

# Detached Garage

## Residential Accessory Structure

Complete design and installation shall be in accordance with the 2020 Minnesota Residential Building Code, Chapter 1309 (MRC). This handout can be used as a guide in the design of residential detached garage and other accessory buildings. For complete code requirements refer to MN Residential Code at: <https://codes.iccsafe.org/content/document/1581>.

**ePermit:** prior to applying for a permit, see ePermit how-to handouts <https://www.co.scott.mn.us/1783/ePermit-Sign-In> for specific requirements to registering, applying and uploading through the portal.

### Required Submittals for Permit Application Detached Garages or Accessory Structure larger than 200 s.f.

**Township Approval Form:** Use form to determine if township approval is required for project location. Submit completed form with township approval signature if applicable.

**Contact & Contractors Form:** Upload completed contact and contractor form as applicable for your project.

#### Survey/Detail Site Plans:

Location and size of proposed building

Location of and distances from proposed building to other structures, property lines, and septic tanks/system

**Building Plans:** include structural and braced wall design, floor layout, cross sections, elevations, and energy. Design details shall include:

- All dimensions and elevations, rooms shall be labeled, unfinished areas shall be labeled
- Footing, foundation, and slab information (thickness, rebar placement, etc.)
- All header and beam sizes at all new locations or increased openings
- Wall bracing design in accordance with R602.10 or licensed structural engineer, include wind exposure category per R301.2.1.4, locations of braced wall sections, method of bracing, and calculations.
- When unique design methods are being used, it is best to include as much information as possible on the plans

**Truss Specifications:** Roof and Floor Layouts and specification sheets.

**Erosion and Sediment Control Plan and Agreement:** Complete Erosion & Sediment Control General Notes for Building Permits form, Signed Building Permit Erosion & Sediment Control (ESC) Escrow Agreement form, survey, aerial photo or other accurately- scaled drawing showing the proposed structure location.

### Accessory Structure over 120 s.f. up to 200 s.f.:

#### Zoning Permit Application with Intended Use

#### Survey/Detailed Site Plan

**Agricultural Buildings:** See Agricultural Building Use Handout for specific requirements

**Pole and Post Frame Construction:** Refer to the Pole - Post Frame Buildings handout. The non-prescriptive method of construction for pole and post frame structures, requires design by a MN licensed Structural Engineer.

### Did you know.....

**The most common reason for permit delays is due to missing or incomplete submittal documents**

**Permits applications with missing or incomplete submittals will be rejected.**

**TO AVOID DELAYS, ensure all required submittals are included with application for permit.**

TABLE R401.4.1 PRESUMPTIVE LOAD-BEARING VALUES OF FOUNDATION MATERIALS <sup>a</sup>	
CLASS OF MATERIAL	LOAD-BEARING PRESSURE (pounds per square foot)
Crystalline bedrock	12,000
Sedimentary and foliated rock	4,000
Sandy gravel and/or gravel (GW and GP)	3,000
Sand, silty sand, clayey sand, silty gravel, clayey gravel (SW, SP, SM, SC, GM and GC)	2,000
Clay, sandy clay, silty clay, clayey silt, silt, sandy silt (CL, ML, MH and CH)	1,500 <sup>b</sup>
For SI: 1 pound per square foot = 0.0479 kPa. a. When soil tests are required by Section R401.4, the allowable bearing capacities of the soil shall be part of the recommendations. b. Where the building official determines that in-place soils with an allowable bearing capacity of less than 1,500 psf are likely to be present at the site, the allowable bearing capacity shall be determined by a soils investigation.	

**Important note:** Soils across Scott County are typically clay. The MRC identifies clay soils to have a 1500 psf bearing capacity. Ultimately, the soil type identified in the design shall be consistent with what is identified on site during the inspection.

**R401.4 Soil tests.** Where quantifiable data created by accepted soil science methodologies indicate expansive, compressible, shifting or other questionable soil characteristics are likely to be present, the *building official* shall determine whether to require a soil test to determine the soil's characteristics at a particular location. This test shall be done by an *approved agency* using an *approved method*.

**R401.4.1 Geotechnical evaluation for residential construction.** In lieu of a complete geotechnical evaluation, the load-bearing values in Table R401.4.1 shall be assumed.

**MN Rule 1300.0110 Alternative materials, design, and methods of construction and equipment:**

Subp. 12.Modifications. If there are practical difficulties involved in carrying out the provisions of the code, the building official may grant modifications for individual cases, upon application by the owner or owner's representative, provided the building official finds that special individual reason makes the strict letter of the code impractical, the modification is in compliance with the intent and purpose of the code, and the modification does not lessen health, life, and fire safety or structural requirements.

Subp. 13.Alternative materials, design, and methods of construction and equipment. The code is not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by the code, provided that any alternative has been approved. An alternative material, design, or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the code, and that the material, method, or work offered is, for the purpose intended, at least the equivalent of that prescribed in the code in quality, strength, effectiveness, fire resistance, durability, and safety.

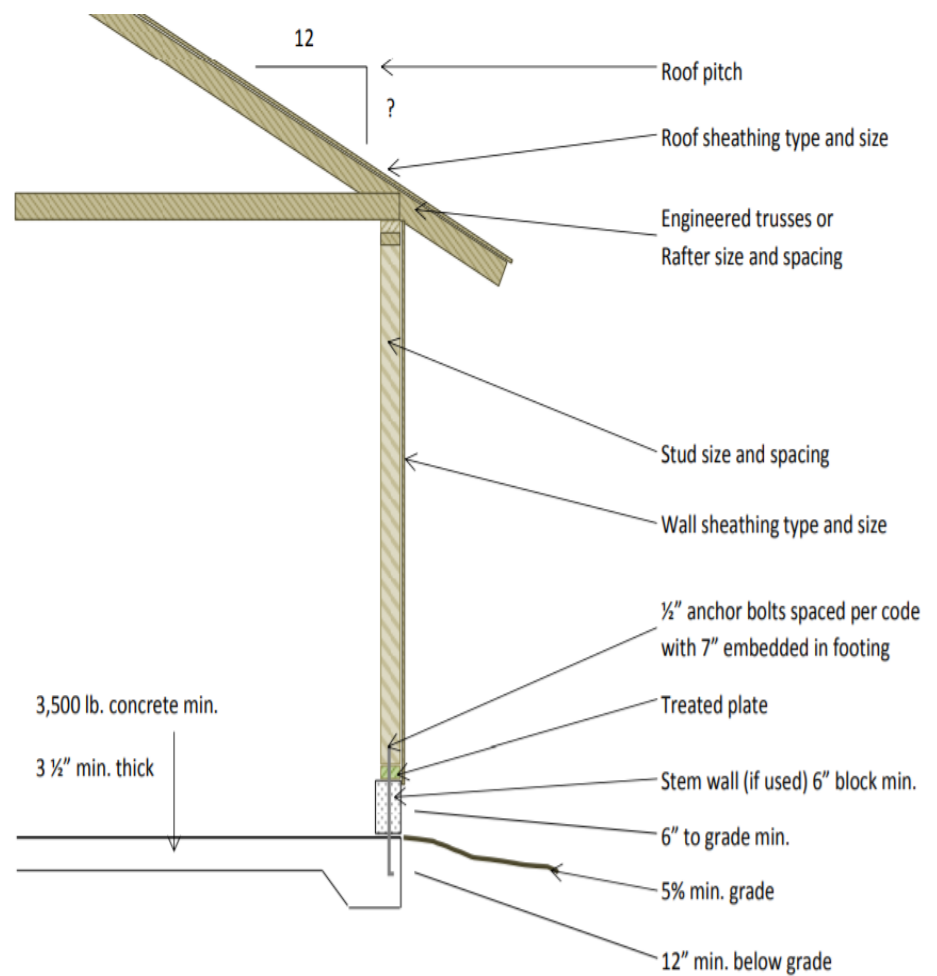
Modification and alternate proposals will be reviewed upon submittal of written application and complete design details.

**Addition or Alterations to Existing Residential Detached Accessory Structures:**

- The requirements of the energy code shall be met when conditioning (heating/cooling) any new and existing buildings. If the permit applicant identifies a hardship in full compliance of the energy code, detailed alternative designs showing the alternate meets or exceed the prescriptive code requirements may be submitted for Building Official approval in accordance with Subp. 13 above.

**Conventional detached buildings shall be designed and constructed in accordance with the MN Residential Code**

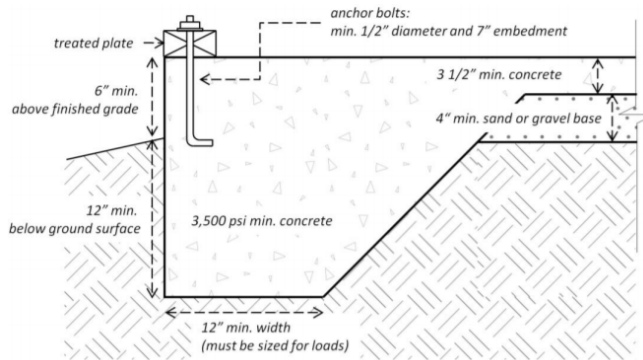
- Footings:** (See illustrations on the following pages) Footings must extend to frost depth for all structures attached to the house. A monolithic slab with integrated footing may be used for one story detached structures less than 1000 square feet on all soils except peat and muck provided it is not heated. Structures 1,000 to 3,000 sq ft must be constructed with footings extending to a minimum of 42" below grade.
- Anchor bolts:** Sill (sole) plates must be anchored to the foundation with not less than ½" diameter steel bolts or approved straps embedded at least 7" into the concrete. Anchor bolts shall not be spaced more than 6' apart with a minimum of 2 anchor bolts per section of plate and an anchor bolt placed not more than 12" from the end of each individual plate.
- Sill (sole) plate:** Sill plates shall be of naturally durable wood or wood that is preservative treated in accordance with AWPA U1 for the species, product, preservative, and end use.
- Wall framing:** Studs must be placed with their wide dimension perpendicular to the wall. The minimum stud size is 2"x 4" and not more than 24" on center depending on height and loads.
- Top plate:** Stud walls shall be capped with a double top plate installed to provide overlapping at corners and intersections with bearing partitions. End joints in top plates shall offset at least 24 inches.
- Sheathing:** Approved wall and roof sheathing must be installed according to manufacturer's specifications. A weather resistive barrier may be required prior to installation of siding.
- Wood ground separation:** Untreated wood sheathing and siding must maintain 6" minimum clearance to the ground.
- Stem wall (curb block):** Concrete masonry blocks used for stem wall (curb block) must be a minimum 6" modular width.
- Braced wall plan:** Wall bracing plan with calculations shall be submitted (see R602.10)



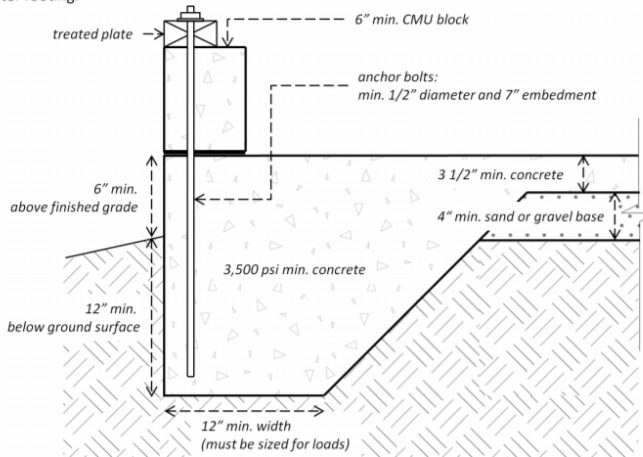
## Un-heated:

### Unfinished Detached Garage (maximum 1000 square feet)

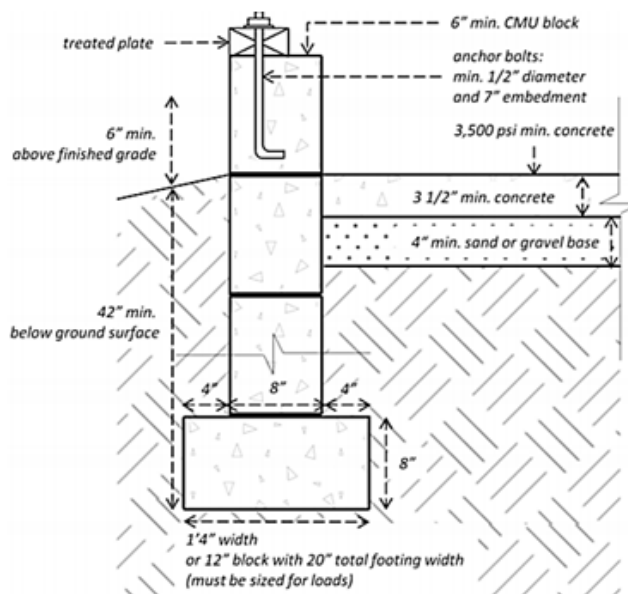
*Floating Slab-On-Grade:* Wall framing and plate lay directly on thickened perimeter footing.



*1 Course Masonry Foundation:* Wall framing and plate sit on one course of masonry block on top of thickened perimeter footing.



### Frost footing with stem wall



- For one story un-heated residential detached buildings 1,000 sq ft or less, the monolithic slab can be constructed 12 inches below undisturbed soil of any type except peat or muck (MN Rules Chapter 1303.1600).
- For residential detached buildings 1,000 to 3,000 sq ft, monolithic slabs cannot be constructed unless it is supported on frost footings, or on natural or fill soils that are pit run sand or gravel (soils must be approved by an engineer competent in soil mechanics).
- For residential detached buildings of any size, frost footings with stem walls may be used.
- Un-heated residential detached buildings can also be constructed in accordance with ASCE32.

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## ASCE STANDARD

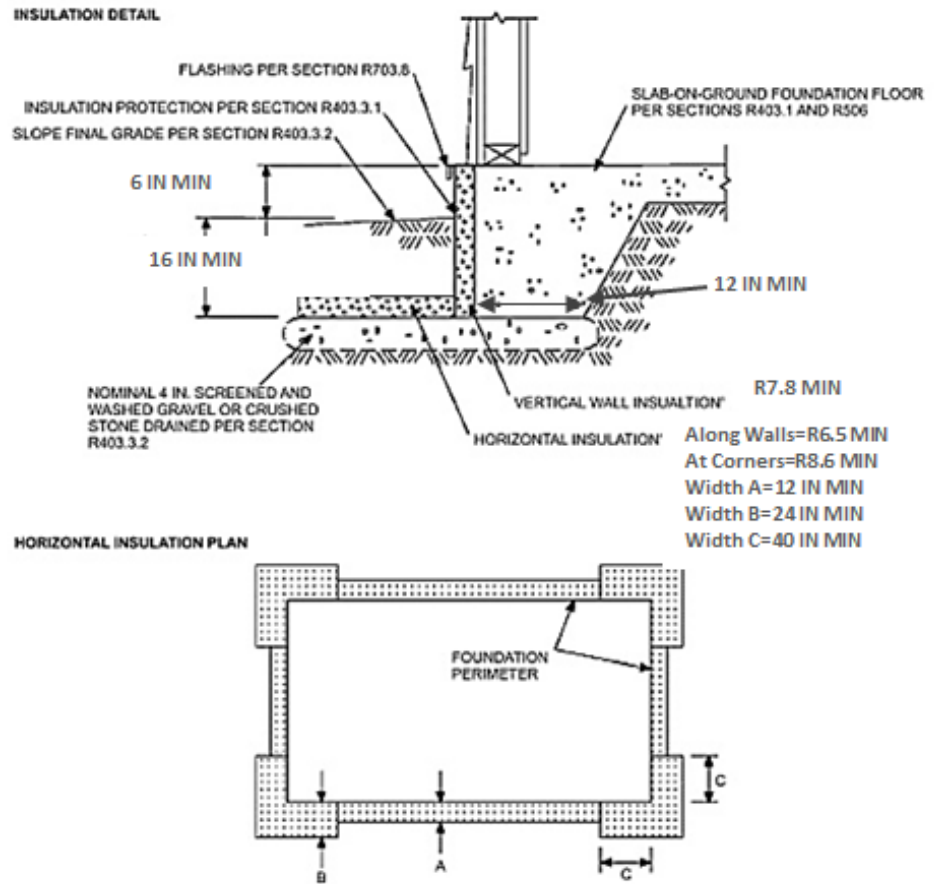
American Society of Civil Engineers

## Design and Construction of Frost-Protected Shallow Foundations

**Heated:** (Monthly mean temperature maintained at a minimum 64 degrees R403.3)

**Example of a monolithic slab:**

- Heated residential detached buildings 1,000 sq ft or less, the footings are not required to extend below the frost line when protected from frost by insulation in accordance with Figure R403.3(1) and Table R403.3(1) and shall not be used with unheated residential detached buildings. (Scott County has an Air Freezing Index of 3,000.)
- Heated residential detached buildings 1,000 to 3,000 sq ft must be constructed using frost footings with stem walls, the foundation must be insulated with an R10 from the top of the foundation to the top of the footing (Table R402.1.1)
- Heated residential detached buildings can also be constructed in accordance with ASCE32.



**Energy Code Compliance Requirements:**

- Detached Residential buildings constructed in accordance with the MN Residential Code, Chapter 1309 and intended to include space conditioning such as heating or cooling shall meet the requirements of MN Residential Energy Code, Chapter 1322.

TABLE R403.3(1)  
MINIMUM FOOTING DEPTH AND INSULATION REQUIREMENTS FOR FROST-PROTECTED FOOTINGS IN HEATED BUILDINGS<sup>a</sup>

AIR FREEZING INDEX ("F-days) <sup>b</sup>	MINIMUM FOOTING DEPTH, D (inches)	VERTICAL INSULATION R-VALUE <sup>c, d</sup>	HORIZONTAL INSULATION R-VALUE <sup>e, f</sup>		HORIZONTAL INSULATION DIMENSIONS PER FIGURE R403.3(1) (inches)		
			Along walls	At corners	A	B	C
1,500 or less	12	4.5	Not required	Not required	Not required	Not required	Not required
2,000	14	5.6	Not required	Not required	Not required	Not required	Not required
2,500	16	6.7	1.7	4.9	12	24	40
3,000	16	7.8	6.5	8.6	12	24	40
3,500	16	9.0	8.0	11.2	24	30	60
4,000	16	10.1	10.5	13.1	24	36	60

For SI: 1 inch = 25.4 mm, °C = [(°F) - 32]/1.8.  
 a. Insulation requirements are for protection against frost damage in heated buildings. Greater values may be required to meet energy conservation standards.  
 b. See Figure R403.3(2) or Table R403.3(2) for Air Freezing Index values.  
 c. Insulation materials shall provide the stated minimum R-values under long-term exposure to moist, below-ground conditions in freezing climates. The following R-values shall be used to determine insulation thicknesses required for this application: Type II expanded polystyrene-2.4R per inch; Type IV extruded polystyrene-4.5R per inch; Type VI extruded polystyrene-4.5R per inch; Type IX expanded polystyrene-3.2R per inch; Type X extruded polystyrene-4.5R per inch.  
 d. Vertical insulation shall be expanded polystyrene insulation or extruded polystyrene insulation.  
 e. Horizontal insulation shall be extruded polystyrene insulation.

- Detached Residential buildings constructed in accordance with the MN Building Code, Chapter 1305 and intended to include space conditioning such as heating or cooling shall meet the requirements of MN Residential Energy Code, Chapter 1323.

**Other Related Items:**

- Permit applicant and property owner are responsible for complying with Scott County ordinances, Minnesota building codes, manufacturer’s specifications, building permit details, and “Approved” plans. Review the approved permit documents for specific requirements prior to beginning construction. The “approved” plan shall be kept on the site and available to the inspector.
- “Approved” plans and specification shall not be changed, modified or altered without prior approval from the Building Inspection Department.

**Required Inspections (Shell Building Permit):**

- **Footing:** Inspected after all forms are set and all required reinforcement is in place, and before concrete is poured. Have anchor bolts or anchoring system available for inspection.
- **Poured Wall:** After forms are set and all required reinforcement is in place before concrete pour
- **Foundation:** After foundation walls and foundation insulation is completed (if required), before backfilling
- **Framing:** After all rough in inspections and electrical are done. Before any framing is covered.
- **Building Final:** After all other required inspections and electrical are done. Exterior is weather tight and project including final grade is completed.

**Additional Required Inspections (Interior Finish Permit):** Interior finish shall be identified and included in the design plans for the main building permit or shall be by separate permit, prior to any interior finish activities.

- **Plumbing Rough-in**
- **Mechanical Rough--in**
- **Gas Line Rough-in and Air test**
- **Plumbing Final**
- **Mechanical Final**
- **Insulation**

**Permit Expiration:**

- Expiration occurs 180 calendar days after permit is issued or inspection with a positive outcome. Reactivation fees will be incurred for expired permits. If the project is expected to go beyond the 180 days, submit completed Request for Extension form along with explanation of cause for delay to [buildinginspections@co.scott.mn.us](mailto:buildinginspections@co.scott.mn.us) prior to expiration.