This handout is intended only as a guide and is based in part on the 2015 Minnesota State Building Code, Maple Grove City ordinances, and good building practice. While every attempt has been made to insure the correctness of this handout, no guarantees are made to its accuracy or completeness. Responsibility for compliance with applicable codes and ordinances falls on the owner or contractor. For specific questions regarding code requirements, refer to the applicable codes or contact your local Building Department.

PLANS

Building plans (two copies) must be submitted with an application to construct a garage or garage addition. Plans must be neatly drawn and to scale (at least 1/8” = 1 ft. min.). They may be on 8 ½ X 11 paper. Plans must include a site plan, floor plan, cross section and elevation. Plans should show the proposed size of the garage; location and size of window and door openings; size of headers over all window and door openings; size, spacing, and direction of rafters or trusses; rafter/truss connection method; size and spacing of studs; the grade and species of lumber to be used; the type of roof and wall sheathing used; information on siding and roofing; and any other pertinent information. If the garage exceeds 1000 square feet or an addition to an existing garage results in a garage over 1000 square feet, Minnesota law requires that the plans and design of the garage be prepared by a licensed design professional.

FOUNDATIONS

Detached garages that do not exceed 1000 square feet may be constructed on a thickened-edge slab. Detached garages over 1000 square feet and attached garages must be constructed on a foundation extending at least 42 inches below finished grade.

WALL CONSTRUCTION

Walls may be framed with minimum No. 3 grade studs spaced 16 or 24 inches on center. Utility grade studs may be used when supporting only a roof, spaced not more than 16 inches on center, and limited to 8 feet in height. All other studs shall be limited to ten feet in height. If a single top plate is used, rafters or trusses must be centered over studs. For walls over ten feet in height, see the Minnesota Residential Code.

WALL BRACING

All walls are required to be braced at each end of each wall by one of the following methods:

- Nominal 1X4 continuous diagonal braces let in to top and bottom plates and the intervening studs or approved metal straps installed in accordance with the manufacture's specifications. Braces must be installed at an angle not to exceed 60 degrees or less than 45 degrees.
- 4X8 wood structural panel sheathing not less than 5/16 inch for 16-inch stud spacing and not less than 3/8 inch for 24-inch stud spacing. Sheathing must be attached with a minimum of 6d nails at 12 inches on center.
- 4X8 structural fiberboard sheathing not less than ½ inch thick applied vertically on studs spaced 16 inches on center. Sheathing must be attached with 1½ inch galvanized roofing nails, 6d common nails, or 16 ga 1½ inch staples spaced 3 inches on center around the perimeter and 6 inches on center on intermediate studs. When garages are fully sheathed with wood structural panel sheathing, wall segments on either side of garage openings that support light frame roofs only with roof covering dead loads of 3 psf or less shall be permitted to have a 4:1 aspect ratio. For narrower wall segments, see the last page of this handout.

ROOFTRUSSESS

Wood trusses may be used as long as they are designed to meet state snow load requirements. Truss design drawings must be provided.

GARAGE DOORS

Garage doors must meet minimum wind resistance standards and must come with a label indicating the door complies with ANSI/DASMA 108.

GARAGE DOOR OPENERS

State law requires that all automatic garage door openers sold and installed be equipped with an automatic reversing device. This means that the door must have a means to reverse the closing function if something is detected in the path of the door.

SMOKE ALARMS, CARBON MONOXIDE ALARMS, FIRE WALLS

Smoke alarms are required to be installed in the dwelling when an attached garage is constructed or an existing attached garage is expanded. Carbon monoxide alarms must be installed in a dwelling when any work requiring a permit occurs. A fire wall must be created between a dwelling and a garage if an attached garage is constructed or, in some cases, when an existing attached garage is expanded. Contact the Building Department for specifics.

ZONING REQUIREMENTS

The combined total square footage of attached garages, detached garages, and accessory buildings cannot exceed 1,254 square feet.

A maximum of two (2) detached accessory buildings are allowed per lot. If two (2) detached buildings are erected, one (1) must be no larger than 150 square feet.

No garage or accessory building shall exceed 1,000 square feet in area or a height of 15 feet.

INSPECTIONS

It is the responsibility of the permit applicant to call the Building Department to arrange for the inspections. 24-hour advance notice is required. Inspections typically required for the construction of a garage are:

- Footing and foundation inspections (attached garages only) after form work is in place but prior to pouring concrete.
- Slab Inspection – To be made after all formwork and reinforcing is in place but prior to the pouring of concrete.
- Framing Inspection – To be made after all framing and bracing is complete, rough electrical (if any) is approved, but prior to the application of siding or roofing.
- Final Inspection – To be made upon completion of the garage and grading is complete.
### HEADER SIZES SUPPORTING SPANS OF 20, 24, AND 28 FT

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<th>Span</th>
<th>20 Ft</th>
<th>24 Ft</th>
<th>28 Ft</th>
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<tr>
<td></td>
<td>Header Size</td>
<td># Jack Studs</td>
<td>Header Size</td>
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<td>Over 12 ft</td>
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*Engineered wood product required

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**Diagram:**
- **Asphalt shingles with D225 Type I, D4869, or D6757 Underlayment.**
- **7/16” 24/0 Wood panel sheathing w/ clips if required by manufacturer.**
- **Rafter/wall Connector See Table R802.11**
- **Manufactured Trusses**
- **Single or double top plate – single top plate requires truss centered over stud – lap top plates 24” min.**
- **2 X 4 Studs at 16” or 24” o.c.**
- **Wall bracing – 1X4 diag. or 3/8” structural panel sheathing or =**
- **Reinforcement must be supported in center to upper 1/3” of slab.**
- **4” base course of sand/gravel**
- **½” anchor bolts 7” min into foundation, 6’ spacing max, 3 ½” to 12 inches from ea. end of ea. piece, 2 bolts per piece**
- **Footer 12” deep X 8” wide” with 2 #4 rebar one above the other**
- **Approved siding over weather-resistive barrier except. det. garages**
- **Treated plate if in contact with slab**
For truss to wall, rafter to wall, and rafter to ceiling joist connections, the Maple Grove Building Department has a handout titled *Truss/Rafter to Wall Connections* that provides specific direction on those connections.
FOUNDATION DETAIL FOR ATTACHED GARAGE

½” anchor bolts 7” min into foundation, 6’ spacing max, 3 ½” to 12 inches from ea. end of ea. piece, 2 bolts per piece

3 ½ inch thick concrete floor 3500 PSI Min. Comp. Strength

Reinforcement must be supported in center to upper 1/3rd of slab

4” base course of sand/gravel

Concrete footing 6” deep min. X width of foundation plus 4” wide

Treated plate if less than 8 inches from ground or in contact with slab

Grade

42” Min.

6” Concrete or 8” Masonry foundation

SEPARATION WALL DETAIL FOR ATTACHED GARAGE

Attic

One layer ½” gypsum board applied on garage side of wall between house and garage. No windows. Doors to dwelling must be solid wood or metal. Alt. Gypsum board may stop at ceiling if ceiling is covered with ½” gypsum board (5/8” if living space above) and walls supporting the ceiling are covered with ½” gypsum board.

Dwelling

Garage
WALL BRACING

FRONT ELEVATION

SIDE OR REAR ELEVATION

4 Ft X 8 Ft 5/16” (16” o.c.) or 3/8” (24” o.c.) wood structural panels or 1/2” structural fiberboard sheathing or let-in bracing

WALL BRACING FOR NARROW WALLS

MIN. 3” X 11.25” NET HEADER

6” TO 18’

FASTEN TOP PLATED TO HEADER WITH TWO ROWS OF 16D SINKER NAILS AT 3” O.C. TYP.

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 FRAME (STUDS, BLOCKING, AND SILLS) TYP.

MIN. WIDTH = 16” FOR ONE STORY STRUCTURES

MIN. WIDTH 24” FOR USE IN THE FIRST OF TWO STORY STRUCTURES

3/8” MIN. THICKNESS WOOD STRUCTURAL PANEL SHEATHING

5/8” DIAMETER ANCHOR BOLT

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

ALTERNATE BRACED WALL PANEL ADJACENT TO A DOOR OR WINDOW OPENING