"	18'-8"	17'-9"	17'-0"	16'-8"	15'-7"	14'-8"	14'-0"	13'-5"
	24"	18'-6"	17'-2"	16'-2"	15'-5"	14'-9"	14'-5"	13'-5"	12'-8"	12'-1"	11'-6"
1½" x 7¼" - 2 ply	12"	26'-0"	26'-0"	26'-0"	26'-0"	24'-10"	24'-6"	22'-10"	21'-6"	20'-6"	19'-7"
	16"	26'-0"	26'-0"	24'-9"	23'-7"	22'-6"	22'-2"	20'-8"	19'-6"	18'-6"	17'-9"
	24"	24'-6"	22'-10"	21'-7"	20'-6"	19'-7"	19'-3"	17'-11"	16'-11"	16'-1"	15'-5"
1½" x 9¼" - 2 ply	12"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-1"
	16"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-0"	23'-9"	22'-9"
	24"	26'-0"	26'-0"	26'-0"	26'-0"	25'-1"	24'-8"	23'-0"	21'-8"	20'-8"	19'-9"

VERSA-STUD® 2400/2650Fb - 1.7E											
Snow load: ≤ 50 psf											
Stud Size	Spacing (in)	Wind Load (psf)									
		Maximum Stud Height (ft-in): Max. deflection = L/180					Maximum Stud Height (ft-in): Max. deflection = L/360				
		20	25	30	35	40	20	25	30	35	40
1½" x 5½" - 3 ply	12"	22'-11"	22'-11"	22'-11"	22'-7"	21'-7"	21'-3"	19'-10"	18'-8"	17'-9"	17'-0"
	16"	22'-11"	22'-10"	21'-6"	20'-5"	19'-7"	19'-3"	17'-11"	16'-11"	16'-1"	15'-5"
	24"	21'-4"	19'-10"	18'-8"	17'-9"	17'-0"	16'-8"	15'-7"	14'-8"	14'-0"	13'-5"
1½" x 7¼" - 3 ply	12"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-8"	23'-6"	22'-6"
	16"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-6"	23'-9"	22'-5"	21'-4"	20'-5"
	24"	26'-0"	26'-0"	24'-9"	23'-7"	22'-6"	22'-2"	20'-8"	19'-6"	18'-6"	17'-9"
1½" x 9¼" - 3 ply	12"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"
	16"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"
	24"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-0"	23'-9"	22'-9"

VERSA-STUD® 2400/2650Fb - 1.7E											
Snow load: ≤ 50 psf											
Stud Size	Spacing (in)	Wind Load (psf)									
		Maximum Stud Height (ft-in): Max. deflection = L/180					Maximum Stud Height (ft-in): Max. deflection = L/360				
		20	25	30	35	40	20	25	30	35	40
1½" x 7¼" - 4 ply	12"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-11"	24'-10"
	16"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-8"	23'-6"	22'-6"
	24"	26'-0"	26'-0"	26'-0"	26'-0"	24'-10"	24'-6"	22'-10"	21'-6"	20'-6"	19'-7"
1½" x 9¼" - 4 ply	12"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"
	16"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"
	24"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-1"

NOTES:

- Wall stud design as per 2010 NBCC and CSA O86-09.
- Structural sheathing or structural siding installed on one side of wall.
- Maximum blocking spacing for the 1½" single ply studs should be 6'-0" and 8'-0" for all the other studs.
- Table assumes the followings:
 - specified compression strength perpendicular to grain for plate of 769 psi.
 - wall tributary width (from roof) ≤ 18'-0" (including a 2'-0" overhang)
 - roof slope = 12/12
 - roof standard dead load = 10 psf
 - roof standard live load = 10 psf
 - roof snow load ≤ 50 psf
 - wind load is acting on the face of the wall
- Maximum factored vertical loads are shown on page 21

King Stud Load Tables - 2 & 3 Ply

VERSA-STUD® 2400/2650Fb - 1.7E											
Snow load: ≤ 50 psf											
Stud Size	Tributary width (ft)	Wind Load (psf)									
		Maximum Stud Height (ft-in): Max. deflection = L/180					Maximum Stud Height (ft-in): Max. deflection = L/360				
		20	25	30	35	40	20	25	30	35	40
1½" x 5½" - 2 ply	3'	15'-11"	14'-10"	14'-0"	13'-4"	12'-9"	12'-4"	11'-6"	10'-11"	10'-5"	10'-0"
	4'	14'-4"	13'-5"	12'-7"	12'-0"	11'-6"	11'-1"	10'-4"	9'-9"	9'-4"	8'-11"
	5'	13'-2"	12'-4"	11'-8"	11'-1"	10'-8"	10'-2"	9'-6"	9'-0"	8'-7"	8'-3"
	6'	12'-4"	11'-6"	10'-11"	10'-4"	9'-11"	9'-5"	8'-10"	8'-4"	8'-0"	
1½" x 7¼" - 2 ply	3'	21'-3"	19'-9"	18'-8"	17'-9"	17'-0"	16'-7"	15'-5"	14'-7"	13'-10"	13'-4"
	4'	19'-2"	17'-10"	16'-10"	16'-0"	15'-5"	14'-11"	13'-11"	13'-1"	12'-6"	12'-0"
	5'	17'-8"	16'-6"	15'-7"	14'-10"	14'-2"	13'-8"	12'-9"	12'-1"	11'-6"	11'-1"
	6'	16'-6"	15'-5"	14'-7"	13'-10"	13'-4"	12'-9"	11'-11"	11'-3"	10'-9"	10'-4"
1½" x 9¼" - 2 ply	3'	26'-0"	25'-5"	24'-0"	22'-10"	21'-10"	21'-5"	19'-11"	18'-10"	17'-11"	17'-2"
	4'	24'-9"	23'-0"	21'-9"	20'-8"	19'-9"	19'-3"	18'-0"	17'-0"	16'-2"	15'-5"
	5'	22'-10"	21'-3"	20'-0"	19'-1"	18'-3"	17'-9"	16'-7"	15'-8"	14'-11"	14'-3"
	6'	21'-4"	19'-11"	18'-9"	17'-10"	17'-1"	16'-7"	15'-6"	14'-8"	13'-11"	13'-4"
	8'	19'-3"	17'-11"	16'-11"	16'-2"	15'-5"	14'-10"	13'-10"	13'-1"	12'-6"	12'-0"
	10'	17'-9"	16'-6"	15'-7"	14'-11"	14'-3"	13'-7"	12'-9"	12'-1"	11'-6"	11'-1"

Studs that could also be used as Built-up columns (with openings on both sides)

VERSA-STUD® 2400/2650Fb - 1.7E											
Snow load: ≤ 50 psf											
Stud Size	Tributary width (ft)	Wind Load (psf)									
		Maximum Stud Height (ft-in): Max. deflection = L/180					Maximum Stud Height (ft-in): Max. deflection = L/360				
		20	25	30	35	40	20	25	30	35	40
1½" x 5½" - 3 ply	3'	18'-6"	17'-2"	16'-2"	15'-5"	14'-9"	14'-5"	13'-5"	12'-8"	12'-1"	11'-6"
	4'	16'-8"	15'-6"	14'-7"	13'-11"	13'-4"	12'-11"	12'-1"	11'-5"	10'-10"	10'-5"
	5'	15'-4"	14'-4"	13'-6"	12'-10"	12'-4"	11'-10"	11'-1"	10'-6"	10'-0"	9'-7"
	6'	14'-4"	13'-5"	12'-7"	12'-0"	11'-6"	11'-1"	10'-4"	9'-9"	9'-4"	8'-11"
1½" x 7¼" - 3 ply	3'	24'-6"	22'-10"	21'-7"	20'-6"	19'-7"	19'-3"	17'-11"	16'-11"	16'-1"	15'-5"
	4'	22'-2"	20'-8"	19'-5"	18'-6"	17'-9"	17'-4"	16'-2"	15'-3"	14'-6"	13'-10"
	5'	20'-6"	19'-1"	18'-0"	17'-1"	16'-5"	15'-11"	14'-10"	14'-0"	13'-5"	12'-10"
	6'	19'-2"	17'-10"	16'-10"	16'-0"	15'-5"	14'-11"	13'-11"	13'-1"	12'-6"	12'-0"
	8'	17'-3"	16'-1"	15'-3"	14'-6"	13'-10"	13'-4"	12'-6"	11'-10"	11'-3"	10'-9"
	10'	15'-11"	14'-10"	14'-0"	13'-4"	12'-10"	12'-3"	11'-5"	10'-10"	10'-4"	9'-11"
1½" x 9¼" - 3 ply	3'	26'-0"	26'-0"	26'-0"	26'-0"	25'-1"	24'-8"	23'-0"	21'-8"	20'-8"	19'-9"
	4'	26'-0"	26'-0"	25'-0"	23'-9"	22'-9"	22'-4"	20'-10"	19'-7"	18'-8"	17'-10"
	5'	26'-0"	24'-6"	23'-1"	22'-0"	21'-1"	20'-7"	19'-2"	18'-2"	17'-3"	16'-6"
	6'	24'-9"	23'-0"	21'-9"	20'-8"	19'-9"	19'-3"	18'-0"	17'-0"	16'-2"	15'-5"
	8'	22'-4"	20'-9"	19'-7"	18'-8"	17'-10"	17'-4"	16'-2"	15'-3"	14'-6"	13'-11"
	10'	20'-7"	19'-2"	18'-1"	17'-3"	16'-6"	15'-11"	14'-11"	14'-1"	13'-5"	12'-10"

Studs that could also be used as Built-up columns (with openings on both sides)

VERSA-STUD® 2400/2650Fb - 1.7E											
Snow load: ≤ 50 psf											
Stud Size	Tributary width (ft)	Wind Load (psf)									
		Maximum Stud Height (ft-in): Max. deflection = L/180					Maximum Stud Height (ft-in): Max. deflection = L/360				
		20	25	30	35	40	20	25	30	35	40
1½" x 7¼" - 4 ply	3'	26'-0"	25'-3"	23'-9"	22'-8"	21'-8"	21'-3"	19'-10"	18'-8"	17'-9"	17'-0"
	4'	24'-6"	22'-10"	21'-7"	20'-6"	19'-7"	19'-3"	17'-11"	16'-11"	16'-1"	15'-5"
	5'	22'-8"	21'-1"	19'-11"	18'-11"	18'-2"	17'-9"	16'-6"	15'-7"	14'-10"	14'-2"
	6'	21'-3"	19'-9"	18'-8"	17'-9"	17'-0"	16'-7"	15'-5"	14'-7"	13'-10"	13'-4"
	8'	19'-2"	17'-10"	16'-10"	16'-0"	15'-5"	14'-11"	13'-11"	13'-1"	12'-6"	12'-0"
	10'	17'-8"	16'-6"	15'-7"	14'-10"	14'-2"	13'-8"	12'-9"	12'-1"	11'-6"	11'-1"
1½" x 9¼" - 4 ply	3'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-5"	23'-11"	22'-10"	21'-10"
	4'	26'-0"	26'-0"	26'-0"	26'-0"	25'-1"	24'-8"	23'-0"	21'-8"	20'-8"	19'-9"
	5'	26'-0"	26'-0"	25'-7"	24'-4"	23'-3"	22'-10"	21'-3"	20'-1"	19'-1"	18'-4"
	6'	26'-0"	25'-5"	24'-0"	22'-10"	21'-10"	21'-5"	19'-11"	18'-10"	17'-11"	17'-2"
	8'	24'-9"	23'-0"	21'-9"	20'-8"	19'-9"	19'-3"	18'-0"	17'-0"	16'-2"	15'-5"
	10'	22'-10"	21'-3"	20'-0"	19'-1"	18'-3"	17'-9"	16'-7"	15'-8"	14'-11"	14'-3"
Studs that could also be used as Built-up columns (with openings on both sides)											

Notes:

- Wall stud design as per 2010 NBCC and CSA O86-09.
- Structural sheathing or structural siding installed on one side of wall/stud.
- Maximum blocking spacing for the 1½" single ply studs should be 6'-0" and 8'-0" for all other studs.
- Table assumes the followings:
 - specified compression strength perpendicular to grain for plate of 769 psi.
 - wall tributary width (from roof) ≤ 18'-0" (including a 2'-0" overhang)
 - roof slope = 12/12
 - roof standard dead load = 10 psf
 - roof standard live load = 10 psf
 - roof snow load ≤ 50 psf
 - wind load is acting on the face of the wall
- Maximum factored vertical loads are shown on page 21

Built-Up Column Load Table - 2 Ply

Built-Up Column 2800/3100Fb - 2.0E											
Snow load: ≤ 50 psf											
Built-Up Column Size	Tributary width (ft)	Wind load (psf)									
		Maximum Column Height (ft-in): Max. deflection = L/180					Maximum Column Height (ft-in): Max. deflection = L/360				
		20	25	30	35	40	20	25	30	35	40
1¼" x 5½" - 2 ply	3'	17'-10"	16'-8"	15'-8"	14'-11"	14'-4"	13'-11"	13'-0"	12'-3"	11'-8"	11'-2"
	4'	16'-1"	15'-0"	14'-2"	13'-6"	12'-11"	12'-6"	11'-8"	11'-0"	10'-6"	10'-1"
	5'	14'-10"	13'-10"	13'-1"	12'-6"	11'-11"	11'-6"	10'-9"	10'-2"	9'-8"	9'-3"
	6'	13'-4"	12'-11"	12'-3"	11'-8"	11'-2"	10'-8"	10'-0"	9'-5"	9'-0"	8'-8"
	8'	11'-8"	11'-8"	11'-0"	10'-6"	10'-1"	9'-6"	8'-11"	8'-5"	8'-1"	
1¼" x 7¼" - 2 ply	3'	23'-10"	22'-2"	20'-11"	19'-10"	19'-0"	18'-8"	17'-4"	16'-4"	15'-7"	14'-11"
	4'	21'-6"	20'-0"	18'-10"	17'-11"	17'-2"	16'-9"	15'-7"	14'-9"	14'-0"	13'-5"
	5'	19'-10"	18'-6"	17'-5"	16'-7"	15'-11"	15'-5"	14'-5"	13'-7"	12'-11"	12'-5"
	6'	18'-7"	17'-4"	16'-4"	15'-7"	14'-11"	14'-5"	13'-5"	12'-8"	12'-1"	11'-7"
	8'	13'-3"	13'-3"	13'-3"	13'-2"	13'-1"	12'-11"	12'-1"	11'-5"	10'-11"	10'-5"
	10'	12'-0"	12'-0"	12'-0"	11'-11"	11'-10"	11'-10"	11'-1"	10'-5"	10'-0"	9'-7"
1¼" x 9¼" - 2 ply	3'	26'-0"	26'-0"	26'-0"	25'-5"	24'-4"	23'-11"	22'-4"	21'-0"	20'-0"	19'-2"
	4'	26'-0"	25'-9"	24'-3"	23'-1"	22'-1"	21'-8"	20'-2"	19'-0"	18'-1"	17'-4"
	5'	25'-7"	23'-9"	22'-5"	21'-4"	20'-5"	20'-0"	18'-7"	17'-7"	16'-8"	16'-0"
	6'	23'-12"	22'-4"	21'-0"	20'-0"	19'-2"	18'-8"	17'-5"	16'-5"	15'-8"	15'-0"
	8'	21'-7"	20'-1"	19'-0"	18'-1"	17'-4"	16'-9"	15'-8"	14'-9"	14'-1"	13'-6"
	10'	14'-2"	14'-2"	14'-2"	14'-2"	13'-6"	14'-2"	14'-2"	13'-7"	12'-11"	12'-5"
1¼" x 9½" - 2 ply	3'	26'-0"	26'-0"	26'-0"	26'-0"	25'-1"	24'-8"	22'-11"	21'-7"	20'-7"	19'-9"
	4'	26'-0"	26'-0"	24'-11"	23'-8"	22'-8"	22'-3"	20'-9"	19'-7"	18'-7"	17'-10"
	5'	26'-0"	24'-5"	23'-1"	21'-11"	20'-11"	20'-6"	19'-1"	18'-0"	17'-2"	16'-5"
	6'	24'-8"	22'-11"	21'-7"	20'-7"	19'-8"	19'-3"	17'-11"	16'-11"	16'-1"	15'-5"
	8'	22'-2"	20'-8"	19'-6"	18'-7"	17'-9"	17'-3"	16'-1"	15'-2"	14'-6"	13'-10"
	10'	20'-6"	18'-10"	17'-5"	16'-4"	15'-5"	15'-10"	14'-9"	14'-0"	13'-4"	12'-9"
1¼" x 11¼" - 2 ply	3	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-8"	24'-5"	23'-5"
	4	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-8"	23'-3"	22'-1"	21'-2"
	5'	26'-0"	26'-0"	26'-0"	26'-0"	25'-0"	24'-6"	22'-10"	21'-6"	20'-6"	19'-7"
	6'	26'-0"	26'-0"	26'-0"	24'-6"	23'-5"	22'-11"	21'-4"	20'-2"	19'-2"	18'-4"
	8'	26'-0"	24'-8"	23'-3"	22'-1"	21'-2"	20'-8"	19'-3"	18'-2"	17'-3"	16'-7"
	10'	24'-5"	22'-9"	21'-5"	20'-5"	19'-7"	19'-0"	17'-9"	16'-9"	15'-11"	15'-3"
1¼" x 11½" - 2 ply	3	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-9"
	4	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-7"	23'-5"	22'-5"
	5	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-11"	24'-1"	22'-9"	21'-7"	20'-9"
	6'	26'-0"	26'-0"	26'-0"	25'-10"	24'-9"	24'-3"	22'-7"	21'-4"	20'-3"	19'-5"
	8'	26'-0"	26'-0"	24'-7"	23'-4"	22'-4"	21'-10"	20'-4"	19'-3"	18'-3"	17'-6"
	10'	25'-11"	24'-1"	22'-8"	21'-7"	20'-8"	20'-2"	18'-9"	17'-9"	16'-10"	16'-2"
1¼" x 14" - 2 ply	≤ 4'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"
	5	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-7"	24'-6"
	6	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-3"	23'-12"	23'-0"
	8'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-11"	24'-2"	22'-10"	21'-9"	20'-10"
	10'	26'-0"	26'-0"	26'-0"	25'-7"	24'-6"	23'-11"	22'-4"	21'-1"	20'-0"	19'-3"

Built-Up Column Load Table - 3 Ply

Built-Up Column 2800/3100Fb - 2.0E											
Snow load: ≤ 50 psf											
Built-Up Column Size	Tributary width (ft)	Wind load (psf)									
		Maximum Column Height (ft-in): Max. deflection = L/180					Maximum Column Height (ft-in): Max. deflection = L/360				
		20	25	30	35	40	20	25	30	35	40
1¾" x 5½" - 3 ply	3'	20'-8"	19'-3"	18'-2"	17'-3"	16'-6"	16'-2"	15'-1"	14'-3"	13'-6"	12'-11"
	4'	18'-8"	17'-4"	16'-4"	15'-7"	14'-11"	14'-6"	13'-7"	12'-9"	12'-2"	11'-8"
	5'	17'-3"	16'-0"	15'-1"	14'-5"	13'-10"	13'-5"	12'-6"	11'-10"	11'-3"	10'-9"
	6'	16'-1"	15'-0"	14'-2"	13'-6"	12'-11"	12'-6"	11'-8"	11'-0"	10'-6"	10'-1"
	8'	14'-6"	13'-7"	12'-9"	12'-2"	11'-8"	11'-2"	10'-5"	9'-11"	9'-5"	9'-1"
	10'	13'-4"	12'-6"	11'-9"	11'-3"	10'-9"	10'-3"	9'-7"	9'-1"	8'-8"	8'-4"
1¾" x 7¼" - 3 ply	3'	26'-0"	25'-6"	23'-12"	22'-10"	21'-11"	21'-6"	20'-0"	18'-11"	18'-0"	17'-3"
	4'	24'-10"	23'-1"	21'-9"	20'-8"	19'-9"	19'-5"	18'-1"	17'-1"	16'-3"	15'-7"
	5'	22'-11"	21'-4"	20'-1"	19'-1"	18'-4"	17'-11"	16'-9"	15'-9"	15'-0"	14'-4"
	6'	21'-6"	20'-0"	18'-10"	17'-11"	17'-2"	16'-9"	15'-7"	14'-9"	14'-0"	13'-5"
	8'	19'-5"	18'-1"	17'-1"	16'-3"	15'-7"	15'-1"	14'-0"	13'-3"	12'-8"	12'-2"
	10'	17'-10"	16'-8"	15'-9"	15'-0"	14'-4"	13'-10"	12'-11"	12'-3"	11'-8"	11'-2"
1¾" x 9¼" - 3 ply	3'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-8"	24'-2"	23'-0"	22'-1"
	4'	26'-0"	26'-0"	26'-0"	26'-0"	25'-5"	25'-0"	23'-3"	21'-11"	20'-10"	20'-0"
	5'	26'-0"	26'-0"	25'-10"	24'-7"	23'-6"	23'-1"	21'-6"	20'-3"	19'-3"	18'-6"
	6'	26'-0"	25'-9"	24'-3"	23'-1"	22'-1"	21'-8"	20'-2"	19'-0"	18'-1"	17'-4"
	8'	24'-12"	23'-3"	21'-11"	20'-10"	19'-11"	19'-6"	18'-2"	17'-2"	16'-4"	15'-8"
	10'	23'-1"	21'-6"	20'-3"	19'-3"	18'-6"	18'-0"	16'-9"	15'-10"	15'-1"	14'-5"
1¾" x 9½" - 3 ply	3'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-10"	23'-8"	22'-8"
	4'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-8"	23'-11"	22'-6"	21'-5"	20'-6"
	5'	26'-0"	26'-0"	26'-0"	25'-3"	24'-2"	23'-9"	22'-1"	20'-10"	19'-10"	19'-0"
	6'	26'-0"	26'-0"	24'-11"	23'-8"	22'-8"	22'-3"	20'-9"	19'-7"	18'-7"	17'-10"
	8'	25'-8"	23'-11"	22'-6"	21'-5"	20'-6"	20'-0"	18'-8"	17'-8"	16'-9"	16'-1"
	10'	23'-9"	22'-1"	20'-10"	19'-10"	18'-11"	18'-6"	17'-3"	16'-3"	15'-6"	14'-10"
1¾" x 11¼" - 3 ply	≤ 4'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-5"	24'-4"
	5'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-9"	23'-7"	22'-7"
	6'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-8"	23'-3"	22'-1"	21'-2"
	8'	26'-0"	26'-0"	26'-0"	25'-6"	24'-5"	23'-11"	22'-3"	21'-0"	20'-0"	19'-2"
	10'	26'-0"	26'-0"	24'-10"	23'-7"	22'-7"	22'-1"	20'-7"	19'-5"	18'-6"	17'-9"
1¾" x 11⅝" - 3 ply	≤ 4'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-9"
	5'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-11"	23'-10"
	6'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-7"	23'-5"	22'-5"
	8'	26'-0"	26'-0"	26'-0"	26'-0"	25'-9"	25'-3"	23'-7"	22'-2"	21'-2"	20'-3"
	10'	26'-0"	26'-0"	26'-0"	24'-11"	23'-11"	23'-4"	21'-9"	20'-6"	19'-7"	18'-9"
1¾" x 14" - 3 ply	≤ 6'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"
	8'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-0"	23'-12"
	10'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-9"	24'-4"	23'-2"	22'-2"

Built-Up Column Load Table - 4 Ply

Built-Up Column 2800/3100Fb - 2.0E											
Snow load: ≤ 50 psf											
Built-Up Column Size	Tributary width (ft)	Wind load (psf)									
		Maximum Column Height (ft-in): Max. deflection = L/180					Maximum Column Height (ft-in): Max. deflection = L/360				
		20	25	30	35	40	20	25	30	35	40
1¾" x 7¼" - 4 ply	3'	26'-0"	26'-0"	26'-0"	25'-3"	24'-2"	23'-9"	22'-2"	20'-10"	19'-10"	19'-0"
	4'	26'-0"	25'-6"	24'-0"	22'-10"	21'-11"	21'-6"	20'-0"	18'-11"	18'-0"	17'-3"
	5'	25'-4"	23'-7"	22'-3"	21'-2"	20'-3"	19'-10"	18'-6"	17'-6"	16'-8"	15'-11"
	6'	23'-10"	22'-2"	20'-11"	19'-10"	19'-0"	18'-8"	17'-4"	16'-4"	15'-7"	14'-11"
	8'	21'-6"	20'-0"	18'-10"	17'-11"	17'-2"	16'-9"	15'-7"	14'-9"	14'-0"	13'-5"
	10'	19'-10"	18'-6"	17'-5"	16'-7"	15'-11"	15'-5"	14'-5"	13'-7"	12'-11"	12'-5"
1¾" x 9¼" - 4 ply	3'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-5"	24'-4"
	4'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-8"	24'-2"	23'-0"	22'-1"
	5'	26'-0"	26'-0"	26'-0"	26'-0"	25'-11"	25'-6"	23'-9"	22'-5"	21'-4"	20'-5"
	6'	26'-0"	26'-0"	26'-0"	25'-5"	24'-4"	23'-11"	22'-4"	21'-0"	20'-0"	19'-2"
	8'	26'-0"	25'-9"	24'-3"	23'-1"	22'-1"	21'-8"	20'-2"	19'-0"	18'-1"	17'-4"
	10'	25'-7"	23'-9"	22'-5"	21'-4"	20'-5"	20'-0"	18'-7"	17'-7"	16'-9"	16'-0"
1¾" x 9½" - 4 ply	3'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-0"
	4'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-10"	23'-8"	22'-8"
	5'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-5"	23'-0"	21'-11"	21'-0"
	6'	26'-0"	26'-0"	26'-0"	26'-0"	25'-1"	24'-8"	22'-11"	21'-7"	20'-7"	19'-9"
	8'	26'-0"	26'-0"	24'-11"	23'-8"	22'-8"	22'-3"	20'-9"	19'-7"	18'-7"	17'-10"
	10'	26'-0"	24'-5"	23'-1"	21'-11"	20'-11"	20'-6"	19'-1"	18'-0"	17'-2"	16'-6"
1¾" x 11¼" - 4 ply	≤ 5'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-11"
	6'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-8"	24'-5"	23'-5"
	8'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-8"	23'-3"	22'-1"	21'-2"
	10'	26'-0"	26'-0"	26'-0"	26'-0"	25'-0"	24'-6"	22'-10"	21'-6"	20'-6"	19'-7"
1¾" x 11⅝" - 4 ply	≤ 5'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"
	6'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-10"	24'-9"
	8'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	24'-7"	23'-5"	22'-5"
	10'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-11"	24'-1"	22'-9"	21'-7"	20'-9"
1¾" x 14" - 4 ply	≤ 8'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"
	10'	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	26'-0"	25'-7"	24'-6"

NOTES:

- Built-Up Column design as per 2010 NBCC and CSA O86-09.
- Maximum opening height is 75% of the column height or 10 feet, whichever is lower.
- Table assumes the followings:
 - specified compression strength perpendicular to grain for plate of 769 psi.
 - wall tributary width (from roof) ≤ 18'-0" (including a 2'-0" overhang)
 - roof slope = 12/12
 - roof standard dead load = 10 psf
 - roof standard live load = 10 psf
 - roof snow load ≤ 50 psf
 - wind load is acting on the face of the wall
- Maximum factored vertical loads are shown on page 21

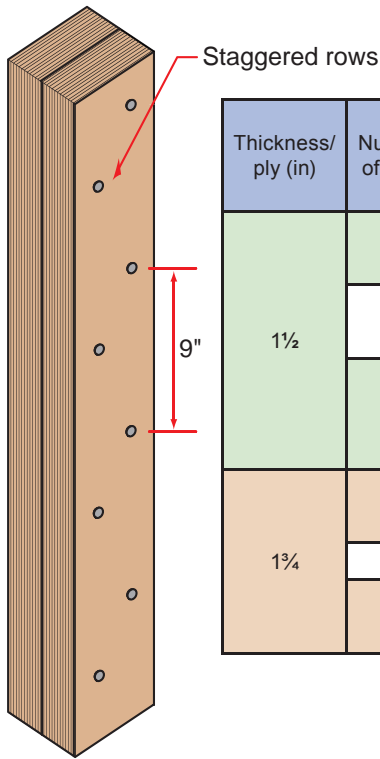
Solid Column Load Table

Versa-Column 2650Fb - 1.7E / 2750Fb - 1.8E											
Snow load: ≤ 50 psf											
Solid Column Size	Tributary width (ft)	Wind load (psf)									
		Maximum Column Height (ft-in): Max. deflection = L/180					Maximum Column Height (ft-in): Max. deflection = L/360				
		20	25	30	35	40	20	25	30	35	40
3½" x 5¼"	3'	16'-1"	15'-0"	14'-1"	13'-5"	12'-11"	12'-6"	11'-7"	11'-0"	10'-6"	10'-0"
	4'	14'-6"	13'-6"	12'-9"	12'-2"	11'-7"	11'-2"	10'-5"	9'-11"	9'-5"	9'-0"
	5'	13'-3"	12'-5"	11'-9"	11'-2"	10'-9"	10'-3"	9'-7"	9'-1"	8'-8"	8'-4"
	6'	12'-5"	11'-7"	11'-0"	10'-6"	10'-0"	9'-6"	8'-11"	8'-5"	8'-0"	
3½" x 7"	3'	21'-8"	20'-2"	19'-1"	18'-1"	17'-4"	16'-11"	15'-9"	14'-11"	14'-2"	13'-7"
	4'	19'-7"	18'-2"	17'-2"	16'-4"	15'-8"	15'-3"	14'-2"	13'-5"	12'-9"	12'-3"
	5'	18'-0"	16'-9"	15'-10"	15'-1"	14'-6"	14'-0"	13'-1"	12'-4"	11'-9"	11'-3"
	6'	16'-10"	15'-9"	14'-10"	14'-2"	13'-7"	13'-0"	12'-2"	11'-6"	11'-0"	10'-6"
	8'	15'-2"	14'-2"	13'-5"	12'-9"	12'-3"	11'-8"	10'-11"	10'-4"	9'-10"	9'-5"
	10'	13'-11"	13'-0"	12'-4"	11'-9"	11'-3"	10'-8"	10'-0"	9'-5"	9'-0"	8'-8"
5¼" x 5¼"	3'	18'-7"	17'-4"	16'-4"	15'-7"	14'-10"	14'-6"	13'-6"	12'-9"	12'-2"	11'-8"
	4'	16'-10"	15'-7"	14'-9"	14'-0"	13'-5"	13'-1"	12'-2"	11'-6"	10'-11"	10'-6"
	5'	15'-5"	14'-5"	13'-7"	13'-0"	12'-5"	12'-0"	11'-2"	10'-7"	10'-1"	9'-8"
	6'	14'-6"	13'-6"	12'-9"	12'-2"	11'-7"	11'-2"	10'-5"	9'-11"	9'-5"	9'-0"
	8'	13'-0"	12'-2"	11'-5"	10'-11"	10'-6"	10'-0"	9'-4"	8'-10"	8'-5"	8'-1"
	10'	11'-11"	11'-2"	10'-6"	10'-0"	9'-8"	9'-1"	8'-6"	8'-1"		
5¼" x 7"	3'	25'-0"	23'-3"	21'-11"	20'-10"	20'-0"	19'-7"	18'-3"	17'-3"	16'-4"	15'-8"
	4'	22'-7"	21'-0"	19'-10"	18'-11"	18'-0"	17'-8"	16'-6"	15'-7"	14'-9"	14'-2"
	5'	20'-11"	19'-5"	18'-4"	17'-5"	16'-8"	16'-4"	15'-2"	14'-4"	13'-8"	13'-1"
	6'	19'-7"	18'-2"	17'-2"	16'-4"	15'-8"	15'-3"	14'-2"	13'-5"	12'-9"	12'-3"
	8'	17'-7"	16'-5"	15'-6"	14'-9"	14'-2"	13'-8"	12'-9"	12'-0"	11'-6"	11'-0"
	10'	16'-3"	15'-2"	14'-4"	13'-7"	13'-1"	12'-6"	11'-8"	11'-1"	10'-7"	10'-2"
7" x 7"	3'	26'-0"	25'-8"	24'-2"	23'-0"	22'-0"	21'-8"	20'-2"	19'-0"	18'-1"	17'-4"
	4'	25'-0"	23'-3"	21'-11"	20'-10"	20'-0"	19'-7"	18'-3"	17'-3"	16'-4"	15'-8"
	5'	23'-1"	21'-6"	20'-4"	19'-4"	18'-6"	18'-1"	16'-10"	15'-11"	15'-2"	14'-6"
	6'	21'-8"	20'-2"	19'-1"	18'-1"	17'-4"	16'-11"	15'-9"	14'-11"	14'-2"	13'-7"
	8'	19'-7"	18'-2"	17'-2"	16'-4"	15'-8"	15'-3"	14'-2"	13'-5"	12'-9"	12'-3"
	10'	18'-0"	16'-9"	15'-10"	15'-1"	14'-6"	14'-0"	13'-1"	12'-4"	11'-9"	11'-3"

NOTES:

- Solid Column design as per 2010 NBCC and CSA O86-09.
- Maximum opening height is 75% of the column height or 10 feet, whichever is lower.
- Table assumes the followings:
 - specified compression strength perpendicular to grain for plate of 769 psi.
 - wall tributary width (from roof) ≤ 18'-0" (including a 2'-0" overhang)
 - roof slope = 12/12
 - roof standard dead load = 10 psf
 - roof standard live load = 10 psf
 - roof snow load ≤ 50 psf
 - wind load is acting on the face of the wall
- Maximum factored vertical loads are shown on page 21

Multiple Ply Stud Connections

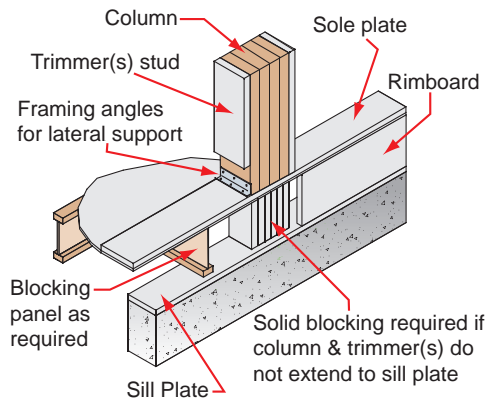


Thickness/ply (in)	Number of plies	Fastener type	Fastener diameter (in)	Fastener length (in)	Min. end distance (in)	Min. edge distance (in)
1½	2	Common Nail 3" (10d)	0.148	3	4.0	2.0
		SDS ¼ x 3	0.250			
	3	Common Nail 4½" (30d)	0.207	4½		
		SDS ¼ x 4½	0.250			
	4	Common Nail 6" (60d)	0.263	6		
		SDS ¼ x 6	0.250			
1¾	2	Common Nail 3½" (16d)	0.162	3½		
		SDS ¼ x 3½	0.250			
	3	Common Nail 5" (40d)	0.225	5		
		½" dia. Bolts	0.500			
4	½" dia. Bolts	0.500	7			
	SDS ¼ x 6 (on both sides)	0.250		6		

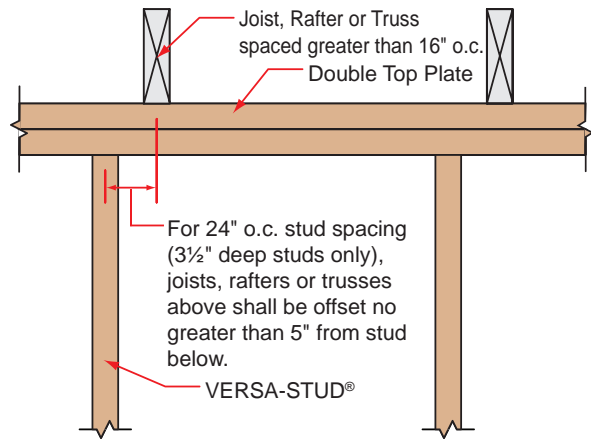
NOTE:
The number of rows of fasteners should be as follows:

Stud/column depth	Rows of fasteners (staggered)
3½"	1
5½"	2
7¼"	2
9¼"	3
9½"	3
11¼"	3
11⅞"	3
14"	4

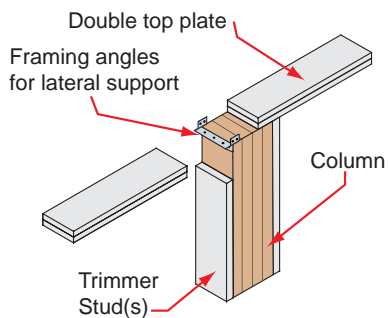
Column to Bottom Plate



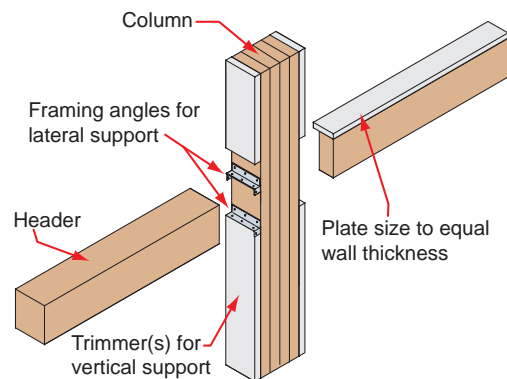
3½" Studs - 24" o.c.



Column to Top Plate



Header to Column



Wind load (psf)	Maximum Factored Uplift Forces (for connectors), (lbs)								
	Stud/Column Tributary Width (in)								
	12	16	24	36	48	60	72	96	120
20	37	50	75	112	149	186	224	298	373
25	126	168	253	379	505	632	758	1 011	1 264
30	215	287	431	646	862	1 077	1 293	1 724	2 155
35	305	406	609	914	1 218	1 523	1 827	2 437	3 046
40	394	525	787	1 181	1 575	1 968	2 362	3 149	3 937

* Maximum Factored Uplift Forces were calculated based on the following conditions:

- roof slope = 12/12
- wall tributary width (from the roof) ≤ 18 ft. (including the 2 ft. overhang)
- roof standard dead load = 10 psf
- roof standard live load = 10 psf
- roof snow load ≤ 50 psf

Height (ft)	Base and Top Factored Wind Reactions (for connectors) acting on the face of the wall								
	20 psf Wind Load								
	Stud/Column Tributary Width (in)								
	12	16	24	36	48	60	72	96	120
8	112	149	224	336	448	560	672	896	1 120
10	140	187	280	420	560	700	840	1 120	1 400
12	168	224	336	504	672	840	1 008	1 344	1 680
14	196	261	392	588	784	980	1 176	1 568	1 960
16	224	299	448	672	896	1 120	1 344	1 792	2 240
18	252	336	504	756	1 008	1 260	1 512	2 016	2 520
20	280	373	560	840	1 120	1 400	1 680	2 240	2 800
22	308	411	616	924	1 232	1 540	1 848	2 464	3 080
24	336	448	672	1 008	1 344	1 680	2 016	2 688	3 360
26	364	485	728	1 092	1 456	1 820	2 184	2 912	3 640

For the other wind loads, multiply the factored reaction value shown in the table by the following factors:

- 25 psf = 1.25
- 30 psf = 1.5
- 35 psf = 1.75
- 40 psf = 2.0

Stud/Column Tributary Width	Factored Vertical Forces, (lbs)
12"	1 668
16"	2 224
24"	3 336
3'	5 005
4'	6 673
5'	8 341
6'	10 009
8'	13 346
10'	16 682

* Factored Vertical/Axial Forces were calculated based on the following conditions:

- roof slope = 12/12
- wall tributary width (from the roof) ≤ 18 ft. (including the 2 ft. overhang)
- roof standard dead load = 10 psf
- roof standard live load = 10 psf
- roof snow load ≤ 50 psf

FRAMING ANGLES (Simpson Strong-Tie)								
Model No.	Dimensions			Stud depth (in)	Nailing		Factored resistance* (KD = 1.15)	
	W1	W2	L		Base	Stud/Column	F1	F2
	(in)	(in)	(in)				(lbs)	
A23	2	1½	2¾	3½	4 - 3" (10d) x 1½	4 - 3" (10d) x 1½	1085	1000
A34	1⅞	1⅞	2½	3½	4 - 2½" (8d) x 1½	4 - 2½" (8d) x 1½	690	535
A35	1⅞	1⅞	4½	5¼, 5½	6 - 2½" (8d) x 1½	6 - 2½" (8d) x 1½	850	1275
L30	2⅝	1⅝	3	3½	2 - 3" (10d)	2 - 3" (10d)	395	
L50	2⅝	1⅝	5	5¼, 5½	3 - 3" (10d)	3 - 3" (10d)	810	
L70	2⅝	1⅝	7	7, 7¼	4 - 3" (10d)	4 - 3" (10d)	1085	
L90	2⅝	1⅝	9	9¼, 9½	5 - 3" (10d)	5 - 3" (10d)	1355	
LS30	2¼	2¼	3⅝	3½	2 - 3" (10d)	2 - 3" (10d)	685	
LS50	2¼	2¼	4⅝	5¼, 5½	3 - 3" (10d)	3 - 3" (10d)	1085	
LS70	2¼	2¼	6⅝	7, 7¼	4 - 3" (10d)	4 - 3" (10d)	1355	
LS90	2¼	2¼	7⅝	9¼	5 - 3" (10d)	5 - 3" (10d)	1630	
Heavy Angles								
HL35	3¼	3¼	5	5¼, 5½	4 bolts (½" diameter)		Connectors are not load rated. Contact Simpson Strong-Tie for more information.	
HL43	4¼	4¼	3	3½	2 bolts (½" diameter)			
HL46	4¼	4¼	6	7, 7¼	4 bolts (½" diameter)			

*Factored resistance is acting on the face of the stud/column/wall

FRAMING ANGLES (USP)								
Model No.	Dimensions			Stud depth (in)	Nailing		Factored resistance* (KD = 1.15)	
	W1	W2	L		Base	Stud/Column	F1	F2
	(in)	(in)	(in)				(lbs)	
A3	1⅞	1⅞	2¾	3½	4 - 3" (10d) x 1½	4 - 3" (10d) x 1½	1115	1130
AC3	1⅞	2⅝	2⅝	3½	2 - 3" (10d)	2 - 3" (10d)	520	535
MP3	2¼	2¼	3⅝	3½	3 - 3" (10d)	3 - 3" (10d)	860	
AC5	1⅞	2⅝	4⅞	5¼, 5½	3 - 3" (10d)	3 - 3" (10d)	1145	1070
MP5	2¼	2¼	4⅝	5¼, 5½	4 - 3" (10d)	4 - 3" (10d)	1535	
AC7	1⅞	2⅝	6⅞	7, 7¼	4 - 3" (10d)	4 - 3" (10d)	1285	1535
MP7	2¼	2¼	5⅞	7, 7¼	5 - 3" (10d)	5 - 3" (10d)	2005	
MP9	2¼	2¼	6⅞	7, 7¼	6 - 3" (10d)	6 - 3" (10d)	2280	
AC9	1⅞	2⅝	8⅞	9¼, 9½	5 - 3" (10d)	5 - 3" (10d)	2135	1535
JA3	2½	2½	3	3½	4 - 3½" (16d)	4 - 3" (10d) x 1½	1108	963
JA5	2½	2½	5	5¼, 5½	4 - 3½" (16d)	4 - 3" (10d) x 1½	1790	1556
JA7	2½	2½	7	7, 7¼	4 - 3½" (16d)	4 - 3" (10d) x 1½	3517	3058
JA9	2½	2½	9	9¼, 9½	4 - 3½" (16d)	4 - 3" (10d) x 1½	4333	3767

*Factored resistance is acting on the face of the stud/column/wall

Stud Plate Ties (Simpson Strong-Tie)			
Model No.	Nailing	Factored Uplift Resistance (KD = 1.15) (lb)	
		Double top plate	Single sill plate
SSP	8 - 3" (10d) x 1½	570	535
	8 - 3" (10d)	710	690
DSP	16 - 3" (10d) x 1½	1 270	690
	16 - 3" (10d)	1 550	985
RSP4	8 - 2½" (8d) x 1½	560	
SP1	10 - 3" (10d)	1 085	
SP2	12 - 3" (10d)	1 630	
SPH4	10 - 3" (10d) x 1½	2 335	
	12 - 3" (10d) x 1½	2 555	

Stud Plate Ties (USP)		
Model No.	Nailing	Factored Uplift Resistance (KD = 1.15) (lb)
RSPT4	8 - 2½" (8d) x 1½	585
RSPT6	8 - 3" (10d) x 1½	740
RSPT6-2	14 - 3" (10d) x 1½	1115
SPT22	10 - 3" (10d)	755
SPT24	12 - 3" (10d)	1125
SPTH4	12 - 3" (10d) x 1½	1275

Header clips

Header Clips/Hangers (Simpson Strong-Tie)			
Model No.	Width (in)	Nailing	Factored Vertical/Axial Resistance (KD = 1.00) (lb)
FC4	3⅞	8 - 3½" (16d)	1415
FC6	5½	10 - 3½" (16d)	1415
HH4	3½	13 - 3½" (16d)	1148
HH6	5½	18 - 3½" (16d)	1678

Header Clips/Hangers (USP)			
Model No.	Width (in)	Nailing	Factored Vertical/Axial Resistance (KD = 1.00) (lb)
SFC4	3⅞	8 - 3½" (16d)	583
SFC6	5½	10 - 3½" (16d)	674
HH44	3⅞	13 - 3½" (16d)	739
HH66	5½	18 - 3½" (16d)	1187

Nail Factored Lateral Resistance					
Nail Type	Nail Diameter (in)	Nail Length (in)	Factored lateral resistance (lb)	End grain factored lateral resistance (lb)	Toe-nailing factored lateral resistance (lb)
2½" (8d) Spiral Nail	0.110	2½	108	73	90
2½" (8d) Common Nail	0.128	2½	144	96	119
3" (10d) Spiral Nail	0.132	3	152	102	127
3" (10d) Common Nail	0.148	3	188	126	156
Pneumatic Gun Nail	0.122	3¼	132	88	109
3¼" (12d) Common Nail	0.148	3¼	188	126	156
3½" (16d) Spiral Nail	0.152	3½	198	132	164
3½" (16d) Common Nail	0.162	3½	222	149	184

NOTES:

- Nail factored lateral resistance as per CSA O86-09 section 10.9.4.
- Nail factored lateral resistance based upon a load duration factor of 1.00 and an equivalent specific gravity of 0.5.
- Factored lateral resistance based upon a side and main member thickness of 1½".

Great products are only the beginning.®



Boise Cascade Engineered Wood Products are manufactured by Boise Cascade
Distributed across Canada by CanWelBroadLeaf Building Materials Division
Sold by your better local building materials retailer

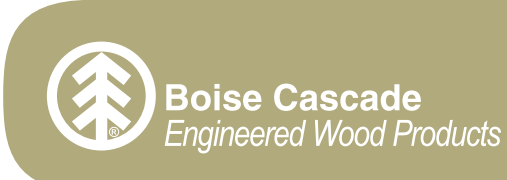
 CanWelBroadLeaf™ Products You Want. People You Trust. www.canwelbroadleaf.com	Langley 5350 – 275th Street Langley, BC V4W 4A3 Phone: 604 607-6885 1 800 665-3448	Saskatoon 11 Capital Circle Corman Park, SK S7R 0H4 Phone: 306 933-2500 1 877 954-4448	Brampton 15 West Drive Brampton, ON L6T 3T5 Phone: 905 792-9903 1 800 792-9903	Dartmouth 70 Simmonds Drive Dartmouth, NS B3B 1P6 Phone: 902 468-9865 1 800 565-7913
	Kelowna 205 Campion Street Kelowna, BC V1X 7S9 Phone: 250 765-2036 1 877 488-8899	Regina 1055 Fleury Street Regina, SK S4N 4W9 Phone: 306 569-9071 1 800 567-6226	Ottawa 700 Industriel Avenue, Suite 401 Ottawa, ON K1G 0Y9 Phone: 613 247-8682 1 800 267-1305	Deer Lake 10 Spillway Road Dear lake, NL A8A 3E7 Phone: 709 635-4345 1 800 563-7517
	Calgary 4510 – 76th Ave S.E. Calgary, AB T2C 2V2 Phone: 403 279-7108 1 877 656-6166	Winnipeg 350 De Baets Street Winnipeg, MB R2J 0H4 Phone: 204 633-4890 1 800 665-1923	Blainville 651, boulevard Industriel Blainville, QC J7C 3V3 Phone: 450 435-6911 1 800 361-5345	St-John's 42 Sagona Avenue Donovans Industriel Park Mount-Pearl, NL A1N 4R3 Phone: 709 745-6760 1 888 745-6760
	Edmonton 11553 – 154th Street Edmonton, AB T5M 3N7 Phone: 780 451-3850 1 800 268-7569	Sudbury 725 Martindale Road Sudbury, ON P3E 4P8 Phone: 705 674-6469 1 800 461-1105	Québec 170, Liverpool St-Augustin-de-Desmaures, QC G3A 2M5 Phone: 418 878-6081 1 877 877-6081	

Your local retailer

The information provided herein was up-to-date at the time of printing. This document may be superseded by a updated version. Please confirm that this specifier guide is the most current version at www.BCewp.com.

The information in this document pertains to use in CANADA ONLY, Limit States Design. Refer to the US Tall Wall Specifier Guide for use in the United States.

455, boulevard Félou, suite 102
Dorval (Québec) H9S 5T8
ewp_canada@bc.com
www.BCewp.com



© 2011 Boise Cascade, L.L.C.
BOISE, BOISE CASCADE, BCI, ALLJOIST, BC CALC, BC FRAMER, SawTek, SIMPLE FRAMING SYSTEM, VERSA-LAM, VERSA-STUD, and "Great products are only the beginning." are trademarks of Boise Cascade, L.L.C. or its affiliates.