SINGLE FAMILY RESIDENTIAL ONE-STORY DETACHED GARAGE

How to use this guide

Provide two sets of plans and complete the following:

1. Complete this building guide by filling in the blanks on the bottom of this page, page two and on page three, indicate which construction details will be used.
2. Provide electronic AutoCAD plot plans in vector file format (see sample site plan page 8). Show dimensions of your garage show its relationship to existing buildings or structures on the property and the distance to existing property lines, drawn to scale.
3. Fill out a building permit application
   The majority of permit applications are processed with little delay. The submitted documents will help determine if the project is in compliance with building safety codes, zoning ordinances and other applicable laws. Please see note below for additional information.



NOTE

- Accessory structures to a single detached dwelling unit shall not exceed the lesser of:
  - Fifteen percent of the total lot area; or
  - Eighty percent of the footprint of the primary residential structure.
- The maximum height of a residential accessory structure may not exceed 10 feet above the existing height of the primary residential structure or the maximum height allowed in the zone, whichever is less.
- Garage is limited to a maximum size of 500 square feet, for garages over 500 square feet full plan review is required.

Affected Critical Areas:

☐ None ☐ Wetlands ☐ Streams ☐ Flood Hazard Area ☐ Critical Aquifer Recharge Area
☐Geologically Hazardous Area ☐ Fish & Wildlife Conservation Area

Single Family Residential One Story Detached Garage

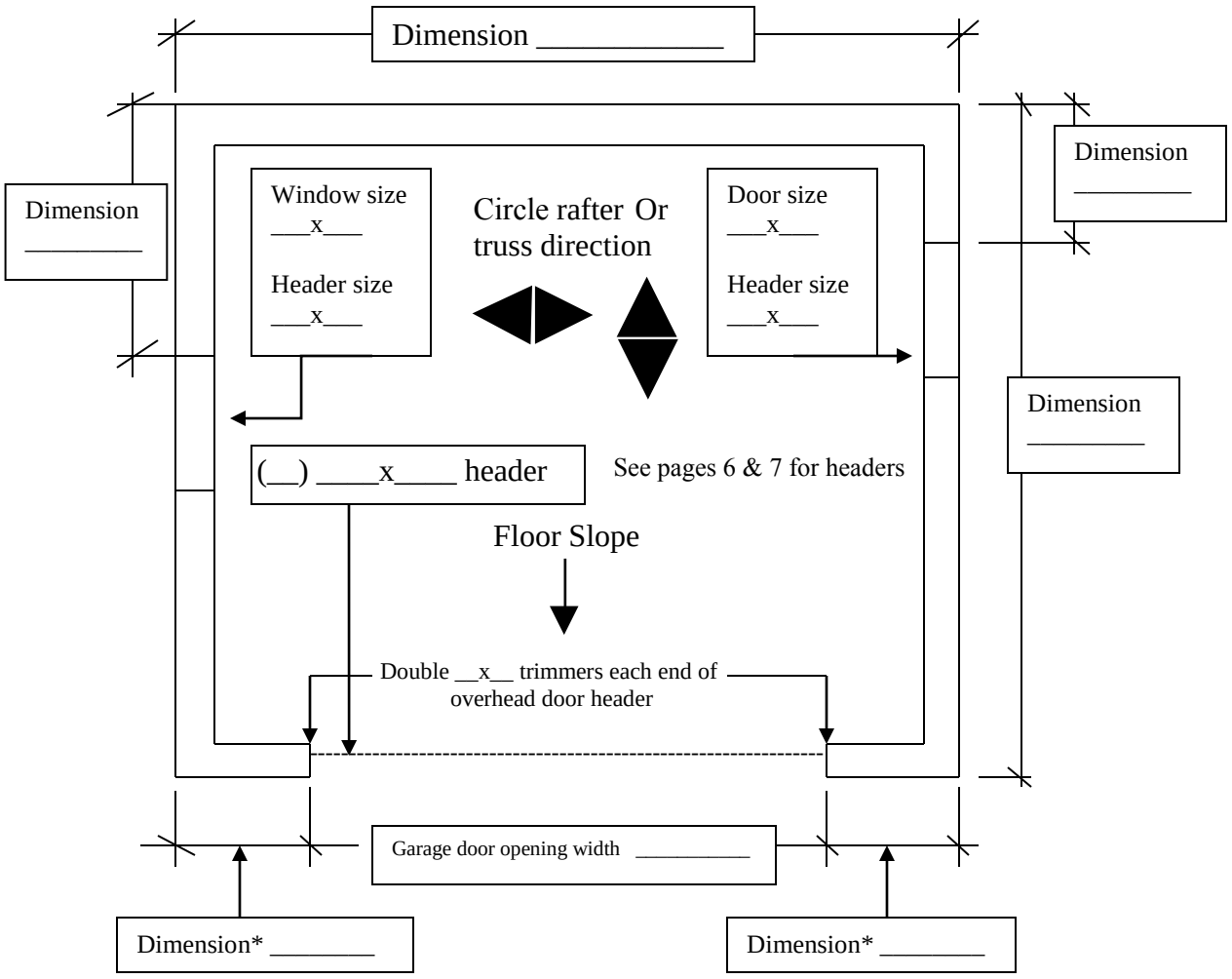
Directions

1. Fill in the blanks on this sheet and on page 3 with dimensions and proposed materials which will be used to build the structure. Please print legibly.

Note: Heated garages require special provisions please check with city staff for requirements

Floor Plan

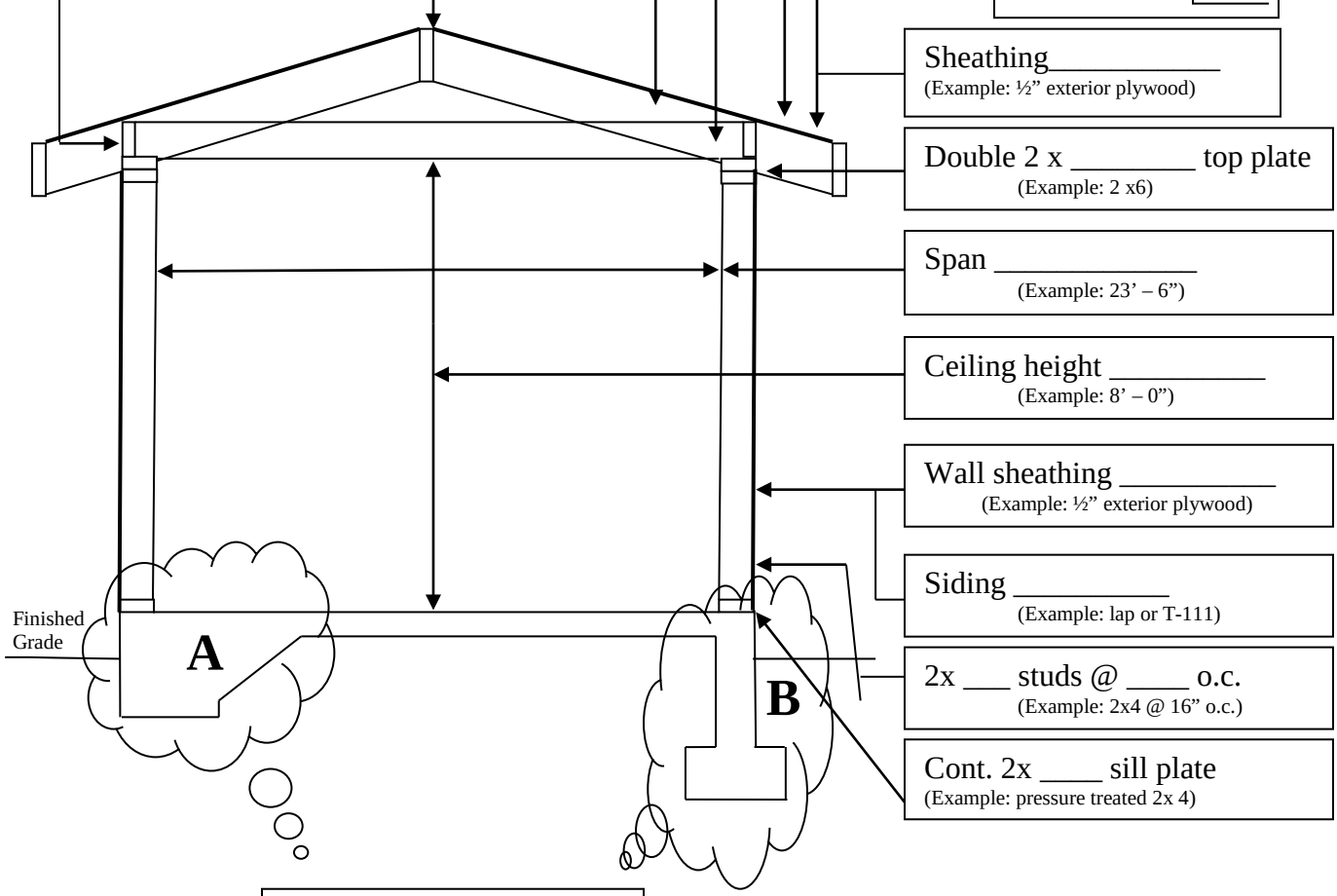
Note:
If manufactured roof trusses or rafters bear on header, engineered header design may be required.



* 1' – 4" minimum, with plywood sheathing on outside of entire wall with hold downs. If less than 1' – 4", engineering may be required. (Portal frame per illustration page 6)

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Building Section



Truss or 2x__ rafter's spaced__ "o.c.
(Example: 2 X 10 @ 24" o.c.) see page 5

Minimum 1x__ridge board
(Example: 1x12) see page 5

Provide 2x blocking between rafters and roof tie downs at each rafter.

2x___ ceiling joists @ ___ o.c.
(Example: 2x8 @ 24" o.c.) see page 5

Roof Covering_____
(Example: class A 3 tab shingles)

Underlayment_____
(Example: 1 layer 15# felt)

12
Pitch ____

Example: 12/4

Sheathing_____
(Example: ½" exterior plywood)

Double 2 x _____ top plate
(Example: 2 x6)

Span _____
(Example: 23' – 6")

Ceiling height _____
(Example: 8' – 0")

Wall sheathing _____
(Example: ½" exterior plywood)

Siding _____
(Example: lap or T-111)

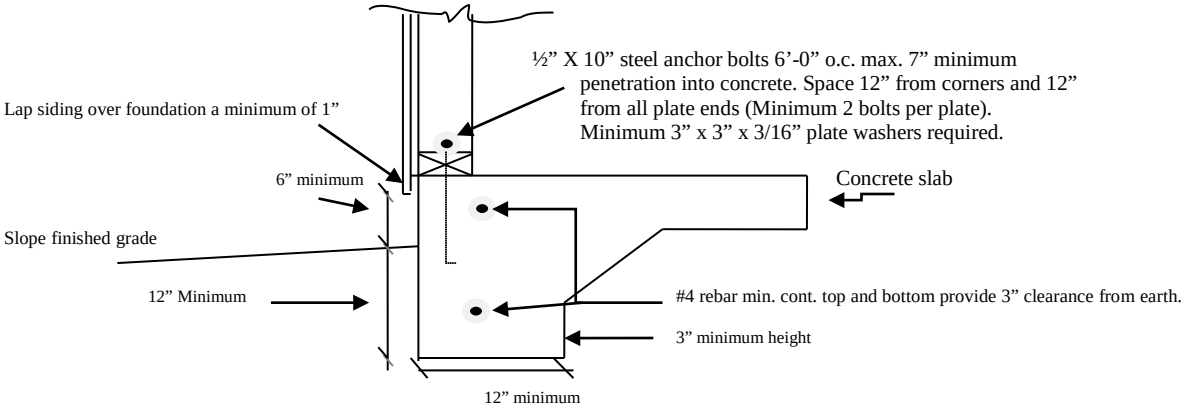
2x ___ studs @ ____ o.c.
(Example: 2x4 @ 16" o.c.)

Cont. 2x ____ sill plate
(Example: pressure treated 2x 4)

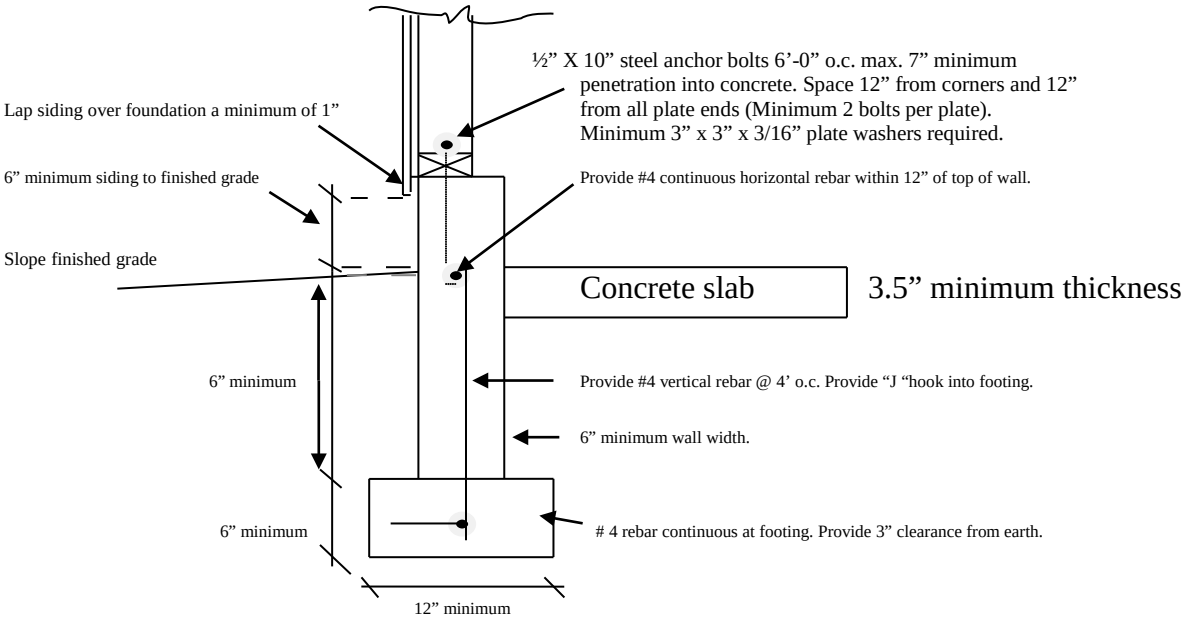
Check One
☐ Foundation Detail A
☐ Foundation Detail B
(See page 4)

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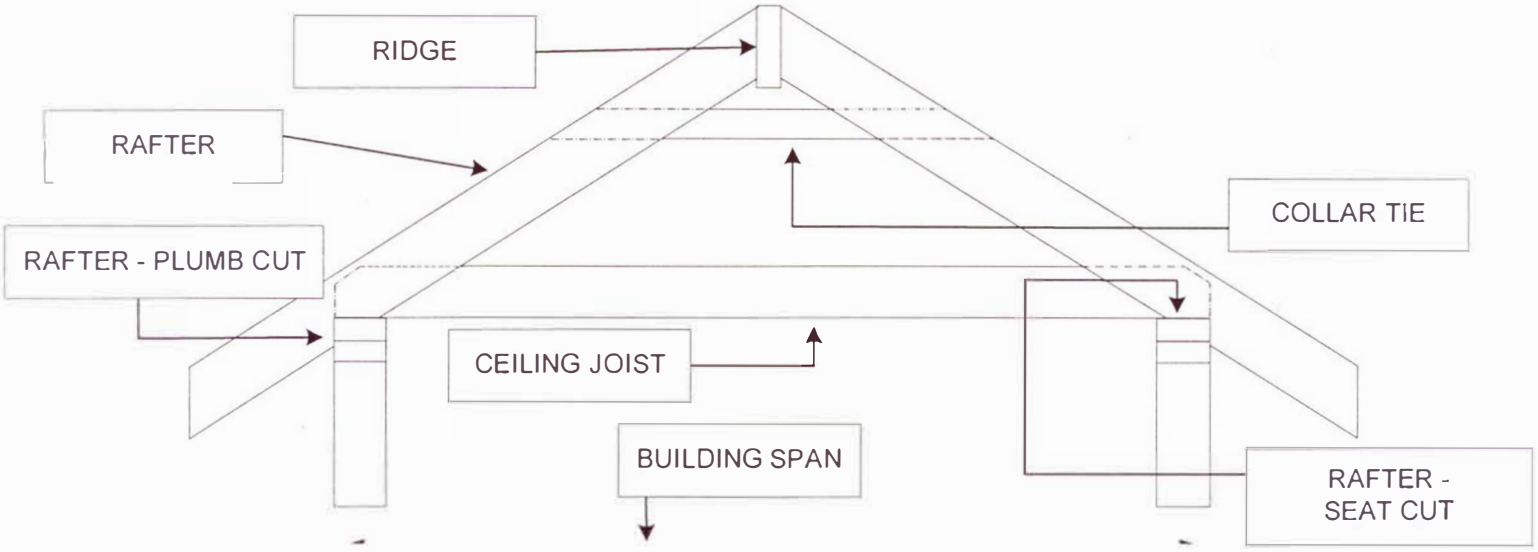
Foundation Detail A



Foundation Detail B



Roof and Ceiling Construction - (Stick Framed) Using Rafters, Ceiling Joists, Collar Ties and Ridge



1. Roofs may be designed on site if they are built per the requirements listed herein. The requirements are intended to cover roofs with a pitch of 3/12 and greater.
2. The ridge board serving both common rafters, hip rafters and valley rafters shall be at least one inch nominal thickness and at least as wide as the cut end of the rafters. Full bearing shall be provided at both ends.
3. The rafters shall be connected to the ridge board by either toe nailing 4-16d nails (or) face nailing 3-16d nails. Hip or valley rafters shall be nailed to the rafters with the same nailing pattern.
4. The rafters shall be connected to the double top plate by toe nailing 3-16d nails as well as approved fasteners such as a Simpson Strongtie (H1) or (H2.5) clip (or) a USP Structural Connector (RT7) or (RT15) clip with approved nails.
5. The rafter's plumb cut shall be 1-½" deep. The rafter's seat cut cut shall extend the full width of the double top plate, typically 3-½". Cuts made deeper than mentioned may not pass inspection.
6. Ceiling joists shall be connected to the rafters by face nailing 3-10d nails. They shall connect to the double top plate by toe nailing 2-16d nails. Each rafter shall have a ceiling joist properly attached to it.
7. Collar ties are required to be installed in the upper 1/3 of the attic. They shall consist of minimum 1" x 4" material, be installed not to exceed 48" on center and be face nailed to the rafters with 3-10d nails.
8. The maximum roof overhang is 24".
9. Roof sheeting shall consist of a minimum of 7/16" x 4' x 8' for rafters spaced 24" o.c. and consist of osb or plywood panels installed with the 8' length perpendicular to the trusses. The panels shall be face nailed to the top of the rafters with 8d nails at 6" around the perimeter and 12" within the field (or) by 15 ga. staples (1-¾") at 4" around the perimeter and 6" in the field. Most manufactures require an 1/8" gap between joints to allow for contraction/expansion. Plywood clips/spacers can be used to help maintain this gap and they can help support the plywood span between trusses.
10. Typical wall sheathing to be nailed with 8d nails at 6" around the perimeter and 12" within the field (or) by 15 ga. staples (1-3/4") at 4" around the perimeter and 8" within the field. Most manufactures require an 1/8" gap between joints to allow for contraction/ expansion. Exception: Alternate braced wall panels & portal frames are to be nailed per their design.

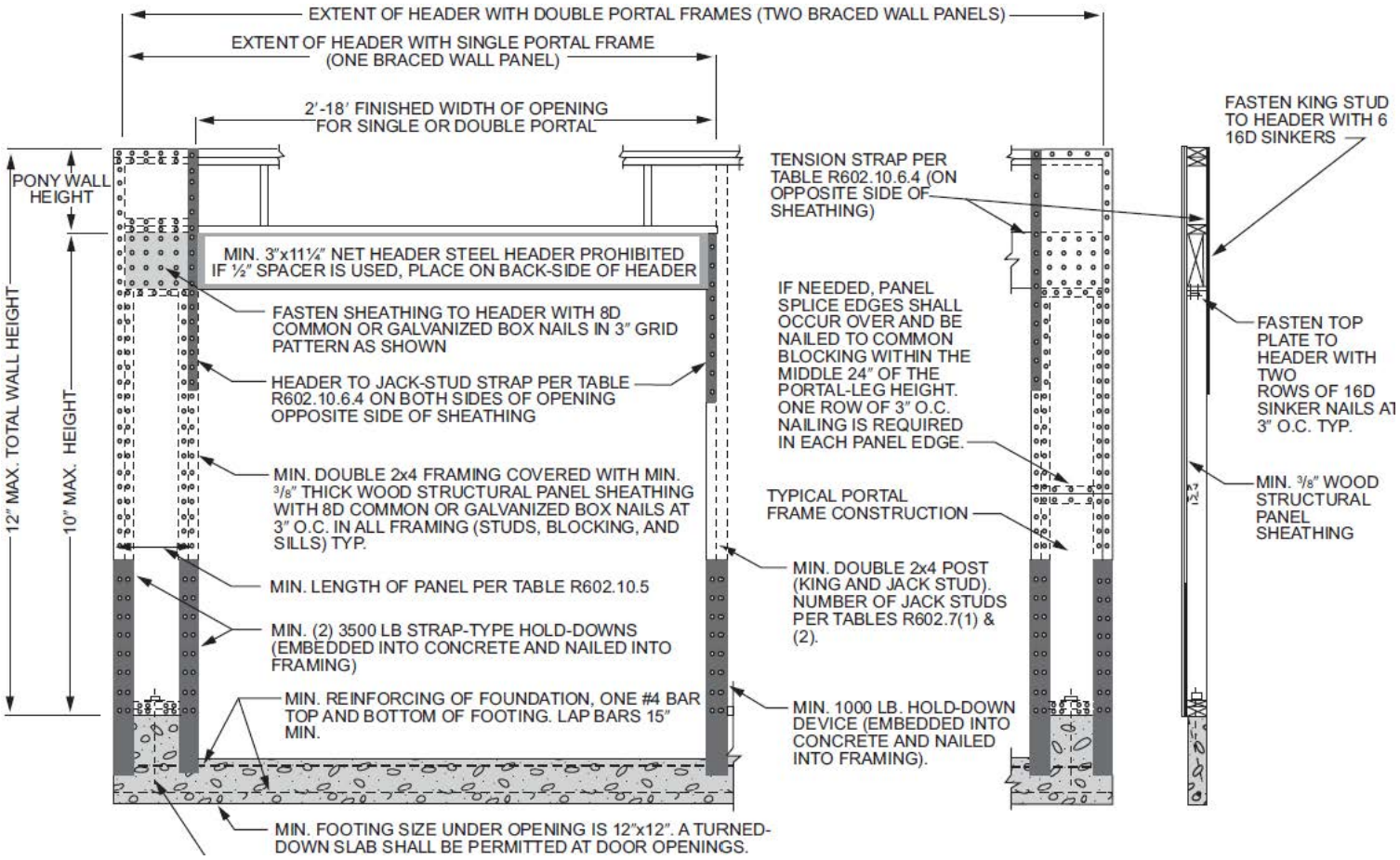
RECOMMENDED ALLOWABLE SPANS - RAFTERS AND CEILING JOIST

BUILDING SPAN	RAFTERS @ 16" O.C.	CEILING JOISTS @ 16" O.C.	RAFTERS @ 24" O.C.	CEILING JOISTS @ 24" O.C.
20'	2" X 6"	2" X10"	2" X 8"	2"X 10"
22'	2" X 6"	2" X 10"	2" X 8"	2"X 10"
24'	2" X 8"	2" X 10"	2" X 8"	2"x12"
25'	2" X 8"	2" X 10"	2" X 10"	2"x12"

Notes:
1. Wood shall be #2 Doug-fir-larch, #2 Hem-fir or #2 Spruce-pine-fir or better.
2. Assuming ceilings not applied to the bottom of the rafters, such as sheetrock.
3. Assuming attics are uninhabitable and without storage.
4. Assuming ceiling joists will not have sheetrock or similar installed.
5. Building spans greater than 25' will need to be designed by a licensed structural engineer that is registered with the state of Washington. Two sets of signed and stamped plans shall be submitted for review along with structural calculations.

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Portal Frame With Hold-Downs



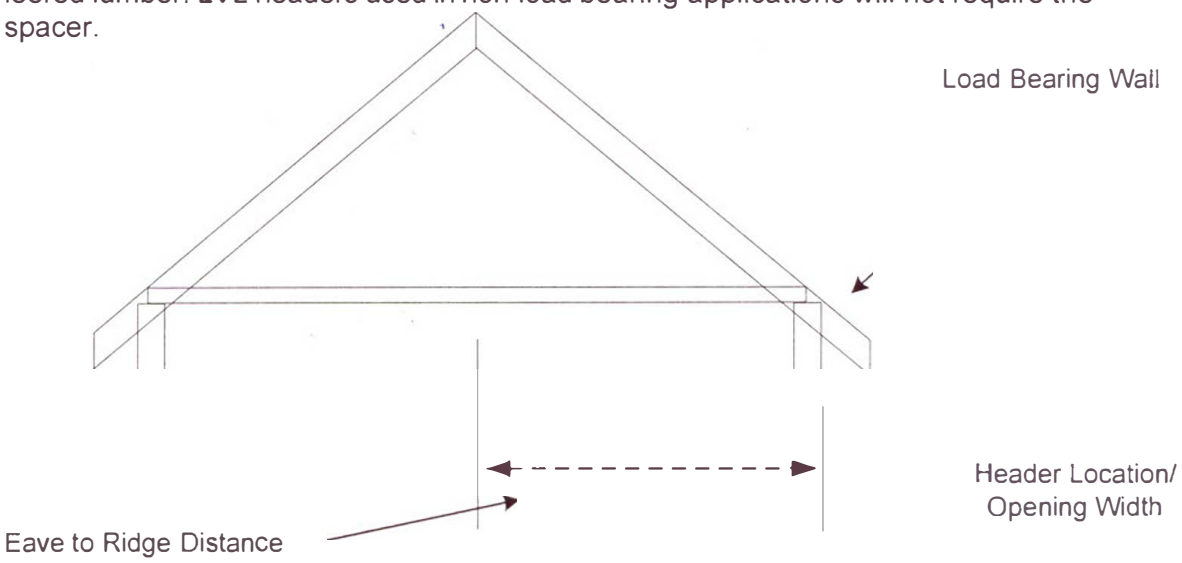
MIN. (1) 5/8" DIAMETER ANCHOR BOLT INSTALLED PER R602.11.1 WITH 3" X 3" X 3/16" PLATE WASHERS

Minimum Header Sizing Based On Eave to Ridge Distance and Opening Width

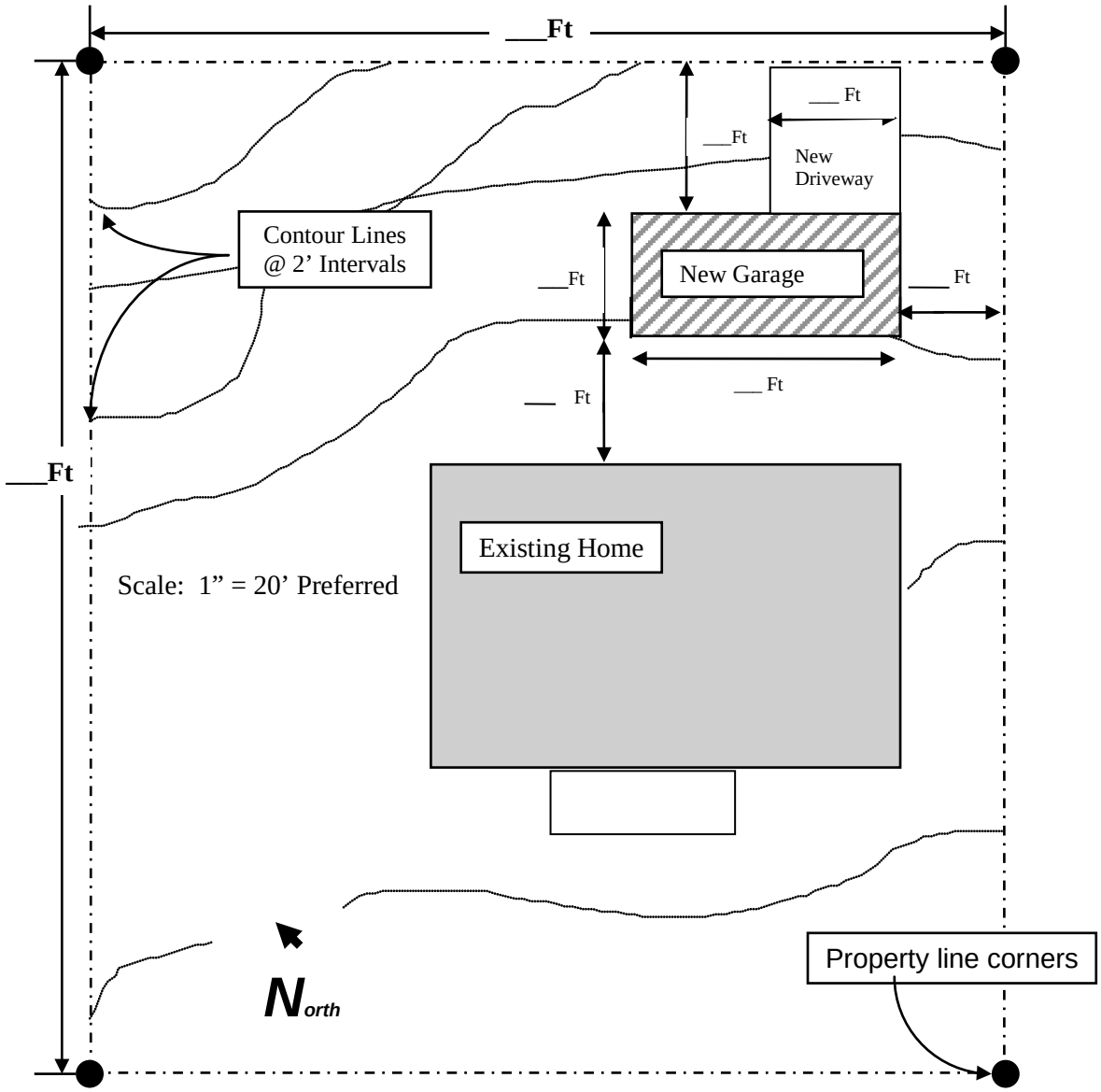
Opening Width	Eave to Ridge Distance for Load Bearing Headers (Includes up to 2' overhang) See Example Below		
	10'	12'	12- 1/2'
4' or less	2 - 2 x 6	2 - 2 x 8	2 - 2 x 8
6'	2 - 2 x 8	2 - 2 x 8	2 - 2 x 8
8'	2 - 2 x 10	2 - 2 x 12	2 - 2 x 12
9'	2 - 2 x 12	3 -2x10 (or) 2 -9-1/4 L VL	3 -2x10 (or) 2 -9-1/4 L VL
10'	3 -2x10 (or) 2 -7-1/4 L VL	3 -2x12 (or) 2 -9-1/4 L VL	3 -2x12 (or) 2 -9-1/4 L VL
12'	3 - 2 x 12 (or) 2 - 9-¼ LVL	3 - 2 x 12 (or) 2 - 9-¼ L VL	4 - 2 x 12 (or) 2 - 9-½ L VL
16'	2 - 11-7/8 LVL	2 - 11-7 /8 L VL	2 - 14 LVL

Notes:

1. Headers that are over 7' long will need to have two jack studs installed under each end of the header.
2. If the eave to ridge distance is over 18', then engineering is required.
3. Opening widths larger than 16' wide will need to be individually reviewed. Paperwork shall be submitted and engineering may be required.
4. Wood is assumed to be Douglas fir-larch or hem-fir and grade #2 or better for other than engineered LVL headers.
5. The header sizes are assuming there is no or very limited storage in the attic.
6. If using engineered products for headers (LVL), please have a copy of the paperwork on the job site. The paperwork should show the allowable spans. If paperwork indicates different spans, the paperwork will override the above chart. The LVL headers in the chart have a minimum (E) factor of 1.9 and a minimum (Fb) value of 2,600 psi. Please check manufactures' paperwork to verify the proposed headers meet these requirements.
7. Each piece of header shall be nailed together by the use of 1 0d nails (3" x 0.128"). The ends shall have nails at the top and bottom. The headers shall be nailed every 16" on center thereafter with fasteners at the top and the bottom.
8. Spacers used between headers to build them out to the wall width shall be at least 7 /16" thick and shall consist of plywood, o.s.b. or other approved material.
9. Non-load bearing headers for 8' garage doors shall be at least 2" x 8" material and non-load bearing headers for 16' garage doors shall be at least 2" x 12" material. The material shall be Douglas fir-larch or hem-fir and grade #2 or better. A solid sheet of 7 /16" osb shall be installed between the header for structural strength. The osb shall shall act as one continuous spacer and any joints in the osb shall butt tight to each other prior to being nailed to the header. Non-load bearing headers for 18' garage doors shall be at least
   1-¾" LVL engineered lumber. LVL headers used in non-load bearing applications will not require the structural osb spacer.



Street and Address



Zoning Designation

RS-7200
(A) Lot Area _____ square feet
(B) Building Coverage _____ Square feet
(C) Building Coverage _____ % (max 35%)
(B divided by A)
(D) Imperious Coverage _____ Square feet
(Building(s) with roof overhangs, concrete surfaces, blacktop surfaces and graveled surfaces)
(E) Total Imperious _____ % (max 70%)
(D divided by A)

RS-12000
(A) Lot Area _____ square feet
(B) Building Coverage _____ Square feet
(C) Building Coverage _____ % (max35%)
(B divided by A)
(D) Imperious Coverage _____ Square feet
(Building(s) with roof overhangs, concrete surfaces, blacktop surfaces and graveled surfaces)
(E) Total Imperious _____ % (max 70%)
(D divided by A)

If connecting driveway to public right-of-way a separate right-of-way permit is required

If removing trees a major tree removal permit is required (BMC 19.26.070).