GARAGE CONSTRUCTION

Construction Details:

All perimeter plates in contact with concrete to be pressure treated. Unless concrete floor is poured over an impervious membrane, all interior wall plates also to be pressure treated.

See attached foundation drawing sheet for typical foundation details.

Wall framing may be spaced at 24” O.C. if trusses centered over studs. Utility grade studs may be used if stud spacing is not over 16” O.C. and not over 8 feet in height.

See attached minimum lateral restraint requirements for garage walls with large door openings.

Garages may be of single wall construction if minimum 1/2” exterior plywood panels installed on studs spaced at 24” O.C. or 3/8” minimum exterior plywood installed on studs spaced at 16” O.C. Graded 303 siding panels may be installed without weather resistive barrier between siding and stud. NOTE: CDX sheathing is not exterior grade.

A truss design stamped by a licensed structural engineer must be submitted for owner/site built trusses. All trusses require diagonal and sway bracing per truss manufacturer.

Other Code Requirements:

Under no circumstances shall a private garage have any openings into a room used for sleeping purposes.

Unheated garages are not required to be insulated but it is good practice.

Attached garages are required to be separated from the house by materials approved for one-hour fire-resistive (5/8” Type X GWB) construction installed on the garage side of the wall and a self-closing tight-fitting solid wood door 1 3/8” inches in thickness or a self-closing, tight-fitting door having a fire protection rating of not less than 20 minutes.
ROOF SNOW LOAD REQUIREMENTS
for Lewis County, Washington

These requirements have been determined by the Building Official based on local conditions and the Second Edition of the Snow Load Analysis for Washington published in July 2009, by the Structural Engineers Association of Washington.

<table>
<thead>
<tr>
<th>City</th>
<th>Actual Elevation</th>
<th>Minimum Roof Snow Load (PSF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BURNT RIDGE</td>
<td>1100</td>
<td>50</td>
</tr>
<tr>
<td>CENTRALIA</td>
<td>189</td>
<td>25</td>
</tr>
<tr>
<td>CHEHALIS</td>
<td>226</td>
<td>25</td>
</tr>
<tr>
<td>MINERAL</td>
<td>1770</td>
<td>(Consult Building Official)</td>
</tr>
<tr>
<td>MORTON</td>
<td>940</td>
<td>40</td>
</tr>
<tr>
<td>MOSSYROCK</td>
<td>698</td>
<td>30</td>
</tr>
<tr>
<td>ONALASKA</td>
<td>505</td>
<td>25</td>
</tr>
<tr>
<td>PACKWOOD</td>
<td>1051</td>
<td>(Consult Building Official)</td>
</tr>
<tr>
<td>PE ELL</td>
<td>412</td>
<td>30</td>
</tr>
<tr>
<td>RANDLE</td>
<td>880</td>
<td>(Consult Building Official)</td>
</tr>
<tr>
<td>TOLEDO</td>
<td>110</td>
<td>25</td>
</tr>
<tr>
<td>VADER</td>
<td>175</td>
<td>25</td>
</tr>
<tr>
<td>ASHFORD (Paradise Estates)</td>
<td>1770</td>
<td>(Consult Building Official)</td>
</tr>
<tr>
<td>WHITE PASS</td>
<td>4600</td>
<td>(Consult Building Official)</td>
</tr>
</tbody>
</table>

*For non-residential structures, elevations 1000 feet or over have a frost depth of 18 inches minimum from finish grade to the bottom of the footing. Any elevation less than 1000 feet will have a frost depth of 12 inches. Residential structures will have a frost depth of 18 inches minimum countywide. The Building department will assist you with the calculations for snow load if the actual elevation is known.

WIND LOAD REQUIREMENTS
for Lewis County, Washington

Basic Wind Speed is 85 miles per hour with the exposure determined by the following definitions:

Exposure B has terrain with buildings, forest, or surface irregularities, covering at least 20 percent of the ground level area extending one mile or more from the site.

Exposure C has terrain that is flat and generally open, extending one-half mile or more from the site in any full quadrant.

NOTE: LEWIS COUNTY IS WITHIN SEISMIC D-1.
TYPICAL GARAGE FOUNDATIONS

- Pressure treated mudsills
- 1/2" A.B. 7" embedment @ 6' O.C.
- 3 1/2" slab
- 2 - 1/2" rebar
- 6" X 6" pressure treated post for over 8' wall
- 4'0" minimum embedment
- Concrete under post, backfill with concrete, sand, or good soil compacted
3 HEADER SPlice

- 1200# CAPACITY STRAP TIE
- 3/8" PLYWOOD W/ 8d. NAILS @ 3" O.C.
- 4x POSTS OR (3) 2x STUDS
- 3x BLOCKING @ PLYWOOD JOINTS

5 HEADER AT CORNER

- EXTEND HEADER TO CORNER
- 3/8" PLYWOOD W/ 8d. NAILS @ 3" O.C.
- 4x POSTS OR (3) 2x STUDS
- 3x BLOCKING @ PLYWOOD JOINTS

4 STRAP HOLDOWNS OPTIONAL LOCATION

- 3/8" PLYWOOD W/ 8d. NAILS @ 3" O.C.
- 4x POSTS OR (3) 2x STUDS
- 3SOO# CAPACITY STRAP HOLDOWNS @ BACK OF POSTS
- OPTIONAL LOCATION
- 2x PT. SILL PLATE
- CONT. FOOTING AT DOOR OPENING

6 PANEL AT FLOOR (CRAWL SPACE)

- 3/8" PLYWOOD W/ 8d. NAILS @ 3" O.C.
- EXTEND PLYWOOD T/J TO OVERLAP RIM JOIST & SILL FL.
- 3SOO# CAPACITY STRAP HOLDOWNS
- CONC. FOUNDATION & FOOTING
PRESCRIPTIVE WALL BRACING BASICS

PRESCRIPTIVE BUILDINGS

**BRACED WALL LINE REQUIREMENTS**
- Braced wall lines are required to be spaced at 25’ o.c.
- A spacing of 35’ is permitted between between braced wall lines to accommodate one single room that does not exceed 900 square feet.

**NON-PRESCRIPTIVE BUILDINGS**
Buildings shall have a lateral-force-resisting system, that resists all wind and seismic loads, designed by a Washington State engineer or architect when any of the following occur:

1. When braced wall lines cannot meet the minimum requirements for the amount and locations of bracing required within the braced wall line.
2. When braced wall lines are not in plane vertically from the foundation to the uppermost story.
3. When a section of floor or roof, that extends more than six feet beyond a braced wall line, is not supported by shear walls or braced wall lines on all edges.
4. When braced wall panels are placed over openings in the wall below that exceed eight feet in width.
5. When an opening in the floor exceeds 12 feet in any dimension or exceeds 50% of the least floor dimension.
6. When braced wall lines do not occur in two perpendicular directions.
### TABLE R602.10.6
**MINIMUM WIDTHS AND TIE-DOWN FORCES OF ALTERNATE BRACED WALL PANELS**

<table>
<thead>
<tr>
<th>SEISMIC DESIGN CATEGORY AND WINDSPEED</th>
<th>TIE-DOWN FORCE (lb)</th>
<th>HEIGHT OF BRACED WALL PANEL</th>
<th>Sheathed Width</th>
<th>8 ft. 2'-4&quot;</th>
<th>9 ft. 2'-8&quot;</th>
<th>10 ft. 2'-8&quot;</th>
<th>11 ft. 3'-2&quot;</th>
<th>12 ft. 3'-6&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDC A, B, and C Windspeed ≤ 110 mph</td>
<td>R602.10.6.1, Item 1</td>
<td>1800</td>
<td></td>
<td>1800</td>
<td>1800</td>
<td>2000</td>
<td>2200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>R602.10.6.1, Item 2</td>
<td>3000</td>
<td></td>
<td>3000</td>
<td>3000</td>
<td>3300</td>
<td>3600</td>
<td></td>
</tr>
<tr>
<td>SDC D&lt;sub&gt;0&lt;/sub&gt;, D&lt;sub&gt;1&lt;/sub&gt;, and D&lt;sub&gt;2&lt;/sub&gt; Windspeed ≤ 110 mph</td>
<td>R602.10.6.1, Item 1</td>
<td>1800</td>
<td></td>
<td>1800</td>
<td>1800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>R602.10.6.1, Item 2</td>
<td>3000</td>
<td></td>
<td>3000</td>
<td>3000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

*Note a* Not permitted because maximum height is 10 feet.

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**ILLUSTRATION #4**

**EXTENT OF HEADER**

DOUBLE PORTAL FRAME (TWO BRACED WALL PANELS)

SINGLE PORTAL FRAME (ONE BRACED WALL PANEL)

**MAX. HEIGHT 10'**

**MIN. 3' X 11.2 '5NET HEADER**

**1000 LB STRAP OPPOSITE SHEATHING**

**FASTEN SHEATHING TO HEADER WITH 8D COMMON OR GALVANIZED BOX NAILS IN 3" GRID PATTERN AS SHOWN AND 3" O.C. IN ALL FRAMING (STUDS, BLOCKING, AND SILL) TYP.**

**MIN. WIDTH = 16" FOR ONE STORY STRUCTURES MIN. WIDTH = 24" FOR USE IN THE FIRST OF TWO STORY STRUCTURES**

**MIN. 2x4 FRAMING**

**3/8" MIN. THICKNESS WOOD STRUCTURAL PANEL SHEATHING**

**MIN. 4200 LB TIE-DOWN DEVICE (EMBEDDED INTO CONCRETE AND NAILED INTO FRAMING)**

**SEE SECTION R602.10.6.2**

**FOR A PANEL SPLICE (IF NEEDED), PANEL EDGES SHALL BE BLOCKED AND OCCUR WITHIN 24" OF MID-HEIGHT. ONE ROW OF TYP. SHEATHING-TO-FRAMING NAILING IS REQUIRED. IF 2X4 BLOCKING IS USED, THE 2X4'S MUST BE NAILED TOGETHER WITH 3 16D SINKERS**

**TYPICAL PORTAL FRAME CONSTRUCTION**

**MIN. 1000 LB TIE DOWN DEVICE**

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**FIGURE R602.10.6.2**

ALTERNATE BRACED WALL PANEL ADJACENT TO A DOOR OR WINDOW OPENING

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 0.454 kg.
Where joists are parallel, provide solid blocking @ 24" o.c. in outer 2 joists spaces. (6) 12d nails @ each blocking.

For 8" conc. wall: 2x6 sill plate (Sect. 2516(c) U.B.C.) with 1/2"x10" A.B. @ 4'-0" o.c. max. (Sect.2907(f)U.B.C.)
(6" wall similar except 1/2" bolts @ 6'-0" o.c. max.)

Metal framing anchors @ 24" o.c. (450# capacity or (1) ea. joist.)

(Drain gravel)

If bsmt. wall water proofing on wall

(2) #4 cont. in footing (typ)

TYP. RESIDENTIAL FOUNDATION WALL

DO NOT BACKFILL UNTIL FLOOR DECKING IS NAILED

<table>
<thead>
<tr>
<th>Height &quot;H&quot; in feet</th>
<th>Vertical Reinforcing</th>
<th>Horizontal Reinforcing</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 2' 6&quot; min. wall</td>
<td>Not Required</td>
<td>(1) #4 Top bar</td>
</tr>
<tr>
<td>3' to 4' 6&quot; min. wall</td>
<td>#4 @ 24&quot; o.c.</td>
<td>#4 @ 24&quot; o.c.</td>
</tr>
<tr>
<td>5' to 6' 8&quot; min. wall</td>
<td>#4 @ 18&quot; o.c.</td>
<td>#4 @ 18&quot; o.c.</td>
</tr>
<tr>
<td>7' to 8' 8&quot; min. wall</td>
<td>#4 @ 16&quot; o.c.</td>
<td>#4 @ 18&quot; o.c.</td>
</tr>
</tbody>
</table>

Concrete f'c = 2,000 psi minimum

All walls over 8'-0" high shall be designed by a Professional Engineer, Licensed by Washington State. (stamped drawings req'd.)