

Best Prepared Designer Training

June 10, 2024



*Planning, Building and
Code Enforcement*

Agenda for Today's Session

Topic	Time
Welcome & Overview	9:00 – 9:15
Best Prepared Designer Program Overview	9:15 – 9:35
Project Documentation & Submittal Requirements	9:35 – 9:55
Zoning, Building Code & Construction Requirements	9:55 – 10:35
Break	10:35 – 10:50
Audit, Field Inspection & Revisions	10:50 – 11:10
Wrap-Up & Questions	11:10 – 12:00

Training Objectives

1. Explain Best Prepared Designer (BPD) program requirements, procedures and benefits
2. Explain documentation and submittal requirements
3. Present key building code and construction requirements, including amendments in San José Municipal Code
4. Communicate standards for audits, field inspections and revisions

BPD Program Overview

BPD Program Objective & Benefits

- To streamline and shorten the building permitting process for design professionals who meet minimum qualifications
- Allowed to defer portions of the standard building plan review process
- Compliance is verified through plan audits and during field inspection

Who can enroll in the program?

Eligible Profession	Minimum Qualifications
Licensed Architects & Civil or Structural Engineers	<ul style="list-style-type: none">• 3 years of experience with City of San José Building Codes• Registered in the State of California for 3 years & certified to seal project drawings
Certified Access Specialists	<ul style="list-style-type: none">• Certified in the State of California in good standing
Unlicensed Designers	<ul style="list-style-type: none">• 3 years of experience with City of San José Building Codes• 3 or more permits issued that required building plan review in the 36-month period prior to enrollment• Completion of a Best Prepared Designer training class offered by the Building Division

How to Enroll

- Download, complete, and sign the Best Prepared Designer Enrollment Application (Form 307A)
 - Provide permit or plan check numbers for 3 projects
 - Indicate the date you attended this training class
- Submit to **BPD@sanjoseca.gov** with the subject line “BPD Enrollment Application”
- Building Division staff will review your information to verify eligibility requirements
- You will be notified via email of acceptance into the program and provided with a Best Prepared Designer ID number

Enrollment Details

- Enrollment period: Through December 31st of the current 3-year code cycle
- No cost to enroll
- Designers must continue to meet the eligibility requirements for their profession
- Results of project audits and field inspections must meet performance thresholds

Projects Eligible for BPD Permitting

SINGLE-FAMILY RESIDENTIAL	COMMERCIAL
Addition of <= 500 sq. ft. on a single-story residence	Most cell site projects
Attached patio covers and decks	Barrier removals/ADA upgrades by a licensed architect with a signed CASp review
Detached accessory building for use as a shed, playhouse, or similar	Tenant improvements with a signed CASp review
Interior remodels	EV charging stations for installations that do not exceed 80% of the panel/system capacity with a signed CASp review
New skylights	Gas station pump swaps
Voluntary foundation repairs	Wall-mounted signs

Residential Projects – Reviews Still Required

SINGLE-FAMILY RESIDENTIAL	REVIEWS STILL REQUIRED
Additions	Planning, Fire, Public Works
Attached patio covers and decks	Planning
Detached accessory building	Planning, Fire, Public Works
Interior remodels	<input type="checkbox"/> Planning if there are any changes to the exterior <input type="checkbox"/> Public Works if property is in a geohazard or flood zone
New skylights	Planning if property is historic
Voluntary foundation repairs	Public Works if property is in a geohazard or flood zone

Examples of Ineligible Projects

- ADUs and JADUs
 - And projects that include them (e.g. convert garage to JADU + remodel of existing residence)
- Projects involving Code Enforcement cases
- Projects at Multifamily properties
- Additions > 500 sq. ft.
- Additions to two-story residences
- Balcony repairs
- Repairs to address fire damage

What types of projects can unlicensed designers submit?

- Eligible single-family residential projects only
- Must use conventional framing
- No engineered designs

If your project involves structural calculations, the licensed design professional who prepares them must also be enrolled in the BPD program

Both designers must submit a Design Professional Certification for the project

All the Details

- [Best Prepared Designer Program Web Page](#)
- [BPD Program Criteria & Requirements Manual](#)

Document Requirements & Submission Standards

BPD Permit Submission Documents

- Building Permit Application – [Form #310](#)
 - Form #311 for Owner/Builder
- Design Professional Certification Statement – [Form #307-B](#)
- Complete Plan Set
 - Must include Cover Sheet & Site Plan
- Structural & Supporting Details / Calculations (as applicable)
- BPD Project Intake Checklist

BPD Program – Project Intake Checklists

- Will be used to determine:
 - Project eligibility for BPD permitting
 - Whether additional reviews are required
- Required Information:
 - Property Information
 - Project Description
 - Contact Information for Responsible Parties
 - Submittal Document Checklist

[Form 307-D BPD Residential Project Intake Checklist](#)

Property Information can be found at [SJPermits](#)

PERMIT AND PROPERTY INFORMATION



Search Permits,
Property & Zoning

You can view the following information:

1. Zoning designation
2. Permit history
3. Plan review status
4. Property information
5. Proposed projects

PUBLIC INFORMATION SEARCH

Partial entries and wildcard (%) searches are permitted.

Example: 200 Santa and 200 %Clara will both return data for 200 E Santa Clara St.

SEARCH BY ADDRESS

House or Building Number:

Street Name (name only):

Do NOT enter a direction (N, S, E, W).

Do NOT enter type of road (Ave., Rd., St., etc.)

Search

PROPERTY INFO

Show entries

Description	Value
Flood Zone	AO
GeoHazard Zone	No
Historic Area	No

Cover Sheet Requirements

- Site address & Assessor's Parcel Number (APN)
- Design professional name, title, address, email & phone
- Property owner name, address, email & phone
- Scope of work
- Occupancy group classification & type of construction
- Applicable codes & editions
- Index of drawings & scale used

Site Plan Requirements

- Lot dimensions of full parcel
 - Show property lines & street names
- Locations & dimensions of all existing & proposed structures
- Distances from existing & proposed structures to other buildings & property lines
- Locations of easements & visible utilities
- Small vicinity map with North arrow
- Existing & future finished grades for new structures & additions to existing buildings/ structures with any existing or proposed retaining walls.
 - Show the direction of drainage

Architectural Plan Requirements

- Existing and proposed Roof & Floor plans with all dimensions (Incl. overhangs, eaves, and any demolition)
- Exterior Elevations / Cross Sections
- Size & intended use of all rooms / bathrooms with walls placement (incl. ceiling heights)
- Doors & Windows Schedule listing sizes and types (Incl. Flashing details)
- Emergency egress windows in all rooms used for sleeping
- Locations of:
 - smoke & carbon monoxide detectors
 - plumbing fixtures, water heaters, heating & AC units
 - gas outlets
- Construction Details and Material Specifications

Structural Plan Requirements

- Foundation & Footing (Incl. Finish grade)
- Roof & Floor Framing
 - Size & spacing of all framing members (span tables, etc.)
- Structural / Connection Details and Specifications
- Fastening Schedule
- Braced (Shear) Wall Design
 - Location of all braced wall lines and types
 - Braced wall panels & bracing methods (Incl. Holdowns)
 - Anchor Bolts, nailing, transfer connections
- Products, Materials & Assemblies

Make sure to show construction details on your plans

Project Submittal, Intake & Permit Issuance

- Submit all required documents via email to BPD@sanjoseca.gov
- Building staff will review for completeness & verify project eligibility
- Designer (or project contact) will be notified if project is approved for BPD permitting
- Projects requiring Planning, Public Works &/or Fire reviews will be routed accordingly
- Permit Center staff will email applicant when Building Permit is ready for issuance

Zoning Basics & Site Plans

Zoning ordinance & building codes guide project planning

Zoning Ordinance:

- separates incompatible land uses
- ensures land is used in a manner that best serves the health & safety of the community
- regulates the setback of buildings from property lines & the size of buildings permitted on a site

California Residential Code (CRC):

- establishes minimum requirements to provide reasonable levels of safety, health & general welfare & safety to fire fighters & emergency responders during emergency operations

Typical Zoning Information for Residential Lots

- San Jose Municipal Code 20.30.200

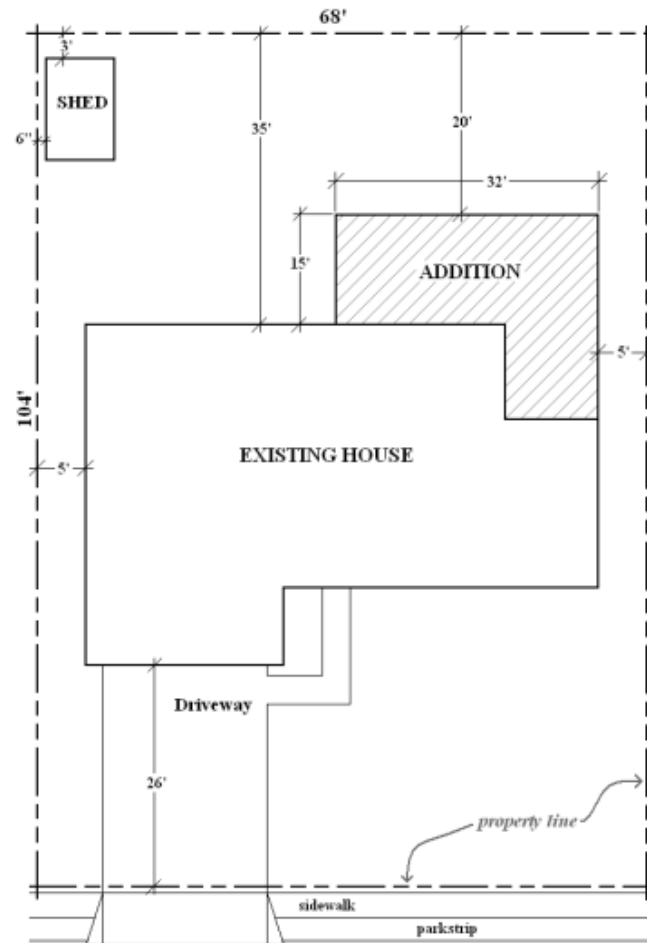
Regulations	Zoning District							
	R-1-8	R-1-5	R-1-2	R-1-1	R-1-RR	R-2	R-M	R-MH
Minimum lot area (square feet or acreage)	5,445	8,000	20,000	43,560	5 acres	5,445	6,000	6,000
Minimum setback (feet)								
Front	20	20	30	30	50	15	10	15
Side, interior (Note 6)	5	5	15	20	20	5	5	5
Side, corner (Note 6)	12.5	12.5	15	20	30	10	7.5	7.5
Rear, interior	20	20	25	25	30	25	25	25
Rear, corner	20	20	25	25	30	25	15	15
Minimum driveway length (feet) measured from lot line (Note 5)	18	18	18	18	18	0	0	0
Maximum height (feet) (Notes 1, 2 and 4)	35	35	35	35	35	35	45 or established in Chapter 20.85	45
Maximum number of stories (Note 3)	2.5	2.5	2.5	2.5	2.5	2.5	Not applicable	3
Parking	See Chapter 20.90							
Floor area ratio	See Part 9 of Chapter 20.100 for single-family house permit criteria that may apply							

Site plan design example within an R-1-8 zone

- The purpose of a site plan is to clearly show where an existing house is on a property and where a proposed addition is going to be built
- Site plans shall be drawn to scale and should indicate the nature and scope of work
- Show all easements and setbacks on the site plan
- Indicate if buildings are allowed in easements
- Refer to Title Deed, Homeowner's Associations, and/or Public Works for property easement info

Site plan design example within an R-1-8 zone

EXAMPLE:



SITE AND BUILDING INFORMATION

ADDRESS: 1234 Main Street

ZONING: R - 1 - 8

APN: 234 - 56 - 789

LOT SIZE: 7,072 square feet

EXISTING LIVING AREA: 1,600 square feet

EXISTING GARAGE: 400 square feet

PROPOSED ADDITION: 500 square feet

PROPOSED TOTAL AREA: 2,100 square feet

FLOOR AREA RATIO: 29.7%

SCOPE OF WORK:

Family room addition, bedroom extension, new master bathroom and kitchen remodel.

Questions about zoning – email
zoningquestions@sanjoseca.gov



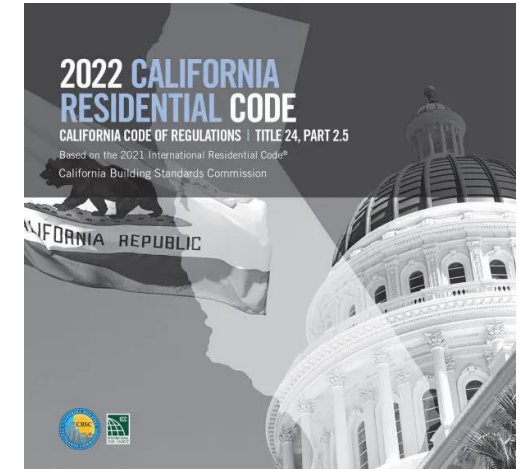
Main Street

Site Design Considerations

- Ensure the total floor area is less than 45% of lot size to avoid planning's single-family house permit process ([Municipal Code Section 20.100.1030](#))
- Inspectors look for property lines to be marked or easily determined from existing references. Existing fences can be used if the dimensions between the fence lines match the site plan. If references are not identified or when a discrepancy occurs, a survey letter can be requested.
- Locate any mechanical equipment 5 feet minimum from the side and rear property lines and outside of the front setback ([Municipal Code Section 20.30.400](#))
- Identify the utilities on plan. If the building is proposed over the existing gas or electric service, coordinate with PG&E for a relocation plan
- Obtain tree removal permit for any trees on the property that will be removed unless smaller than 38" in circumference measured 54" above the ground.

Construction Codes Adopted by the City of San José

Code & Edition	Source
2022 CA Residential Code (CRC)	2021 International Residential Code
2022 CA Building Code (CBC)	2021 International Building Code
2022 CA Electrical Code	2020 National Electrical Code
2022 CA Plumbing Code	2021 Uniform Plumbing Code
2022 CA Mechanical Code	2021 Uniform Mechanical Code
2022 CA Energy Code	
San José Reach Code & Ordinance	



[City of San Jose - Construction Guidelines for Residential Construction](#)

California Residential Code (CRC)

Chapter 3 Building Planning - Highlights

Fire-Resistant Construction (Section R302)

- Un-sprinklered buildings: exterior walls less than 5' to the property line require fire-resistance rated construction
 - No openings in walls less than 3' to property line
 - Rated projections (overhangs) required between 3' and 5' to property line
- Sprinklered buildings: exterior walls less than 3' to the property line require fire-resistance rated construction
 - No openings in walls less than 3' to property line
 - Rated projections (overhangs) required between 2' and 3' to property line

Fire-Resistant Construction, Cont.

TABLE R302.1(1) EXTERIOR WALLS



EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119, UL 263 or Section 703.3 of the <i>California Building Code</i> with exposure from both sides	0 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Projections	Not allowed	NA	< 2 feet
	Fire-resistance rated	1 hour on the underside, or heavy timber, or fire-retardant-treated wood ^{a, b}	≥ 2 feet to < 5 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Openings in walls	Not allowed	NA	< 3 feet
	25% maximum of wall area	0 hours	3 feet
	Unlimited	0 hours	5 feet
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet

For SI: 1 foot = 304.8 mm.

TABLE R302.1(2) EXTERIOR WALLS—DWELLINGS AND ACCESSORY BUILDINGS WITH AUTOMATIC RESIDENTIAL FIRE SPRINKLER PROTECTION



EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the <i>California Building Code</i> with exposure from the outside	0 feet
	Not fire-resistance rated	0 hours	3 feet ^a
Projections	Not allowed	NA	< 2 feet
	Fire-resistance rated	1 hour on the underside, or heavy timber, or fire-retardant-treated wood ^{b, c}	2 feet ^a
	Not fire-resistance rated	0 hours	3 feet
Openings in walls	Not allowed	NA	< 3 feet
	Unlimited	0 hours	3 feet ^a
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet ^a

For SI: 1 foot = 304.8 mm.

Fire-Resistant Construction (Section R302.6)

- The garage and/or carport shall be separated from the dwelling as required by Table R302.6
- Openings in garage walls shall comply with Section R302.5

TABLE R302.6 DWELLING-GARAGE AND/OR CARPORT SEPARATION



SEPARATION	MATERIAL
From the residence and attics	Not less than 1/2-inch gypsum board or equivalent applied to the garage side
From habitable rooms above the garage <i>or carport</i>	Not less than 5/8-inch Type X gypsum board or equivalent
Structure(s) supporting floor/ceiling assemblies used for separation required by this section	Not less than 1/2-inch gypsum board or equivalent
Garages located less than 3 feet from a dwelling unit on the same lot	Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area

Light, Ventilation & Heating (Sec. R303)

- Habitable rooms shall have an aggregate glazing area of 8% of the floor area of the room, and the openable area to the outdoors shall be not less than 4%
- Bathrooms with a bathtub, shower, or bath/tub combo are required to be mechanically ventilated whether or not the room contains a window

Minimum Room Areas (Sec. R304)

- Habitable rooms shall have a room area not less than 70 square feet and shall be not less than 7' in any horizontal dimension

Glazing (Section R308)

- Glazing in hazardous locations is required to be safety glazing
- Hazardous locations include glazing in:
 - swinging, sliding, and bifold doors
 - a fixed or operable panel adjacent to a door
 - certain window configurations
 - guards and railings
 - walls, enclosures, or fences containing or adjacent to hot tubs, saunas, whirlpools spas, steam rooms, bathtubs, showers, or pools where the bottom exposed edge of the glazing is less than 60" above a standing/walking surface
 - areas adjacent to stairs and ramps where the bottom exposed edge of the glazing is less than 36" above the plan of the walking surface of the stairway, ramp, and/or landing

Emergency Escape & Rescue Openings (Section R310)

- Every basement, habitable attic, and sleeping room shall have not less than one operable emergency escape and rescue opening
- Emergency escape and rescue openings shall have a net clear opening of not less than 5.7 square feet
- Minimum net clear opening height dimension is 24"
- Minimum net clear opening width dimension is 20"
- Bottom of the clear opening shall not be greater than 44" measured from the floor

Smoke Alarms (Section R314)

- Required
- In each sleeping room
- Outside each separate sleeping area, in the immediate vicinity of the bedrooms
- On each story of the dwelling
- Not less than 3' horizontally from the door or opening of a bathroom that contains a bathtub or shower (unless there is no other choice)
- In the hallway and in the room open to the hallway, where the ceiling height of a room open to a hallway serving bedrooms exceeds that of the hallway by 24" or more

Carbon Monoxide Alarms (Section R315)

- Required when the dwelling unit contains a fuel-fired appliance or fireplace
- Required when the dwelling unit has an attached garage with an opening that communicates with the dwelling unit
- Outside each separate sleeping area, in the immediate vicinity of the bedrooms
- On every occupiable level of a dwelling unit
- If a fuel-burning appliance is located within a bedroom or its attached bathroom, a carbon monoxide alarm shall be installed within the bedroom

California Residential Code (CRC) Conventional Framing Basics

Design Criteria (Section R301.1)

Buildings and structures, and parts thereof, shall be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, wind loads and seismic loads as prescribed by this code.

The construction of buildings and structures in accordance with the provisions of this code shall result in a system that provides a complete load path that meets the requirements for the transfer of loads from their point of origin through the load-resisting elements to the foundation.

Buildings and structures constructed as prescribed by this code are deemed to comply with the requirements of this section.

Building Irregularities that are not allowed

- When a section of the roof is not laterally supported by shear walls or braced wall lines on all sides
- When an opening in the roof exceeds the lesser of 12 feet or 50% of the least roof dimension
- When shear walls or braced wall lines do not occur in two perpendicular directions
- When stories above-grade that are partially or completely braced by wood wall framing in accordance with CRC Section R602 or steel wall framing in accordance with CRC Section R603 include masonry or concrete construction

Roofs & Ceilings (Chapter 8)

- Show the sizes & spacing of roof rafters & ceiling joists on the framing plans

2 options:

1. Use manufactured trusses; or
2. Design the roof/ceiling structure per CRC Chapter 8

Manufactured trusses must be submitted with the initial plan package – they may not be deferred to after the permit is issued

Roofs & Ceilings, Cont.

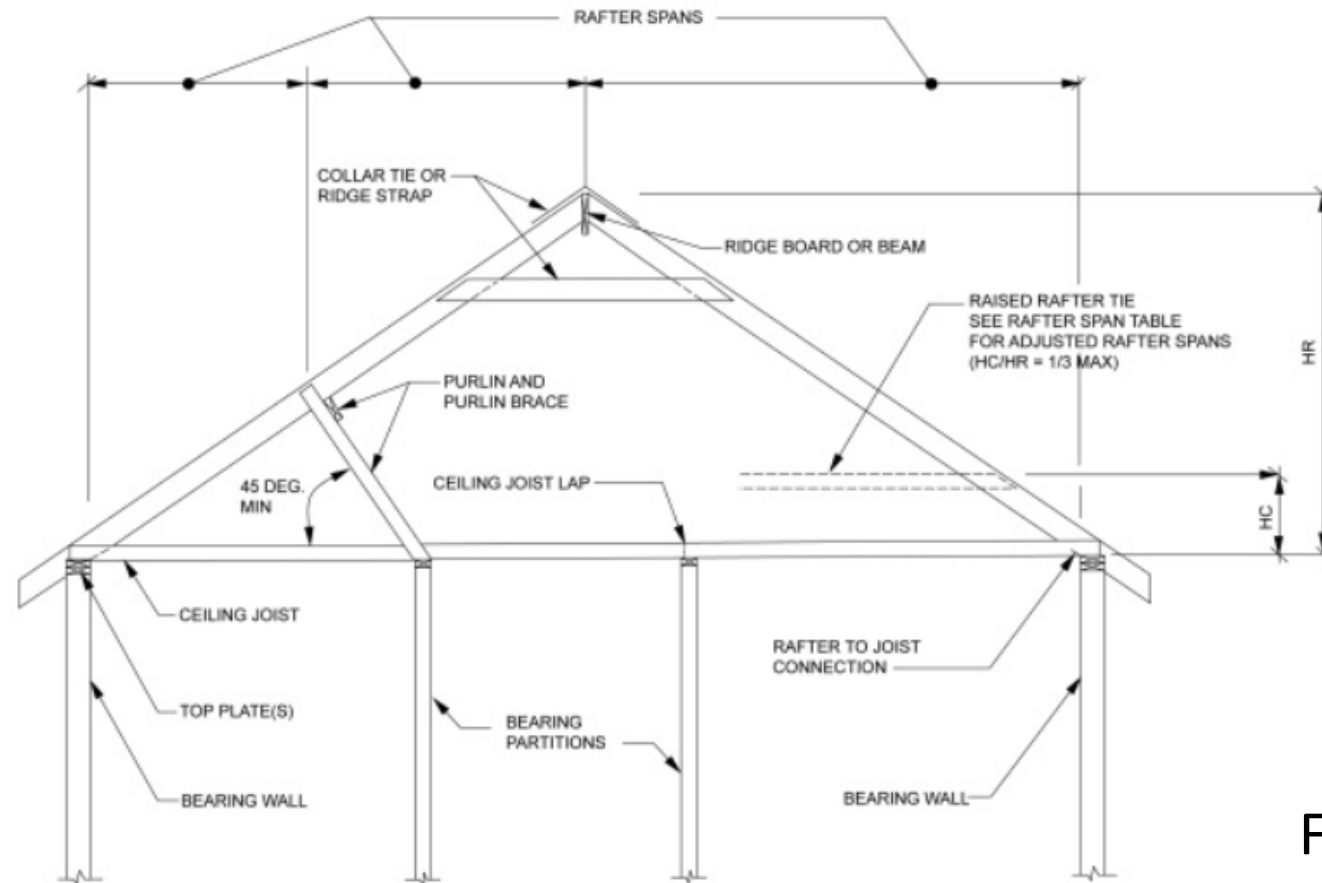


Figure R802.4.5

Roofs & Ceilings, Cont.

- R802.2: the roof and ceiling assembly shall provide continuous ties across the structure to prevent roof thrust from being applied to the supporting walls
- R802.3: Where ceiling joists or rafter ties do not provide continuous ties across the structure, the ridge shall be supported by a wall
- R802.4.2: Rafters shall be framed opposite from each other to a ridge board, shall not be offset more than 1.5” from each other and shall be connected with a collar tie or ridge strap, or directly opposite from each other with a gusset plate

Roofs & Ceilings, Cont.

- R802.4.5: Purlins may be installed to reduce the span of the rafters. Purlins shall be sized not less than the required size of the rafters that they support. Purlins shall be continuous and shall be supported by 2x4 braces installed to bearing walls.
- R802.5.1: Ceiling joists shall be continuous across the structure or securely joined where they meet over interior partitions
- R802.5.2: Where ceiling joists run parallel to rafters, they shall be located in the bottom third of the rafter height. Where the ceiling joists do not run parallel to rafters, rafters shall be tied across the structure with a rafter tie.

What rafter size do I use?

- Tables R802.4.1(1), R802.4.1(2), R802.4.1(3-8) (if you have snow load)

TABLE R802.4.1(2)

RAFTER SPANS FOR COMMON LUMBER SPECIES (Roof live load = 20 psf, ceiling attached to rafters, $L/\Delta = 240$)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans ^a									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
	Douglas fir-larch	SS	10-5	16-4	21-7	Note b	Note b	10-5	16-4	21-7	Note b	Note b
	Douglas fir-larch	#1	10-0	15-9	20-10	Note b	Note b	10-0	15-4	19-5	23-9	Note b
	Douglas fir-larch	#2	9-10	15-6	20-5	26-0	Note b	9-10	14-7	18-5	22-6	26-0
	Douglas fir-larch	#3	8-9	12-10	16-3	19-10	23-0	7-7	11-1	14-1	17-2	19-11
	Hem fir	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	20-5	Note b	Note b

DEAD LOAD CALCULATION	
COMPOSITION SHINGLES	2-4 PSF
1/2" ROOF SHEATHING	1.5 PSF
2X6 RAFTERS 24" O.C.	1 PSF
PV PANELS	5 PSF
<hr/>	
	11.5 PSF

What ceiling joist size do I use?

- Tables R802.5.1(1), R802.5.1(2)

TABLE R802.5.1(1)



CEILING JOIST SPANS FOR COMMON LUMBER SPECIES (Uninhabitable attics without storage, live load = 10 psf, $L/\Delta = 240$)

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 5 psf			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
	Douglas fir-larch	SS	13-2	20-8	Note a	Note a
	Douglas fir-larch	#1	12-8	19-11	Note a	Note a
	Douglas fir-larch	#2	12-5	19-6	25-8	Note a
	Douglas fir-larch	#3	11-1	16-3	20-7	25-2
	Hem-fir	SS	12-5	19-6	25-8	Note a
	Hem-fir	#1	12-2	19-1	25-2	Note a
	Hem-fir	#2	11-7	18-2	24-0	Note a

How do I connect the rafter & ceiling joist?

- Table R802.5.2(1)

TABLE R802.5.2(1) RAFTER/CEILING JOIST HEEL JOINT CONNECTIONS^g



RAFTER SLOPE	RAFTER SPACING (inches)	GROUND SNOW LOAD (psf)											
		20 ^e			30			50			70		
		Roof span (feet)											
		12	24	36	12	24	36	12	24	36	12	24	36
Required number of 16d common nails per heel joint splices ^{a, b, c, d, f}													
3:12	12	3	5	8	3	6	9	5	9	13	6	12	17
	16	4	7	10	4	8	12	6	12	17	8	15	23
	19.2	4	8	12	5	10	14	7	14	21	9	18	27
	24	5	10	15	6	12	18	9	17	26	12	23	34
4:12	12	3	4	6	3	5	7	4	7	10	5	9	13
	16	3	5	8	3	6	9	5	9	13	6	12	17
	19.2	3	6	9	4	7	11	6	11	16	7	14	21

Wall Construction (Chapter 6)

- R602.3: Studs shall be continuous from support at the sole plate to a support at the top plate to resist loads perpendicular to the wall. The support shall be a foundation or floor, or ceiling or roof diaphragm.

CHAPTER 6 WALL CONSTRUCTION

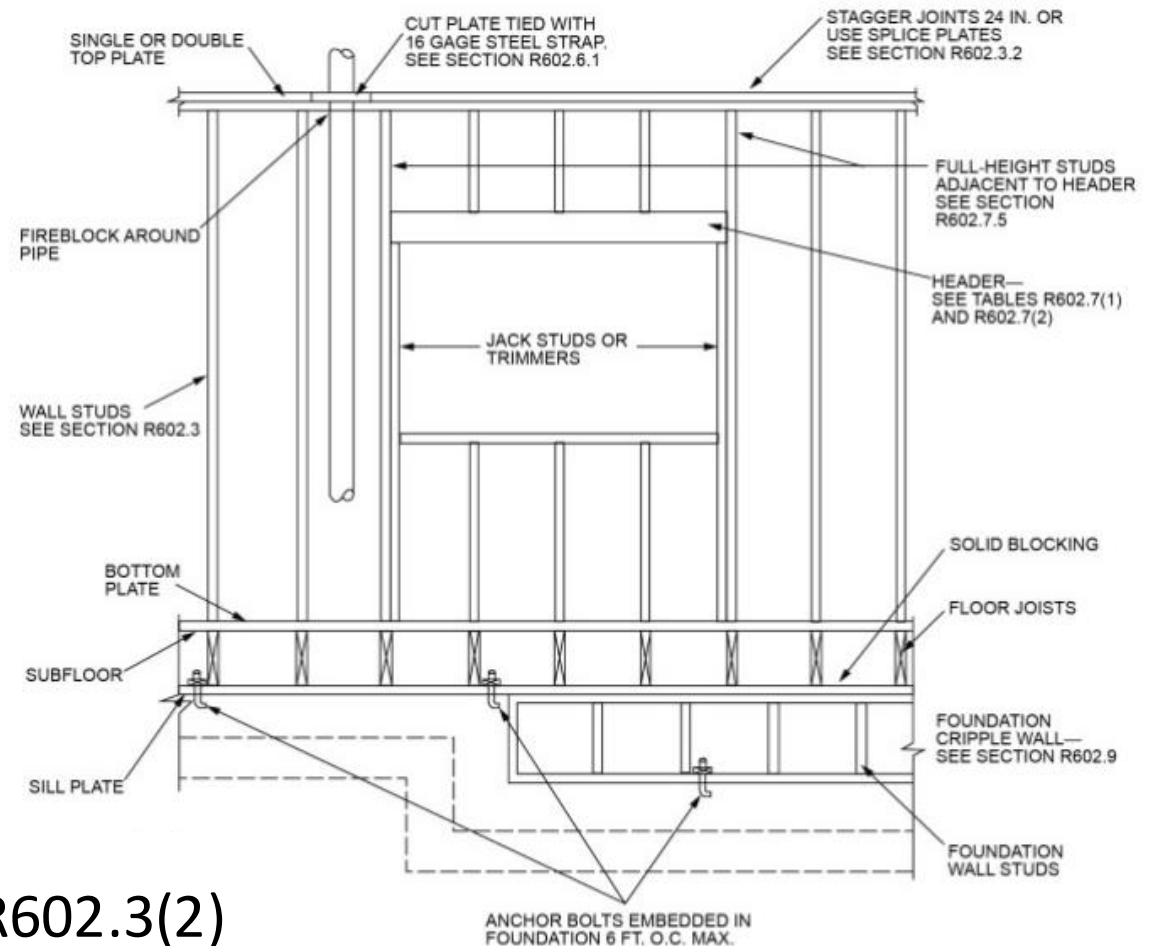

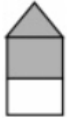




Figure R602.3(2)

Wall Construction, Cont.

- The size, height, and spacing of studs shall be per Table R602.3(5)
 - Exterior load bearing studs not exceeding 12' in height may be per Table R602.3(6)

TABLE R602.3(5) SIZE, HEIGHT AND SPACING OF WOOD STUDS^a


STUD SIZE (inches)	BEARING WALLS					NONBEARING WALLS	
	Laterally unsupported stud height ^a (feet)	Maximum spacing where supporting a roof-ceiling assembly or a habitable attic assembly, only (inches)	Maximum spacing where supporting one floor, plus a roof-ceiling assembly or a habitable attic assembly (inches)	Maximum spacing where supporting two floors, plus a roof-ceiling assembly or a habitable attic assembly (inches)	Maximum spacing where supporting one floor height ^a (inches)	Laterally unsupported stud height ^a (feet)	Maximum spacing (inches)
							
2 x 3 ^b	—	—	—	—	—	10	16
2 x 4	10	24 ^c	16 ^c	—	24	14	24
3 x 4	10	24	24	16	24	14	24
2 x 5	10	24	24	—	24	16	24
2 x 6	10	24	24	16	24	20	24

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Wall Construction, Cont.

- Headers are sized per Tables R602.7(1) and R602.7(2)
 - Span tables are used by building width and have different configurations to select the right size for different floor and roof width combinations

TABLE R602.7(1)
GIRDER SPANS^a AND HEADER SPANS^a FOR EXTERIOR BEARING WALLS (Maximum spans for Douglas fir-larch, hem-fir, Southern pine and spruce-pine-fir^b and required number of jack studs)

GIRDERS AND HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf) ^e																	
		30						50						70					
		Building width ^c (feet)																	
		12		24		36		12		24		36		12		24		36	
Span ^f	NJ ^d	Span ^f	NJ ^d	Span ^f	NJ ^d	Span ^f	NJ ^d	Span ^f	NJ ^d	Span ^f	NJ ^d	Span ^f	NJ ^d	Span ^f	NJ ^d	Span ^f	NJ ^d		
Roof and ceiling 	1-2 x 6	4-0	1	3-1	2	2-7	2	3-5	1	2-8	2	2-3	2	3-0	2	2-4	2	2-0	2
	1-2 x 8	5-1	2	3-11	2	3-3	2	4-4	2	3-4	2	2-10	2	3-10	2	3-0	2	2-6	3
	1-2 x 10	6-0	2	4-8	2	3-11	2	5-2	2	4-0	2	3-4	3	4-7	2	3-6	3	3-0	3
	1-2 x 12	7-1	2	5-5	2	4-7	3	6-1	2	4-8	3	3-11	3	5-5	2	4-2	3	3-6	3
	2-2 x 4	4-0	1	3-1	1	2-7	1	3-5	1	2-7	1	2-2	1	3-0	1	2-4	1	2-0	1
	2-2 x 6	6-0	1	4-7	1	3-10	1	5-1	1	3-11	1	3-3	2	4-6	1	3-6	2	2-11	2
	2-2 x 8	7-7	1	5-9	1	4-10	2	6-5	1	5-0	2	4-2	2	5-9	1	4-5	2	3-9	2
	2-2 x 10	9-0	1	6-10	2	5-9	2	7-8	2	5-11	2	4-11	2	6-9	2	5-3	2	4-5	2
	2-2 x 12	10-7	2	8-1	2	6-10	2	9-0	2	6-11	2	5-10	2	8-0	2	6-2	2	5-2	3

Floors (Chapter 5)

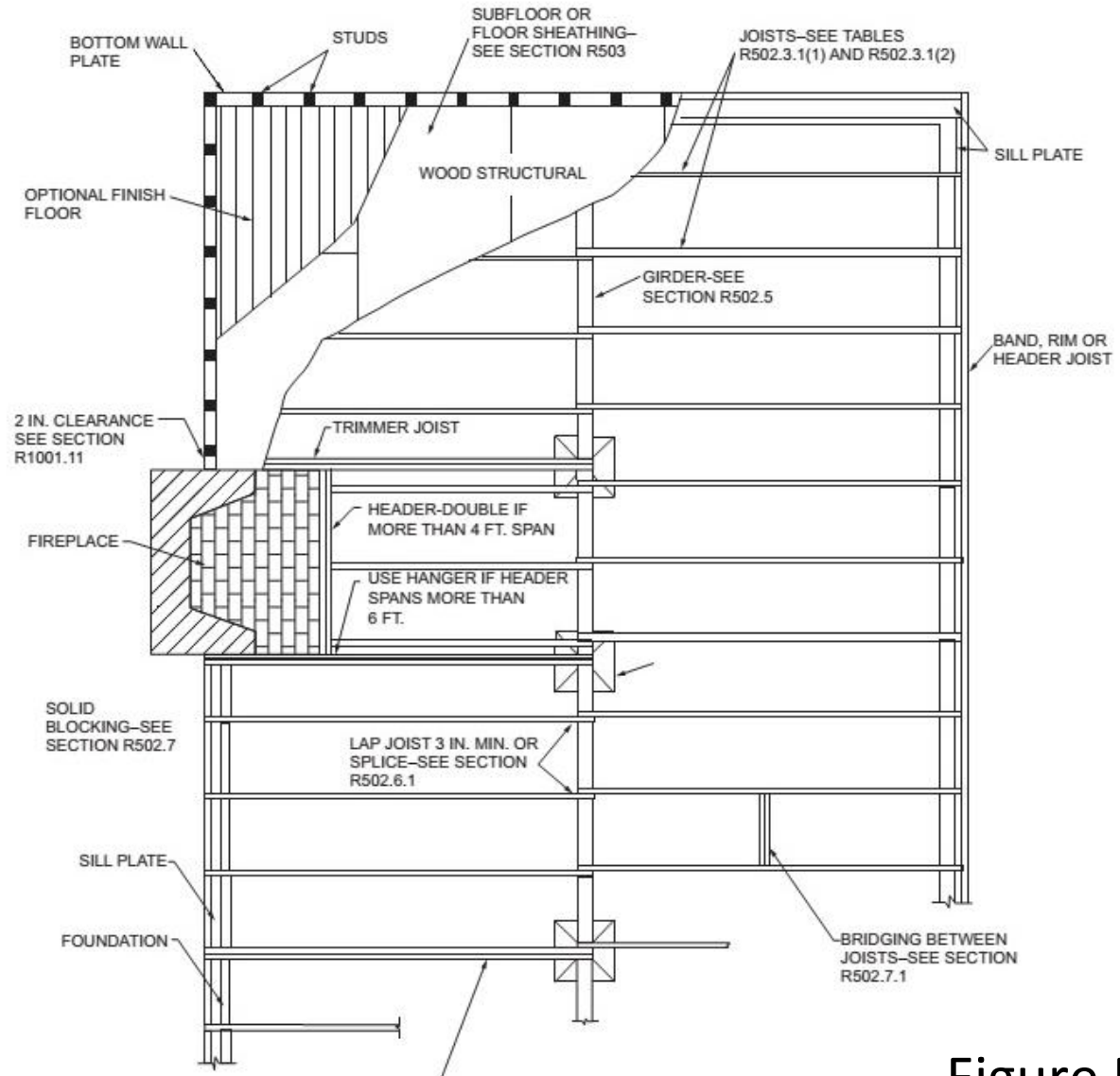


Figure R502.2

Floors, Cont.

Allowable joist spans shall be in accordance with tables:

- R502.3 (1) – sleeping areas
- R502.3(2) – living areas

TABLE R502.3.1(1)
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES (Residential sleeping areas, live load = 30 psf, L/A = 360) ^a

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2 x 6	2 x 8	2 x 10	2 x 12	2 x 6	2 x 8	2 x 10	2 x 12
			Maximum floor joist spans							
		(ft-in)	(ft-in)	(ft-in)	(ft-in)	(ft-in)	(ft-in)	(ft-in)	(ft-in)	
12	Douglas fir-larch	SS	12-6	16-6	21-0	25-7	12-6	16-6	21-0	25-7
	Douglas fir-larch	#1	12-0	15-10	20-3	24-8	12-0	15-7	19-0	22-0
	Douglas fir-larch	#2	11-10	15-7	19-10	23-4	11-8	14-9	18-0	20-11
	Douglas fir-larch	#3	9-11	12-7	15-5	17-10	8-11	11-3	13-9	16-0
	Hem-fir	SS	11-10	15-7	19-10	24-2	11-10	15-7	19-10	24-2
	Hem-fir	#1	11-7	15-3	19-5	23-7	11-7	15-3	18-9	21-9
	Hem-fir	#2	11-0	14-6	18-6	22-6	11-0	14-4	17-6	20-4
	Hem-fir	#3	9-8	12-4	15-0	17-5	8-8	11-0	13-5	15-7
	Southern pine	SS	12-3	16-2	20-8	25-1	12-3	16-2	20-8	25-1
	Southern pine	#1	11-10	15-7	19-10	24-2	11-10	15-7	18-7	22-0
	Southern pine	#2	11-3	14-11	18-1	21-4	10-9	13-8	16-2	19-1
	Southern pine	#3	9-2	11-6	14-0	16-6	8-2	10-3	12-6	14-9
	Spruce-pine-fir	SS	11-7	15-3	19-5	23-7	11-7	15-3	19-5	23-7
	Spruce-pine-fir	#1	11-3	14-11	19-0	23-0	11-3	14-7	17-9	20-7
	Spruce-pine-fir	#2	11-3	14-11	19-0	23-0	11-3	14-7	17-9	20-7
	Spruce-pine-fir	#3	9-8	12-4	15-0	17-5	8-8	11-0	13-5	15-7
16	Douglas fir-larch	SS	11-4	15-0	19-1	23-3	11-4	15-0	19-1	23-3
	Douglas fir-larch	#1	10-11	14-5	18-5	21-4	10-8	13-6	16-5	19-1
	Douglas fir-larch	#2	10-9	14-2	17-5	20-3	10-1	12-9	15-7	18-1
	Douglas fir-larch	#3	8-7	10-11	13-4	15-5	7-8	9-9	11-11	13-10
	Hem-fir	SS	10-9	14-2	18-0	21-11	10-9	14-2	18-0	21-11
	Hem-fir	#1	10-6	13-10	17-8	21-1	10-6	13-4	16-3	18-10
	Hem-fir	#2	10-0	13-2	16-10	19-8	9-10	12-5	15-2	17-7
	Hem-fir	#3	8-5	10-8	13-0	15-1	7-6	9-6	11-8	13-6
	Southern pine	SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
	Southern pine	#1	10-9	14-2	18-0	21-4	10-9	13-9	16-1	19-1

Floors, Cont.

- Floor cantilever spans shall not exceed the nominal depth of the wood floor joist and shall be constructed in accordance with Table R502.3.3 (1)

TABLE R502.3.3(1)

CANTILEVER SPANS FOR FLOOR JOISTS SUPPORTING LIGHT-FRAME EXTERIOR BEARING WALL AND ROOF ONLY ^{a, b, c, f, g, h} (Floor live load ≤ 40 psf, roof live load ≤ 20 psf)

MEMBER & SPACING	MAXIMUM CANTILEVER SPAN (uplift force at backspan support in lb) ^{d, e}											
	Ground Snow Load											
	≤ 20 psf			30 psf			50 psf			70 psf		
	Roof Width			Roof Width			Roof Width			Roof Width		
	24 ft	32 ft	40 ft	24 ft	32 ft	40 ft	24 ft	32 ft	40 ft	24 ft	32 ft	40 ft
2 × 8 @ 12"	20" (177)	15" (227)	—	18" (209)	—	—	—	—	—	—	—	—
2 × 10 @ 16"	29" (228)	21" (297)	16" (364)	26" (271)	18" (354)	—	20" (375)	—	—	—	—	—
2 × 10 @ 12"	36" (166)	26" (219)	20" (270)	34" (198)	22" (263)	16" (324)	26" (277)	—	—	19" (356)	—	—
2 × 12 @ 16"	—	32" (287)	25" (356)	36" (263)	29" (345)	21" (428)	29" (367)	20" (484)	—	23" (471)	—	—
2 × 12 @ 12"	—	42" (209)	31" (263)	—	37" (253)	27" (317)	36" (271)	27" (358)	17" (447)	31" (348)	19" (462)	—
2 × 12 @ 8"	—	48" (136)	45" (169)	—	48" (164)	38" (206)	—	40" (233)	26" (294)	36" (230)	29" (304)	18" (379)

Floors, Cont.

- R502.5: Allowable girder and header spans shall not exceed the values set forth in Tables R602.7(1), R602.7(2) and R602.7(3)
 - Same tables used above for wall headers
- R502.6: the ends of each joist shall have not less than 1.5” of bearing on wood or metal, and not less than 3” on masonry or concrete, or be supported by approved joist hangers.
- R502.7: Joists shall be supported laterally at the ends by full-depth blocking, or by attachment to a full depth header, band, or rim joist to prevent rotation.

Wood Boring & Notching

Always add this information to your plans:

- Figures R502.8, R602.6(1) & R602.6(2)

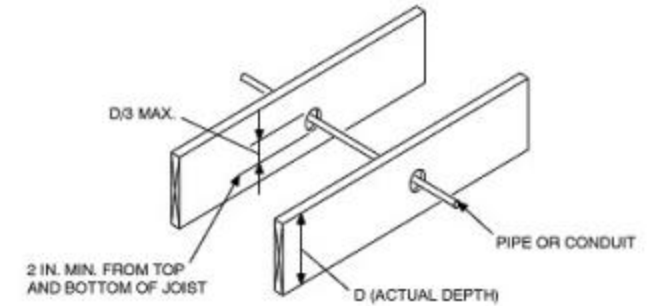
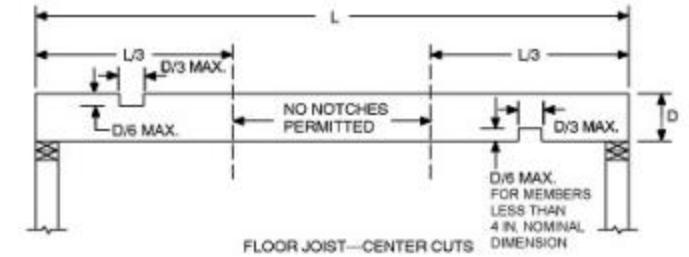
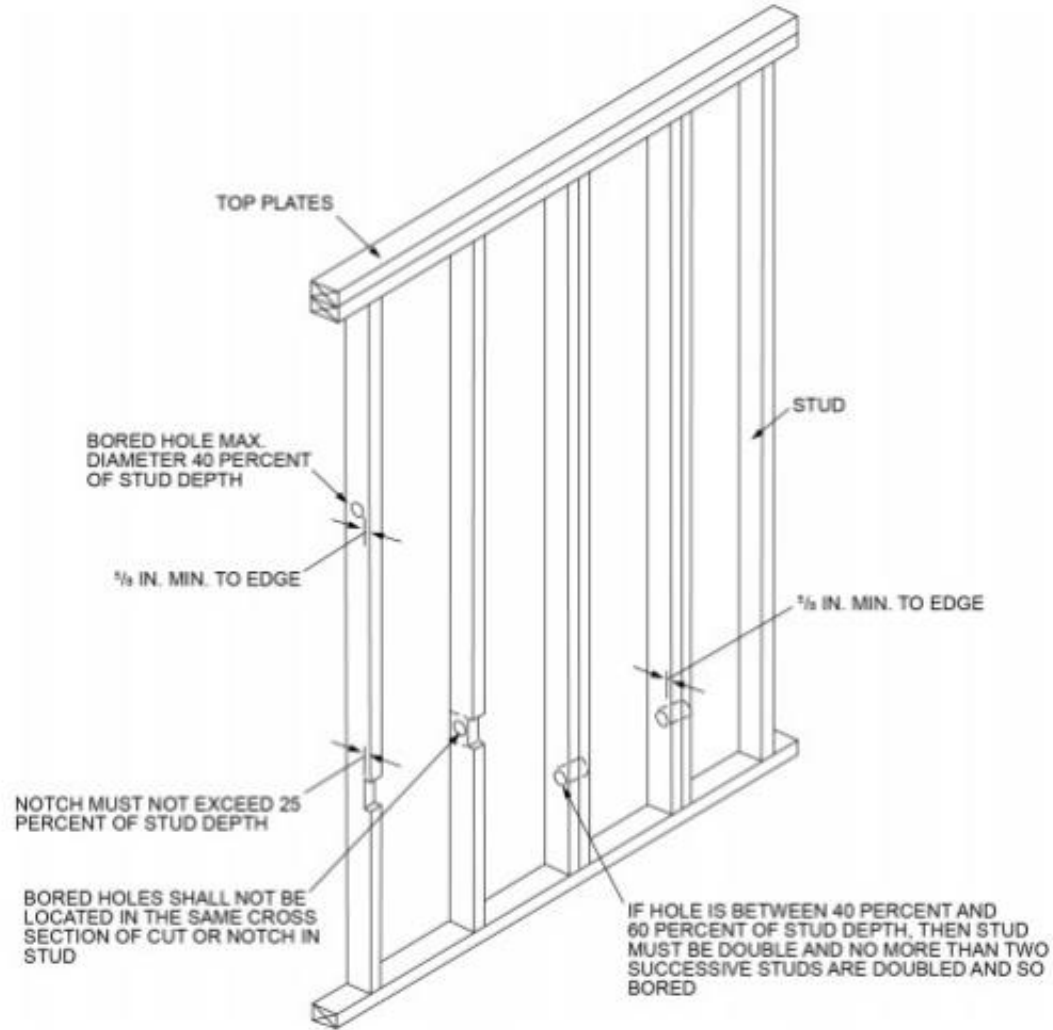


FIGURE R502.8
CUTTING, NOTCHING AND DRILLING

Fastening Schedules

Always add this information to your plans:

- Tables R602.3(1) through R602.3(4)
- Fasteners in preservative treated wood or fire treated wood shall be hot-dipped zinc-coated galvanized steel, or stainless steel (R317.3.1)

TABLE R602.3(1)
FASTENING SCHEDULE

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER ^{a, b, c}	SPACING AND LOCATION
Roof			
1	Blocking between ceiling joists, rafters or trusses to top plate or other framing below	4-8d box (2½" × 0.113"); or 3-8d common (2½" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Toe nail
	Blocking between rafters or truss not at the wall top plates, to rafter or truss	2-8d common (2½" × 0.131"); or 2-3" × 0.131" nails 2-16d common (3½" × 0.162"); or 3-3" × 0.131" nails	Each end toe nail End nail
	Flat blocking to truss and web filler	16d common (3½" × 0.162"); or 3" × 0.131" nails	6" o.c. face nail
2	Ceiling joists to top plate	4-8d box (2½" × 0.113"); or 3-8d common (2½" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Per joist, toe nail
3	Ceiling joist not attached to parallel rafter, laps over partitions [see Section R802.5.2 and Table R802.5.2(1)]	4-10d box (3" × 0.128"); or 3-16d common (3½" × 0.162"); or 4-3" × 0.131" nails	Face nail
4	Ceiling joist attached to parallel rafter (heel joint) [see Section R802.5.2 and Table R802.5.2(1)]	Table R802.5.2(1)	Face nail
5	Collar tie to rafter, face nail	4-10d box (3" × 0.128"); or 3-10d common (3" × 0.148"); or 4-3" × 0.131" nails	Face nail each rafter
6	Rafter or roof truss to plate	3-16d box (3½" × 0.135"); or 3-10d common (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails 4-16d box (3½" × 0.135"); or	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss ¹

Foundations (Chapter 4)

- R403.1: All exterior walls shall be supported on continuous solid or fully grouted masonry or concrete footings.
- City of San Jose Directive B-003: foundation and soils investigations may be exempted for an addition/alteration to an existing single family or duplex residence when the proposed foundation system matches the foundation system for the existing house.

Requirements:

- minimum depth of footings is 18" below the undisturbed ground surface,
- maximum allowable foundation pressure is 1500psf, and
- concrete compressive strength shall be no less than 2500psi.

Foundations, Cont.

- R403.1.3.1: Foundations with stem walls shall be reinforced with minimum of one No. 4 bar within 12 inches of the top of the stem wall and one No. 4 bar within 3-2 inches from the bottom of the footing.
- R403.1.3.1: Where a construction joint is created between a footing and a stem wall, a minimum of one No. 4 vertical bar shall be installed at not more than 4'-0" on center. The vertical bar shall have a standard hook at the bottom and shall extend into the stem wall not less than 14 inches.
- R403.1.3.3, R403.1.3.5.3: Slab on grade with turned down footings shall be reinforced with a minimum one No. 4 bar at the top and one No. 4 bar at the bottom. The bottom bar shall be within 4 inches of the bottom of the footing and shall have minimum 3-inch concrete cover.

Foundations, Cont.

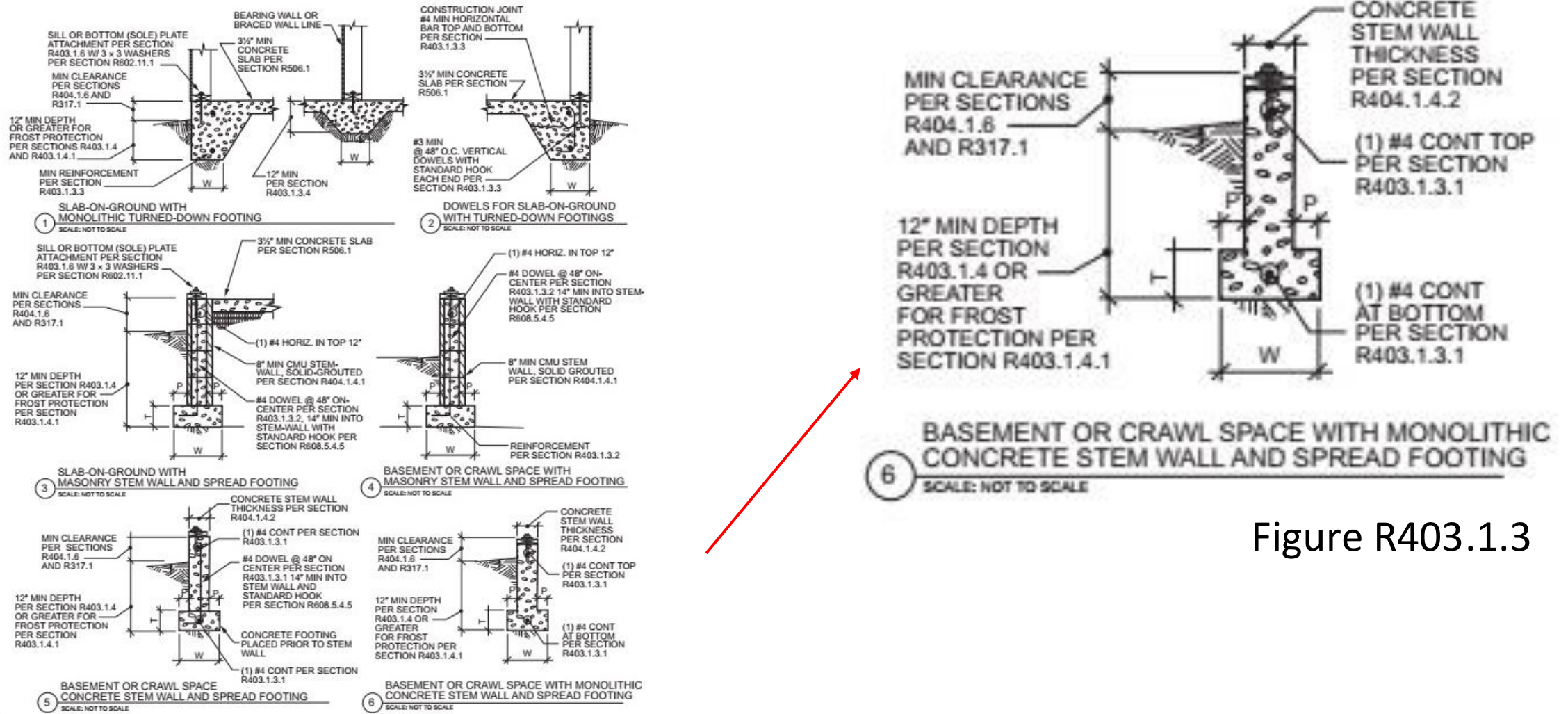


Figure R403.1.3

Foundation Anchorage

- R403.1.6: Wood sill plates shall be anchored to the foundation with ½-inch diameter anchor bolts, spaced maximum 6 feet on center, and embedded a minimum 7 inches into concrete.
- The bolts shall be located in the middle third of the width of the sill plate. Provide minimum two bolts per plate with bolts located not more than 12 inches and not less than 7-bolt diameters from each end of the plate section.
- R602.11.1: Anchor bolts shall be provided with minimum 0.229 inch x 3" x 3" plate washers.
 - The plate washer may be diagonally slotted when a standard cut washer is provided between the nut and the plate washer
 - The diagonal cut cannot exceed 1-3/4-inches long and the width of the cut may not be more than 3/16-inch larger than the anchor bolt

Foundation Clearances from Slopes

- R403.1.7.1: Provide an ascending slope clearance to buildings on $H/2$ or 15-ft max.
- R403.1.7.2: Detail a footing setback to the face of the slope of at least the smaller of $H/3$ or 40 feet.

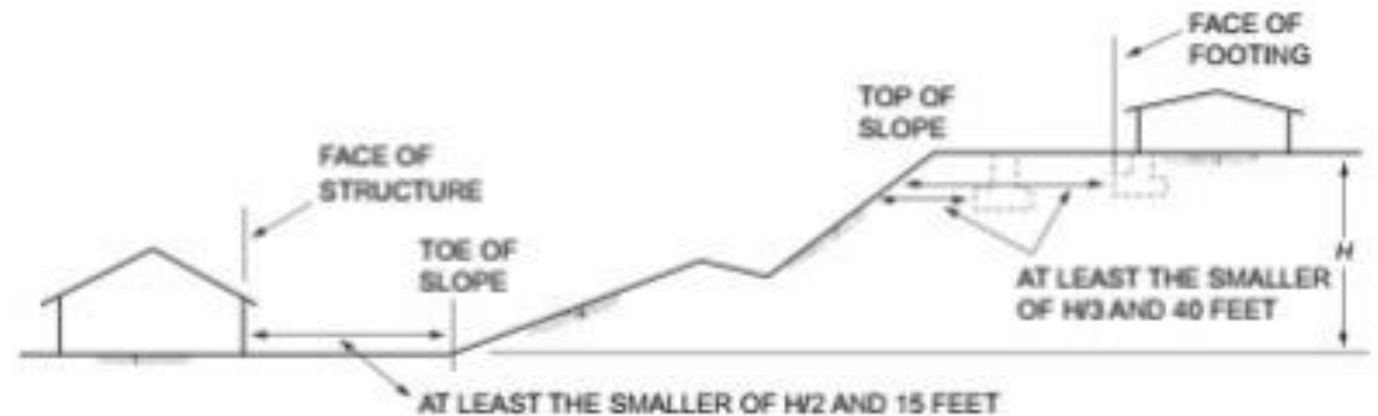


FIGURE R403.1.7.1
FOUNDATION CLEARANCE FROM SLOPES

Slabs on Grade as Floors

Foundation plan should contain this information:

- R506.1: Minimum slab thickness shall be 3.5-inches
- R506.2.2: slab shall be supported on a minimum 4-inch base course of sand, crushed stone or gravel passing a 2-inch sieve.
- R506.2.3: a minimum 10-mil vapor retarder with joints lapped not less than 6-inches
- R506.2.4: Reinforcement shall be supported to remain in place from the center to upper one-third of the slab for the duration of the concrete placement

Roof & Underfloor Ventilation

- Enclosed attics and enclosed rafter spaces shall have cross ventilation per Section R806
- Under-floor space between the bottom of floor joists and the earth under a building shall comply with Section R408

Wall Bracing

Braced Wall Panels

- Clearly identify all braced wall lines on plans and identify location and length of all braced wall panels on each braced wall line.
- Specify the bracing method for each braced wall line on the plans
 - Table R602.10.4 illustrates the bracing methods
- Specify total required braced wall length & total braced wall length provided for each braced wall line on plans
- Use the greater value determined from Table R602.10.3(1) ([wind loads](#)) or R602.10.3(3) ([seismic loads](#)) **and** the applicable adjustment factors in Table R602.10.3(2) or R602.10.3(4), respectively

Braced Wall Panels, Cont.

Be aware of
Municipal Code
section
24.09.330 –
amendments
have been made
to Table
R602.10.3(3)

<ul style="list-style-type: none"> WALL HEIGHT = 10 FEET 10 PSF FLOOR DEAD LOAD 15 PSF ROOF/CEILING DEAD LOAD BRACED WALL LINE SPACING ≤ 25 FEET 			MINIMUM TOTAL LENGTH (FEET) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE**				
Seismic Design Category ^b	Story Location	Braced Wall Line Length (feet) ^a	Method LIB	Method GB	Methods DWB, SFB, PBS, PCP, HPS, CS-SFB ^c	Methods WSP, ABWI, PFH and PFG ^{d,e}	Methods CS-WSP, CS-G, CS-PF
C (townhouses only)		10	2.5	NP	2.5	1.6	1.4
		20	5.0	NP	5.0	3.2	2.7
		30	7.5	NP	7.5	4.8	4.1
		40	10.0	NP	10.0	6.4	5.4
		50	12.5	NP	12.5	8.0	6.8
		10	NP	NP	4.5	3.0	2.6
		20	NP	NP	9.0	6.0	5.1
		30	NP	NP	13.5	9.0	7.7
		40	NP	NP	18.0	12.0	10.2
		50	NP	NP	22.5	15.0	12.8
		10	NP	NP	6.0	4.5	3.8
		20	NP	NP	12.0	9.0	7.7
		30	NP	NP	18.0	13.5	11.5
		40	NP	NP	24.0	18.0	15.3
		50	NP	NP	30.0	22.5	19.1
D ₀		10	NP	NP	2.8	1.8	1.6
		20	NP	NP	5.5	3.6	3.1
		30	NP	NP	8.3	5.4	4.6
		40	NP	NP	11.0	7.2	6.1
		50	NP	NP	13.6	9.0	7.7
		10	NP	NP	NP	3.8	3.2
		20	NP	NP	NP	7.5	6.4
		30	NP	NP	NP	11.3	9.6
		40	NP	NP	NP	15.0	12.8
		50	NP	NP	NP	18.8	16.0
		10	NP	NP	NP	NP	NP
		20	NP	NP	NP	NP	NP
		30	NP	NP	NP	NP	NP
		40	NP	NP	NP	NP	NP
		50	NP	NP	NP	NP	NP

<ul style="list-style-type: none"> WALL HEIGHT = 10 FEET 10 PSF FLOOR DEAD LOAD 15 PSF ROOF/CEILING DEAD LOAD BRACED WALL LINE SPACING ≤ 25 FEET 			MINIMUM TOTAL LENGTH (FEET) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE**				
Seismic Design Category ^b	Story Location	Braced Wall Line Length (feet) ^a	Method LIB	Method GB	Methods DWB, SFB, PBS, PCP, HPS, CS-SFB ^c	Methods WSP, ABWI, PFH and PFG ^{d,e}	Methods CS-WSP, CS-G, CS-PF
D ₁		10	NP	NP	3.0	2.0	1.7
		20	NP	NP	6.0	4.0	3.4
		30	NP	NP	9.0	6.0	5.1
		40	NP	NP	12.0	8.0	6.8
		50	NP	NP	15.0	10.0	8.5
		10	NP	NP	NP	4.5	3.8
		20	NP	NP	NP	9.0	7.7
		30	NP	NP	NP	13.5	11.5
		40	NP	NP	NP	18.0	15.3
		50	NP	NP	NP	22.5	19.1
		10	NP	NP	NP	NP	NP
		20	NP	NP	NP	NP	NP
		30	NP	NP	NP	NP	NP
		40	NP	NP	NP	NP	NP
		50	NP	NP	NP	NP	NP
D ₂ ^f		10	NP	NP	4.0	2.5	2.1
		20	NP	NP	8.0	5.0	4.3
		30	NP	NP	12.0	7.5	6.4
		40	NP	NP	16.0	10.0	8.5
		50	NP	NP	20.0	12.5	10.6
		10	NP	NP	NP	5.5	4.7
		20	NP	NP	NP	11.0	9.4
		30	NP	NP	NP	16.5	14.0
		40	NP	NP	NP	22.0	18.7
		50	NP	NP	NP	27.5	23.4
		10	NP	NP	NP	NP	NP
		20	NP	NP	NP	NP	NP
		30	NP	NP	NP	NP	NP
		40	NP	NP	NP	NP	NP
		50	NP	NP	NP	NP	NP
Cripple wall below one- or two-story dwelling	10	NP	NP	NP	7.5	6.4	
	20	NP	NP	NP	15.0	12.8	
	30	NP	NP	NP	22.5	19.1	
	40	NP	NP	NP	30.0	25.5	
	50	NP	NP	NP	37.5	31.9	

Braced Wall Panels, Cont.

- R602.10.1.2: A braced wall panel shall not be offset more than 4 feet from its designated braced wall line as demonstrated in Figure R602.10.1.1
- R602.10.1.3: Braced wall line spacing is shall not exceed 25 feet
- Spacing between two adjacent braced wall lines may be up to 35 feet when:
 - length of required bracing per table R602.10.3(3) is adjusted in accordance with Table R602.10.3(4)
 - Allowing for a single room to exceed 900SF. Spacing of all other braced wall lines shall not exceed 25 feet

Braced Wall Panels, Cont.

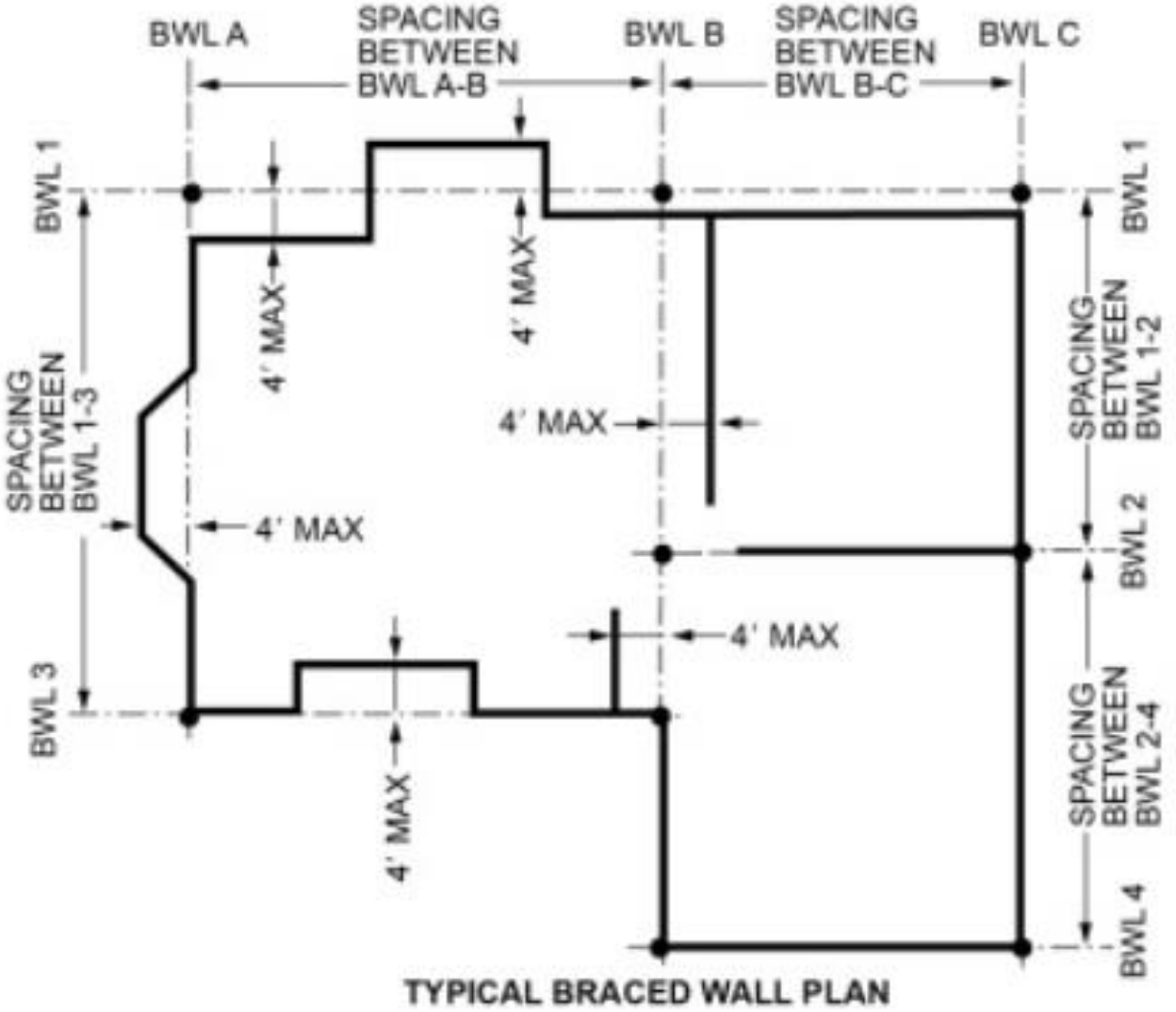


Figure R602.10.1.1

Braced Wall Panels, Cont.

- R602.10.5: Minimum length of a braced wall panel within a braced wall line shall comply with Table R602.10.5
- R602.10.2.2.1: End conditions for braced wall lines with continuous sheathing shall comply with the following:
 - Braced wall panel shall be located at each end of a braced wall line;
 - Wood Structural Panel (WSP) may begin not more than 10 feet from the end of the braced wall line provided hold downs with a capacity of at least 1800 lbs is provided at the braced wall panel closest to the corner; or
 - 2 feet x 2 feet corner return is provided in accordance with Figure R602.10.7

Braced Wall Panels, Cont.

- **Municipal Code 24.09.340 – Section R608.10.8.1**

CRC Section R602.10.8.1 is amended to read as follows:

602.10.8.1 Braced wall panel connections for Seismic Design Categories D₀, D₁, and D₂. Braced wall panels shall be fastened to required foundations in accordance with Section R602.11.1, and top plate lap splices shall be face-nailed with not less than eight 16d nails on each side of the splice. Wall sheathing shall not be attached to framing members by adhesives.

All braced wall panels shall extend to the roof sheathing and shall be attached to parallel roof rafters or blocking above with framing clips (eighteen-gauge minimum) spaced at maximum twenty-four inches (6,096 mm) on center with four 8d nails per leg (total eight 8d nails per clip). Braced wall panels shall be laterally braced at each top corner and at maximum twenty-four-inch (6,096 mm) intervals along the top plate of discontinuous vertical framing.

Audit, Field Inspection & Revisions

Compliance is Key to Successful Participation

- The Building Division will maintain a record of deficiencies identified in connection with projects submitted for BPD permitting
- Deficiencies may be identified:
 - At intake
 - During a project audit
 - During inspection
- Designers must not accrue deficiency points in excess of permissible thresholds

Audit Types & Frequency

Automatic

- Performed on each enrolled design professional's first project
- Within 30 days of permit issuance

Random

- Performed on approximately 20% of each design professional's projects permitted under the BPD program
- Within 12 months of permit issuance or prior to final inspection

Audit Focus & Follow-Up

- Completeness and accuracy of plans and submittal documents
- Code compliance for architectural & structural plan review disciplines
- Designer will be notified of audit results via email
- Resubmittal may be required

BPD Deficiency Categories & Point Values

Deficiency	Point Value
Submission of a project ineligible for the BPD Program	1
Submission of an eligible project with application materials containing substantial defects, errors, omissions, or a false statement	1
Submission of plans containing a condition that does not comply with the City of San José Amended Building Code	2
Submission of plans containing a condition that does not comply with the City of San José Amended Building Code and poses a serious risk to health, safety, or welfare	5
Failure to comply with any ongoing obligation required under BPD Program Criteria and Requirements	2

*Accruing 5 points in a 365-day period or 10 in a 3-year period may result in suspension of BPD privileges
Accruing 10 points in a 365-day period or 20 in a 3-year period may result in revocation of BPD privileges*

Serious risks to health, safety & welfare

- A project which violates any restriction applicable to the fire limits
- Inadequate fire-resistance ratings based on construction type
- Inadequate or inappropriate fire protection system(s)
- Inadequate size or number of exits
- Inadequate accessible routes of ingress or egress
- Insufficient design loads
- Insufficient or inappropriate structural elements or connections
- Failure to document or take into account any easements on the property

Inspections & Mandatory Field Changes

- Inspection protocol for projects permitted under the BPD program are the same as for other projects
- If an inspector finds that plans contain a code violation or are missing critical information both the contractor and designer will be notified
- Work with the inspector on resolution

Coordination & communication about process & code issues are key!

Voluntary Field Changes & Revisions

To qualify for submission under the BPD program:

- the original project plans must have been permitted under the program
- the proposed changes must not make the scope of work an ineligible project
- the revised plans must be prepared & submitted by the same professional who prepared the plans for the original permit

Tips for Succeeding as a Best Prepared Designer

- Take the time to read the BPD Program Criteria & Requirements
- Keep your contact information up-to-date
- Use the BPD intake checklist every time you submit a project
- Remember that you don't have to submit a project through the BPD program just because it is eligible

Questions?