REGIONAL DISTRICT OF NANAIMO

INFORMATION BULLETIN

January 15, 2026

Lateral Bracing for Simple Part 9 Buildings

2024 BC Building Code

Purpose and Application

This bulletin provides information on the permit requirements for the lateral bracing of simple Part 9 buildings in the 2024 BC Building Code (BCBC) which came into effect on March 10, 2025. Only the prescribed solutions found in Section 9.23 of the 2024 BCBC are discussed.

This bulletin applies to the wood-frame construction of:

- Single-family dwellings
- Houses with secondary suites
- Duplexes
- Accessory buildings serving any of the above

Note: Consult with your contractor or a professional to ensure your proposed design meets Part 9 seismic requirements without the services of a structural engineer. Where a structural engineer is required, the engineer must complete the design for the entire building. Submit the engineer's sealed drawings and letters of assurance with your online permit application.

Introduction

The introduction of the new, enhanced seismic requirements presented in the 2024 BC Building Code is a significant change from previous versions of the code. The new version of the code has introduced an entirely new way of calculating the required amount of braced wall panels based on the greater effect from either the seismic or wind considerations.

When designing a building to the seismic requirements of Part 9 under this new code, special consideration must be given to how the information is presented to both enable efficient review of the design during the permit review process and to ensure accuracy during construction.

The following information will be discussed within this bulletin:

Why Have Seismic Requirements Changed?

The primary intent of the seismic requirements in the BC Building Code is to prevent loss of life during strong shaking from an earthquake and to minimize building damage during low to moderate shaking from an earthquake.

The seismic requirements in the 2024 version of the code utilize new knowledge of the active faults discovered near Victoria, BC and new data on the Cascadia great earthquakes.

In addition, large teams of American and Canadian seismologists have developed modern ground motion models for all types of tectonic regions in Canada. All these factors have been incorporated into the current seismic requirements.

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What's New?

This version of the BC Building Code contained a substantial rewrite of the lateral bracing requirements. Below are some of the important aspects of these changes that are pertinent to most areas in our jurisdiction. This is not a complete list. Please refer to the current version of the BC Building Code for complete details.

- Lateral bracing must now be calculated for both wind and seismic forces, and the more stringent parameter will apply in the design.
- $S_a(0.2)$ has been replaced with a new design parameter called S_{max}.
- The minimum amount of braced wall panels is now based on the longest plan dimension in the orientation parallel to the band being considered rather than the length of the braced wall band.
- Factors such as the enhanced fastening of interior gypsum, presence of blocking and the number of braced wall bands and their average spacing are factored into the calculation.
- Braced wall panels are now limited in height to a maximum of 3.1 m (10'-2").
- Wall "referenced framing types" have been introduced which are different ways of constructing braced wall panels. The selected wall type will affect the required length calculations as well as the anchorage and roof framing connections.
- Most types of wood sheathed braced wall panels require the sheathing to extend to the underside of the roof deck.
- Sheathing nails used in braced wall panels must now conform to the required diameter according to the nail's specified length.

> **Note:** Relaxations and exemptions for such things as covered patios, detached garages and accessory buildings are only available for areas where S_{max} is 1.2 or less.

Permit Application Submittal Requirements

Several building plan pages and additional documents may be necessary to demonstrate compliance with the lateral bracing requirements of Part 9 buildings. Listed below is the information that is required to be provided for all building permit applications. Further detail is presented in the sections that follow.

- ☐ Sealed report from a geotechnical engineer proving the Site Class (when a Site Class other than Unknown is used).
- ☐ Minimum Braced Wall Panel Length Calculations:
  - The design parameters used to determine the factors applied to the calculation (Site Class, S_{max}, etc.).
  - Minimum braced wall panel length calculations.
  - Generally, calculations should be on a separate document, rather than on the construction drawings.
- ☐ Lateral Bracing Plan Drawings:
  - General design parameters
  - Show the location of braced wall bands and braced wall panels
  - Provide a braced wall band schedule of construction showing all necessary information for the construction of the braced wall panels (framing specifications, sheathing and nailing specifications, connections etc.)
  - To enhance visual clarity avoid overcrowding the plans.
- ☐ Truss Manufacturer's Permit Layout(s):
  - Includes trusses and blocking panels designed in accordance with good engineering practice and suitable for lateral load transfer with interior or exterior wood-sheathed braced wall panels, other than panels of WSP-A framing.

    Note: This applies to both roof and floor truss layouts. Braced wall panel type shear resistances are defined in Table A-9.23.3.5.-C

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Calculations

The 2024 BC Building Code presents various calculation methods depending on the value of the seismic design parameter S_{max} and the 1-in-50-year hourly wind pressure (HWP).

Regions within the Regional District of Nanaimo (RDN) do not qualify for the simplified approach shown in the building code and must be designed to Subsection 9.23.13.2. "Requirements for High Wind and Seismic Forces" or 9.23.13.3 "Requirements for Extreme Wind and Seismic Forces". Where requirements for "High Wind and Seismic Forces" apply, the BC Building Code provides two calculation methods, one in the main body of the code and an alternative calculation method in the notes to Part 9. Designers may select either option provided the chosen method is declared on the plans, and in the calculations. Where requirements for "Extreme Wind and Seismic Forces" apply, the designer must be a professional engineer skilled in structural design.

What is S_{max}?

A new seismic design parameter based on the new seismic hazard mapping for Canada. It is based on a location's Site Class (the site's soil classification) and is the greater of either 2/3 of $S(0.2,X_S)$ or $S(0.5,X_S)$. To determine the S_{max} for your project, visit the 2020 National Building Code of Canada Seismic Hazard Tool and follow the instructions found in Division B, Appendix C under the heading Seismic Hazard for Part 9.

- S_{max} for all areas within the RDN must be determined on a location specific basis. Table C-3 only applies to municipalities.
- Assume an unknown Site Class, unless the Site Class has been determined by a registered professional (e.g. Geotechnical Engineer).

Design Parameters

The following design parameters for the specific location and project must be provided.

- Project Location (Example: Address of the actual development site)
- Compliance Option Used
- Specified Snow Load
- 1-in-50-Year Hourly Wind Pressure
- Wind Exposure: Rough or Open Terrain
- S_{max} X_S at the Project Site + Soil Classification

Project location: 3055 Spitfire rd, Nanaimo, BC, Canada

Code compliance: 2024 BCBC as adopted on Mar 10, 2025, Part 9 - 9.23.13.2.(2a) Table calculation method

Specified Snow Load: 1.55 kPa

1:50 HWP: 0.48 kPa (Nanaimo per appendix C)
Wind Exposure Condition: Open Terrain

Site soils classification: Not determined (unknown)
Smax design parameter: Smax Xe = 1.65 for unknown soils at the project location per NBCC 2020 earthquake hazard calculator

Design Tips

Seismic Considerations (S_{max}) in the RDN:

- S_{max} > 1.2 when Site Class is unknown or is Class D in most of the RDN.
- S_{max} > 1.2 throughout most of the South Wellington area, all areas south of the Cedar township, all of Extension and Cassidy areas even when Site Class C is determined.
- Bracing relaxations and trade-offs are available when $S_{max} \leq 1.2$ is proven by a qualified professional.

Bracing Exemptions:

When a geotechnical engineer confirms the Site Class and $S_{max} \leq 1.2$:

- Detached accessory buildings may be exempt from lateral bracing.
- Relaxations may apply to other building types.

Wind Load Calculations:

- Use Open Terrain for K_{exp} unless the building has rough terrain protection.
- Rough Terrain is urban, suburban, or wooded terrain extending uninterrupted for at least 1 km. All other terrain is considered open.

Solar Panel Impact:

- Solar panel installations typically exceed "normal construction weight" limit
- If installing now or later, design the building for a heavy roof.

Brace to the Roof Deck:

- Using WSP-A for the bracing bands of the upper most storey avoids the need to extend bracing panels to the underside of the roof deck.

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Calculation Tables

Calculations must be completed on a band by band, storey by storey basis for both wind and seismic effects to find which has the greater impact for each band. Refer to the 2024 BC Building Code for complete instructions.

The table calculation method found in 9.23.13.7. of the 2024 BCBC begins with an unadjusted bracing length requirement obtained from T-9.23.13.7-A for wind design and from T-9.23.13.7-C for seismic design. This value is then adjusted to suit the building's features and other design influencing factors of the building. Some factors apply to the whole building, while others are specific to only certain bands.

The information for the calculations should be shown in a table format. Notes may be required to further explain the selection of an adjustment factor or bracing outcome. Below is an example of how the calculations may be presented.

Bracing calculations - Table method (9.23.13.7.(3))

Upper storey — Governing bracing length per band indicated by green field

WIND DESIGN
Luw • Kexp • Kroof • Kwspacing • Kwnumber • Kgyp • Ksheath = **Lw**

BAND	Bracing Panel	Luw	Kexp	Kroof	Kwspacing	Kwnumber	Kgyp	Ksheath	Lw
A	**WSP-A**	1.9	1.4	0.71	0.9	1.28	1.0	1.0	**2.176**
B	**WSP-A**	1.9	1.4	0.71	0.9	1.28	1.0	1.0	**2.176**
C	**WSP-A**	1.9	1.4	0.71	0.9	1.28			
Notes: 2 storey rough terrain (Kexp 1.4), Kwspacing, Kwnumber and Kroof interpolated									
1	**WSP-A**	1.9	1.4	0.71	1.0	1.0	1.0	1.0	**1.886**
2	**WSP-A**	1.9	1.4	0.71	1.0	1.0	1.0	1.0	**1.886**
Notes: 2 storey rough terrain (Kexp 1.4), Kwspacing, and Kroof interpolated									

SEISMIC DESIGN
Lus • Kweight • Ksnow • Ksspacing • Ksnumber • Kgyp • Ksheath = **Ls**

BAND	Bracing Panel	Lus	Kweight	Ksnow	Ksspacing	Ksnumber	Kgyp	Ksheath	Ls
A	**WSP-A**	2.1	1.0	1.0	0.92	1.33	1.0	1.0	**2.57**
B	**WSP-A**	2.1	1.0	1.0	0.92	1.33	1.0	1.0	**2.57**
C	**WSP-A**	2.1	1.0	1.0	0.92	1.33	1.0	1.0	**2.57**
Notes: Lus, and Ksspacing interpolated									
1	**WSP-A**	3.92	1.0	1.0	1.0	1.0	1.0	1.0	**3.92**
2	**WSP-A**	3.92	1.0	1.0	1.0	1.0	1.0	1.0	**3.92**
Notes: Lus interpolated									

Online Lateral Bracing Calculators and Resources

The Province of British Columbia is in the process of creating a lateral bracing guide and calculator for industry use; however, the estimated release date is currently unknown.

An online calculator has been created by an industry professional. The software is currently a beta test version which can be downloaded at www.part9bracing.ca/calculator/beta-download.

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Lateral Bracing Construction Drawings

Construction drawings should be presented in a clear, legible format while providing all the necessary information for construction.

- Provide enough whitespace for visual clarity, RDN notes and permit stamps.
- Include the design parameters and code compliance path.
- Provide a braced wall panel construction schedule.
- Provide a comprehensive sum of information and detail to enable accurate use by those tasked with constructing the building.

Braced Wall Panel Construction Schedule

The following construction information must be provided on the plans for the project:

- Each Storey, each Band per storey, and the Calculated Minimum Bracing Length in feet and inches.
- Panel type (WSP-D), full description of the framing requirements and panel fastening specifications
- Define whether the panels are blocked, or have gypsum bracing panels on the other side, or whether they are unblocked and without gypsum bracing panels (such as in a crawlspace),
- Define the connection requirements that ensure a continuous lateral load path throughout the building.
- Define the double top plate splice fastening requirements in each band, for each storey,
- Define the construction and connection requirements of the panel to the roof framing or roof deck)

Braced Wall Panel and Lateral Load Path Connection Schedule

Braced Wall Bands				Braced wall Panel Construction		Lateral Load Path Connections		
Floor	Band	Panel Type	Calculated minimum sum of, l_{BWP} [1]	Specification of BWP Framing + Top plate splices in a Braced Wall Band	Sheathing + Nailing Specification	Braced wall panel bottom plate connection to foundations or framing below	Roof framing to top plates, Floor framing to top plates or sill plate below	Connection to roof deck
Lower	A	WSP-D	8'-8"	WSP-D: 2x6@ 24" o/c max Sheathing panel joints blocked + edge nailed Double top plate splice fastening: (14) 3" x 0.148" nails [2] each side of splice.	11mm Plywood, OSB, Waferboard Braced wall panel boundary and sheathing panel edges fastened @ 3" o/c. 12" o/c along intermediate supports with 2-1/2" x 0.128" Nails No interior side gypsum bracing panels	WSP-D: 1/2" A-bolts - 2 per panel + ≤ 0.6m o/c Or 5/8 A-bolts - 2 per panel + ≤ 0.9m o/c And Located at opposite ends of each BWP, within 0.3m of end of BWP	Perimeter Floor joist connection to Top Plates or to Sill plates: 3-1/4" x 0.148" nails spaced 6" o/c - toe nails around whole perimeter of building Or Sheathing connection of floor to top plates: Span sheathing onto floor framing, Fasten sheathing to rim joist and to top plates per sheathing edge-nail specification around whole perimeter of building.	N/A to lower storey framing not directly supporting a roof
	B	WSP-D	9'-11"					
	C	WSP-D	9'-11"					
	1	WSP-D	16'-4"					
	2	---	---	Concrete wall	n/a	Anchorage not within BWP: 1/2" A-bolts @ 8' o/c max, + located within 0.5m from end of foundations		
Main	A	WSP-A	8'-6"	WSP- A: 2x6@ 16" o/c max Sheathing panel joints may be blocked or unblocked Double top plate splice fastening: (14) 3" x 0.148" nails each side of splice [2]	11mm Plywood, OSB, Waferboard WSP-A: 2" Nails - 0.113" Diameter Braced wall edge nailing 6" o/c Intermediate support nailing @12" o/c Interior side of Gypsum fastened per Gypsum BWP specification See T-9.23.3.5.-C	Wall sheathing to span onto Rim Board and be fastened per edge nail wall sheathing specification and spacing requirements. Or Bottom Plate fastened to rim joist with 3-1/4" x 0.148" nails @ 6" o/c max [2]	Roof system connection to Top plates at Exterior walls: Truss/Joist - (3) 3-1/4" x 0.148" toenailed Roof framing connection to Top plates above an Interior Braced Wall Panel: 3-1/4" x 0.148" nails spaced 6" o/c ***Perpendicular, or "Non-Aligning Parallel" configurations require blocking installed in between roof framing members	N/A on this project. Required for Interior + Exterior wood sheathed braced wall panels other than panels of WSP-A framing in the upper most storey.
	B	WSP-A	8'-6"					
	C	WSP-A	8'-6"					
	1	WSP-A	12'-11"					
	2	WSP-A	12'-11"					

Notes:
1) Calculated total sum length of braced wall panels only. Additional braced wall panels are required to suit location and size requirements (see 9.23.13.5)
2) Where fasteners of lesser diameter are employed, their spacing must be reduced according to the calculation methods described in A-9.23.3.1.(2)
-Example 1: Instead of fastening a sill plate to a rim board with 3-1/4" x 0.144" nails @ 6" o/c, 3-1/4" x 0.120" nails @ 4" o/c is also acceptable.
-Example 2: Instead of fastening top plate splices with (14) 3" x 0.144" nails on each side of the splice, (20) 3" x 0.120" nails on each side of the splice is acceptable.

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Sample Lateral Bracing Construction Drawing Layout

Project location: 3055 Spitfire rd, Nanaimo, BC, Canada

Code compliance: 2024 BCBC as adopted on Mar 10, 2025, Part 9 - 9.23.13.2.(2a) Table calculation method

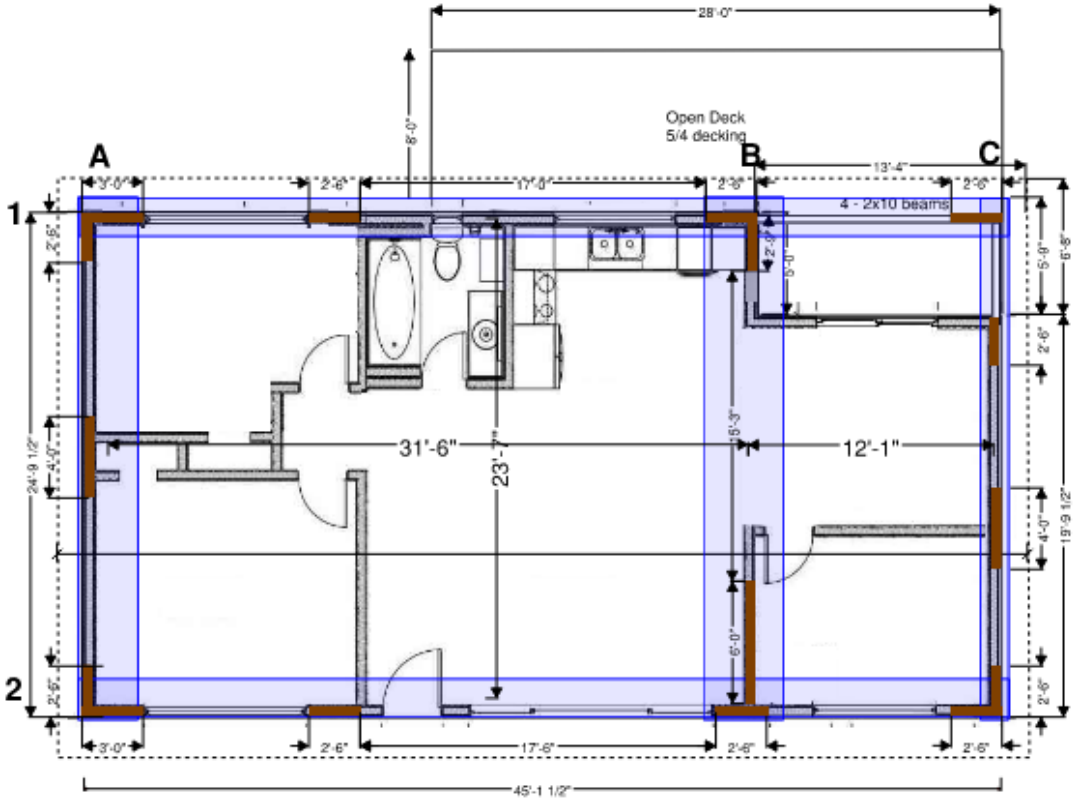
Specified Snow Load: 1.55 kPa

1:50 HWP: 0.48 kPa (Nanaimo per appendix C)
Wind Exposure Condition: Open Terrain

Site soils classification: Not determined (unknown)
Smax design parameter: Smax Xe = 1.65 for unknown soils at the project location per NBCC 2020 earthquake hazard calculator

Lateral Bracing Plan
Main storey
Scale : 1/4" = 1'

Note: Lower storey bracing plan is necessary for this building, but is omitted from this example for visual clarity.



Braced Wall Panel and Lateral Load Path Connection Schedule

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Floor	Band	Panel Type	Calculated minimum sum of, BWP	Specification of BWP Framing + Top plate splices in a Braced Wall Band	Sheathing + Nailing Specification	Braced wall panel bottom plate connection to foundations or framing below	Roof framing to top plates, Floor framing to top plates or sill plate below	Connection to roof deck
Lower	A	WSP-D	8'-8"	WSP-D: 2x6@ 24" o/c max Sheathing panel joints blocked + edge nailed Double top plate splice fastening: (14) 3" x 0.148" nails[2] each side of splice.	11mm Plywood, OSB, Waferboard Braced wall panel boundary and sheathing panel edges fastened @ 3" o/c. 12" o/c along intermediate supports with 2-1/2" x 0.128" Nails No interior side gypsum bracing panels	WSP-D: 1/2" A-bolts - 2 per panel + ≤ 0.6m o/c Or 5/8 A-bolts - 2 per panel + ≤ 0.9m o/c And Located at opposite ends of each BWP, within 0.3m of end of BWP	Perimeter Floor joist connection to Top Plates or to Sill plates: 3-1/4" x 0.148" nails spaced 6"o/c - toe nails around whole perimeter of building Or Sheathing connection of floor to top plates: Span sheathing onto floor framing, Fasten sheathing to rim joist and to top plates per sheathing edge-nail specification around whole perimeter of building.	N/A to lower storey framing not directly supporting a roof
	B	WSP-D	9'-11"					
	C	WSP-D	9'-11"					
	1	WSP-D	16'-4"					
	2	---	---	Concrete wall	n/a	Anchorage not within BWP: 1/2" A-bolts @ 8' o/c max, + located within 0.5m from end of foundations		
Main	A	WSP-A	8'-6"	WSP- A: 2x6@ 16" o/c max Sheathing panel joints may be blocked or unblocked Double top plate splice fastening: (14) 3" x 0.148" nails each side of splice[2]	11mm Plywood, OSB, Waferboard WSP-A: 2" Nails - 0.113" Diameter Braced wall edge nailing 6" o/c Intermediate support nailing @12" o/c Interior side of Gypsum fastened per Gypsum BWP specification See T-9.23.3.5.-C	Wall sheathing to span onto Rim Board and be fastened per edge nail wall sheathing specification and spacing requirements. Or Bottom Plate fastened to rim joist with 3-1/4" x 0.148" nails @ 6" o/c max[2]	Roof system connection to Top plates at Exterior walls: Truss/Joist - (3) 3-1/4" x 0.148" toenailed Roof framing connection to Top plates above an Interior Braced Wall Panel: 3-1/4" x 0.148" nails spaced 6" o/c ***Perpendicular, or "Non-Aligning Parallel" configurations require blocking installed in between roof framing members	N/A on this project. Required for Interior + Exterior wood sheathed braced wall panels other than panels of WSP-A framing in the upper most storey.
	B	WSP-A	8'-6"					
	C	WSP-A	8'-6"					
	1	WSP-A	12'-11"					
	2	WSP-A	12'-11"					

Notes:
1) Calculated total sum length of braced wall panels only. Additional braced wall panels are required to suit location and size requirements (see 9.23.13.5)
2) Where fasteners of lesser diameter are employed, their spacing must be reduced according to the calculation methods described in A-9.23.3.1.(2)
-Example 1: Instead of fastening a sill plate to a rim board with 3-1/4" x 0.144" nails @ 6" o/c, 3-1/4" x 0.120" nails @ 4" o/c is also acceptable.
-Example 2: Instead of fastening top plate splices with (14) 3" x 0.144" nails on each side of the splice, (20) 3" x 0.120" nails on each side of the splice is acceptable.

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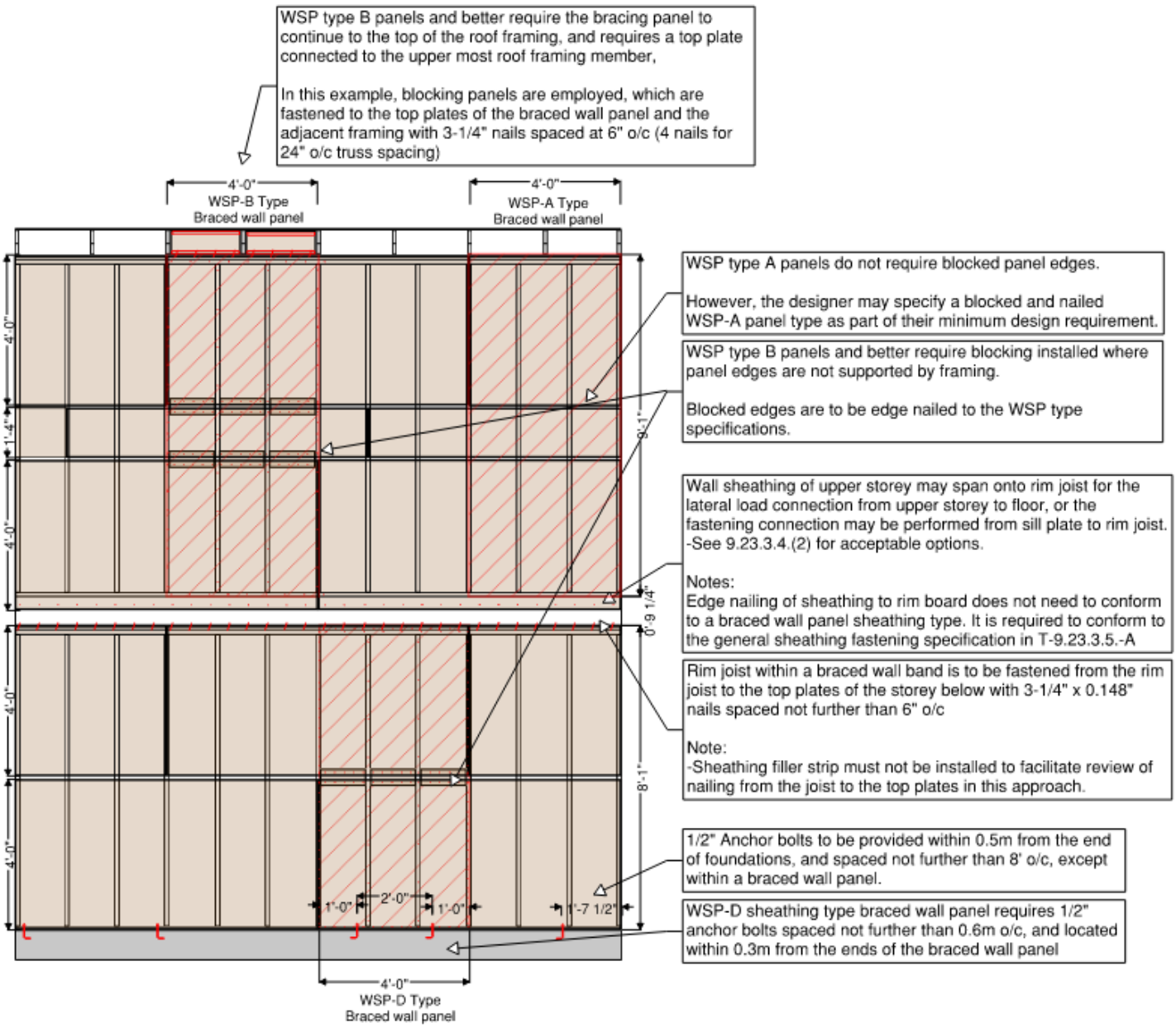
Construction Details

The following are examples of braced wall panel details

Braced Wall Panel Wall Type Details



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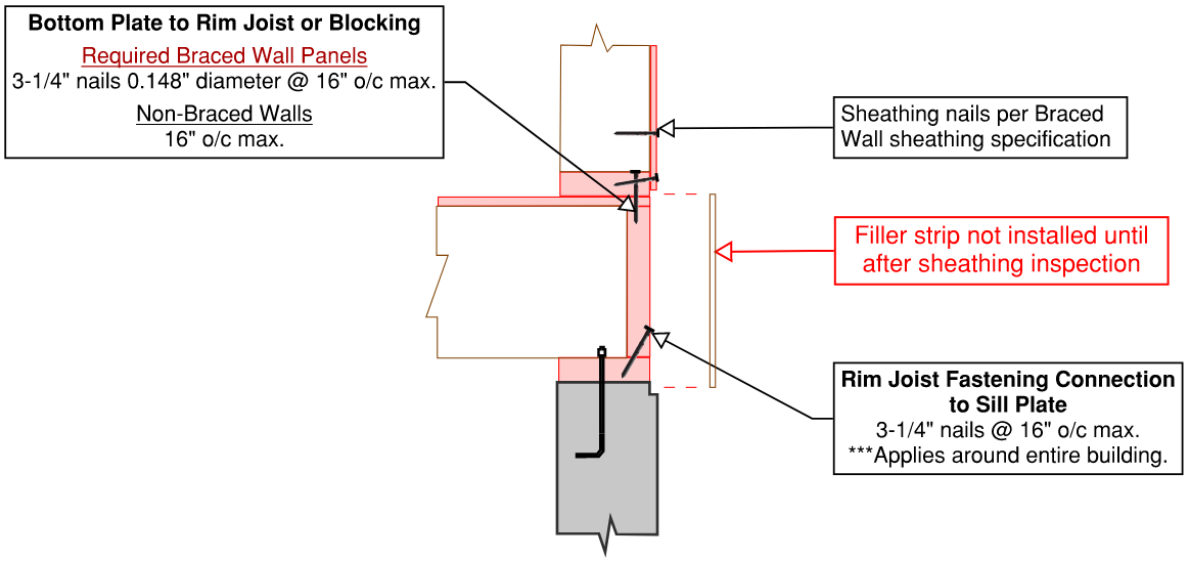
Lateral Load Transfer Between Floor Framing and Foundation Walls

Refer to Table 9.23.3.4. for general fastening requirements between framing members.



Alternative Option (Not Shown): Span sheathing down onto rim joist and over sill plate acceptable where sheathing is fastened to both rim joist and sill plate per wall fastening specification around whole building.

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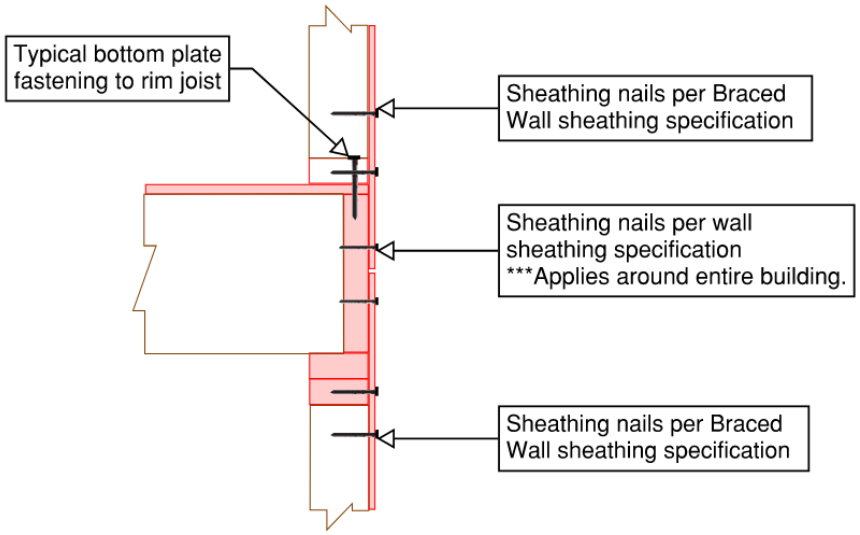
Lateral Load Transfer Between Storeys for Exterior Braced Wall Panels (BWP)

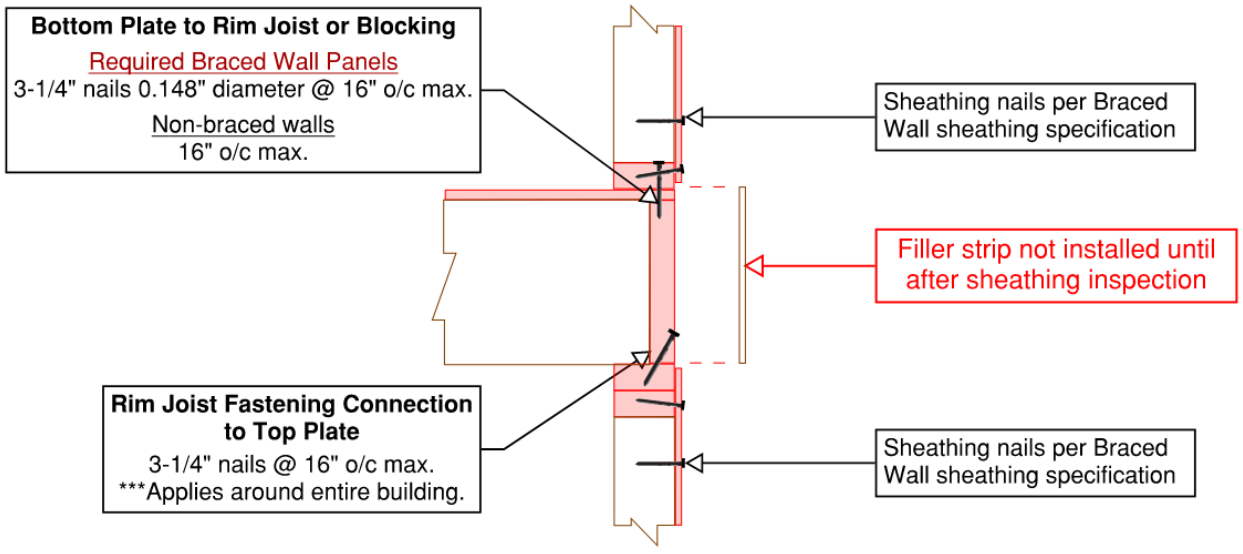
Refer to Table 9.23.3.4 for general fastening requirements between framing members.

Wall Sheathing Spans Over Rim Board

Note: Wall sheathing from both upper and lower storeys shown spanning over the rim board.



Filler Strip Placed Over Rim Board



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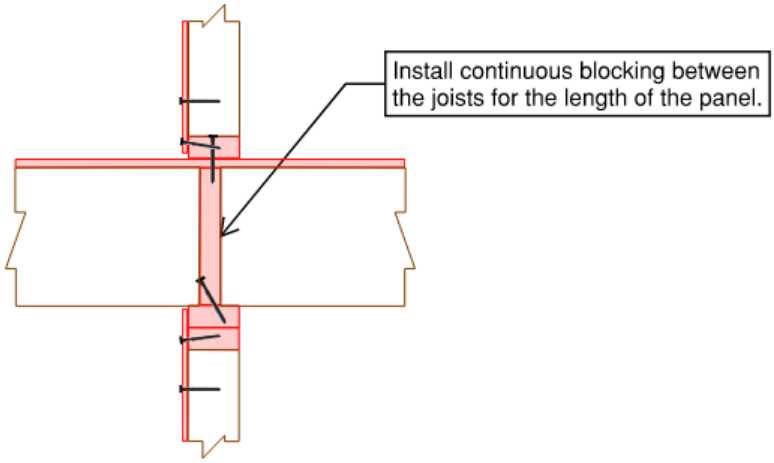
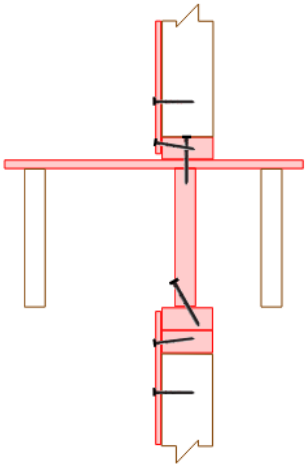
Lateral Load Transfer Between Storeys for Interior Braced Wall Panels (BWP)

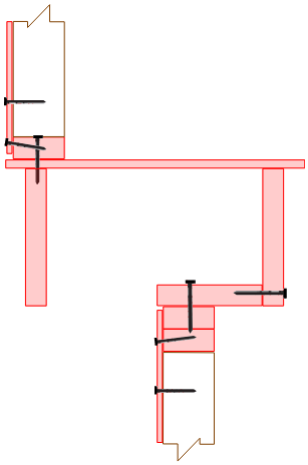
BWP Perpendicular to Floor Joists



BWP Parallel and Between Floor Joists



Recommended Approach
Install an additional floor joist
below the location of the braced wall panel.



Alternative Approach
Nail placement should be staggered to prevent splitting
Continuous blocking or sheathing may be employed.
Use block panels from truss manufacturer when the heal height exceeds typical lumber width.
Refer to graphic depicting bracing in roof spaces.

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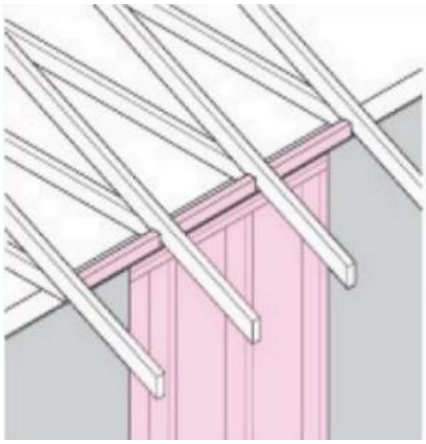
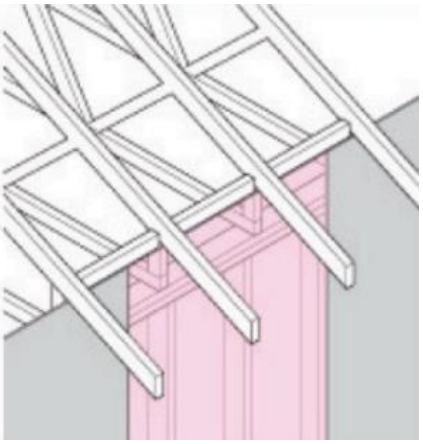
Braced Wall Panel Connections to Roof Framing (BWP)

Exterior Wood Sheathed Braced Wall Panels Connection to Trusses
Wall Types: Other than WSP-A Framing Type

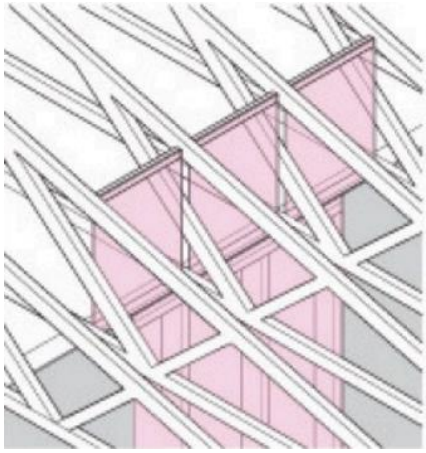


Regular Truss

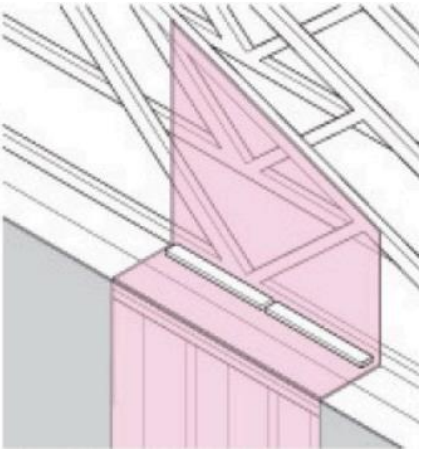


Raised Heel Truss

Interior Wood Sheathed Braced Wall Panel Connection to Trusses
Wall Types: Other than WSP-A Framing Type



BWP Perpendicular to Truss framing



BWP Parallel Non-Aligned to Truss framing

- Braced wall panels shall have their Top Plates connected to the top chords of trusses by using blocking panels or other methods of lateral load transfer designed by the roof truss manufacturer.
- 2x4 block fastened to truss bottom chord/joist with 3-1/4" x0.148" diameter nails spaced not further than 6" o/c.
- BWP type sheathing fastened to top plates and underside of 2x4 block per BWP edge fastening specification.
- BWP type sheathing extending vertically from bottom chord to top chord and fastened to each chord per BWP edge fastening specification.

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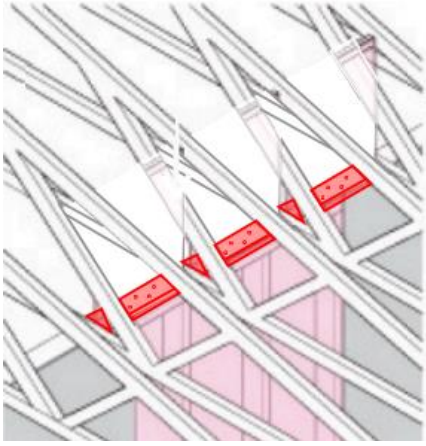
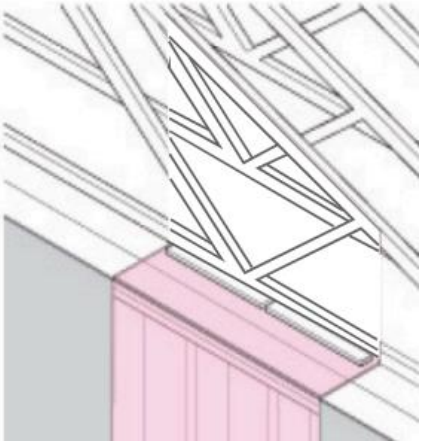
Interior Braced Wall Panel Connection to Roof Framing (BWP)

Wall Types: GWB and WSP-A Only



BWP Perpendicular to Roof Framing



BWP Parallel Non-Aligned to Roof Framing

- Install blocking between roof framing, and fasten to the top plates with a connection method equivalent to 3-1/4” x 0.148” @6” o/c Examples:
  - Roof framing spacing @ 24” o/c: (4) 3-1/4" x 0.148" nails from blocking to top plate
  - Roof framing spacing @ 16” o/c: (3) 3-1/4" nails from blocking to top plate
- Non-aligning parallel installations:
  - Connect 2x4 block to bottom chord/joist with 3-1/4" 0.148" nails at 6" o/c,
  - Plywood sheathing between top plate and 2x4 block, and
  - Fasten sheathing as per BWP edge fastening specification to top plates and 2x4 block.
- Aligning parallel installations (not shown):
  - Toenail bottom chord to top plates with 3-1/4" x 0.148" nails at 6" o/c max spacing.

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