

Detached garage foundations and slabs

This handout applies to one-story detached garages with uninhabitable attics. Most detached garages are not required to be built on frost depth foundations; however, this will depend on the grade or soil conditions at the property or proposed design or use of the garage.

Footings

A "floating slab" may be used for the foundation support of detached garages on all soils except peat and muck. The slab perimeter must be sized and/or reinforced to carry all design loads. The minimum width of footings for a conventional one-story detached garage is 12 inches. All exterior footings shall be placed at least 12 inches below the undisturbed ground surface. Slabs must be at least 3 1/2 inches thick and reinforcing is recommended. The minimum concrete strength is 3,500-pounds-per-square-inch.

Foundation anchorage

Foundation sill plates must be anchored to the foundation with steel bolts at least 1/2 inches in diameter. The bolts must be embedded at least seven inches into the concrete and spaced no more than six feet apart. Anchor bolts installed in masonry shall be grouted in place with at least 1 inch of grout between the inside face of the masonry and the anchor bolt. At least two bolts are required for each piece of sill plate, and at least one bolt must be within 12 inches of each end of each sill plate. Anchor bolts shall have a 2 inch by 1/8-inch-thick round or square washer tightened and countersunk 1/4-inch into the top of the sill plate. Use of standard and non-countersunk washers requires anchor bolt spacing at half the table spacing.

Other methods, such as foundation straps, may be used if installed according to the manufacturer's instructions and in a way to provide equivalent anchorage. Such alternatives typically require closer spacing than is required for embedded anchor bolts.

Unbalanced backfill

Walls supporting more than 48 inches of unbalanced backfill that do not have permanent lateral support at the top or bottom, or walls that are subject to hydrostatic pressure from groundwater, shall be designed in accordance with accepted engineering practice.

Height above finished grade

Concrete and masonry foundation walls shall extend above the finished grade a minimum of 6 inches. Concrete masonry curb blocks must be at least 6-inch-modular width (4-inch-curb blocks are not permitted by code).

Construction Codes

2020 Minnesota Residential Code

Minneapolis has adopted the 2020 Minnesota Residential Code (MRC) which provides minimum requirements for the design and construction of residential dwellings and their accessory structures. The MRC and this handout apply to **single-family dwellings**, **two-family dwellings** (duplexes), and **townhouses** with no more than three stories and with separate entrances and their **accessory structures** such as detached garages and sheds.

Permits

Building permits are required for the construction of all garages.

Construction Plans

Residential detached garage construction requires you to submit detailed construction plans which allow us to perform a plan review and approve the permit.

Construction plans do not need to be professionally drawn by a drafter, designer or architect. However, plans must include all the information necessary to demonstrate the work that is being done and how it will comply with all applicable code requirements.

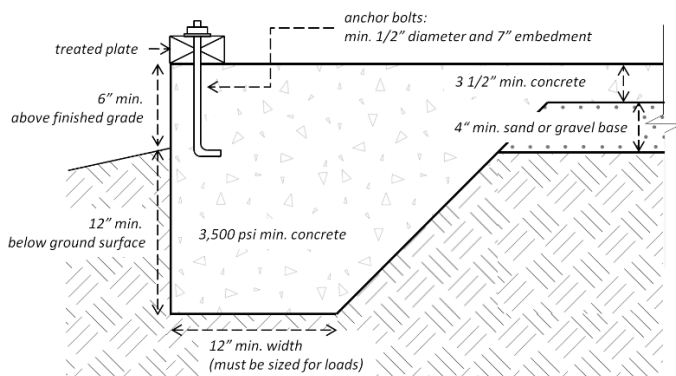
Plans should be detailed enough that anyone could build the project from the plans. Plans should be drawn to scale, neat, legible, and include straight lines and precise measurements.

Typical one-story detached garage plan submittals include:

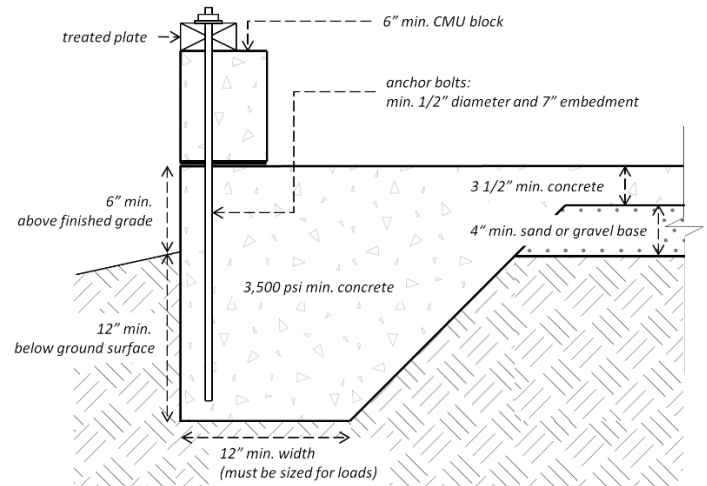
- Site plan or survey
- Floor plan
- Braced wall plan
- Exterior elevations
- Cross section
- Other drawings as needed to convey design and methods of construction, such as a foundation plan, wall bracing details, and construction details

Typical unfinished one-story detached garage (maximum 1,000 square feet) examples

Floating slab on grade with wall framing and sill plate directly on thickened perimeter footing.



Floating slab on grade with wall framing and sill plate on one course of masonry block (or concrete curb) on thickened perimeter footing.



Two-story detached garage example

Slab on grade with concrete or masonry stem wall and frost depth footings. Frost footings extending 42 inches below undisturbed ground surface are always required when a garage has a habitable attic or a second story.

