

STORAGE SHEDS and the 2020 MINNESOTA RESIDENTIAL CODE

Minnesota Department of Labor and Industry

Are storage sheds required to comply with the 2020 Minnesota Residential Code?

Storage sheds and similar uses are accessory structures and their occupancy group classification is IRC-4. These structures must be designed and constructed in accordance with the 2020 Minnesota Residential Code (MNRC). [R300.1, R301.1]

Do storage shed requirements apply for all of Minnesota?

The Minnesota State Building Code is the standard of construction for all of Minnesota, in areas with or without local code enforcement. The 2020 MNRC adopts the 2018 International Residential Code (IRC) with amendments. [Minnesota Statutes, section 326B.121, MR 1309]

The Minnesota State Building Code, or the code, is adopted under Minnesota Statutes, section 326B.106, subdivision 1, and includes the chapters identified in Minnesota Rules, part 1300.0020. The 2020 MNRC can be viewed at <https://codes.iccsafe.org/content/MNRC2020P1>.



A manufactured storage shed with wood skids.

Are building permits required for all storage sheds?

One-story storage sheds with a floor area of 200 square feet or less are exempt from building permit requirements. All storage sheds must comply with the code, local ordinances and other laws. [MR 1300.0120, subp.4]

Can storage sheds have electrical lighting and outlets installed?

Electrical light fixtures, outlets and other electrical related items are allowed in sheds, but an electrical permit is required for their installation even when a building permit is not required. An electrical inspector will conduct a rough-in inspection when interior finishes are installed on walls or ceilings but prior to concealment. A final inspection is required when the project is complete. The homeowner or Minnesota-licensed electrical contractor who obtained the electrical permit must contact the local electrical inspector to schedule the required inspections.

Is a Minnesota residential building contractor license required to build a storage shed?

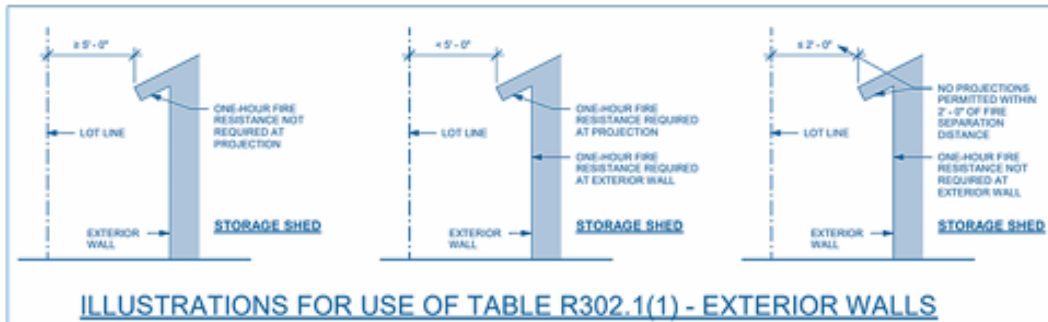
Residential building contractor, residential remodeler or residential roofing licenses are not required for the construction of a storage shed. Although Minnesota licensure is not required, contracted individuals and homeowners should confirm local jurisdiction requirements for permits, inspections and other requirements before construction. [Minn. Stat. 326B.802, subd. 13 and Minn. Stat. 326B.805]

Are storage shed setbacks from property lines regulated by the code?

The 2020 MNRC does not address minimum property line setback requirements for storage sheds. Local zoning ordinances may regulate property line setbacks and the size and number of accessory structures permitted on a property. Storage sheds cannot be constructed within a property's drainage and utility easements.

Does the code have requirements for exterior walls and eave projections near property lines?

All sheds, including those not requiring a building permit, must comply with code requirements for exterior walls. Shed exterior walls less than five feet from the property line are required to be one-hour fire-resistance rated. Roof eave projections equal or greater than two feet and less than five feet from the property line are also required to be one-hour fire-resistance rated. (See illustration below) [R302.1, Table R302.1(1), MR 1300.0120, subp. 4]



Is a structural engineer required to design a storage shed?

A design by a structural engineer is not required for storage sheds designed in accordance with the prescriptive requirements of the 2020 MNRC. Designs, foundation systems and methods of anchorage that are unconventional construction practices and not addressed by the code must be certified by a structural engineer as compliant with the code. [R301.1.3]

Do storage sheds require footings and foundations that comply with the code?

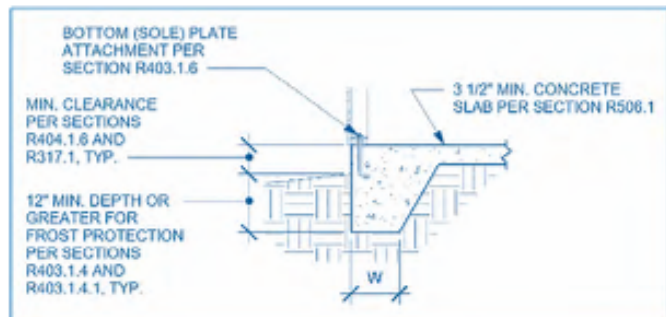
The footing and foundation of the structure must support all loads (i.e. dead loads, live loads, roof loads, snow loads, wind loads) as prescribed by the code. This is necessary to provide a complete load path to transfer loads from their point of origin through the foundation to the supporting soils. [R301.1, R401.2]

Do storage sheds require frost depth footings?

The 2020 MNRC has five exceptions from the requirements for minimum footing depth for frost protection, including MR 1303.1600. MR 1303.1600 permits slab on grade construction for one-story detached private garages, shed buildings and carports not larger than 1,000 square feet on any soil except peat or muck. [R403.1.4.1, MR 1303.1600]

Does slab on grade construction require a footing?

Slab on grade construction, often called a turned down footing, requires the perimeter of the slab to be capable of supporting all imposed design loads. The code requires turned down footings to be placed 12-inches below the undisturbed ground surface. For exterior framed walls constructed directly on the concrete slab, the code requires a minimum of 6-inch clearance from untreated wood products to grade. (See illustration at right) [R403.1.4, R317.1]



Monolithic slab-on-grade with turned down footing.

If the storage shed is designed with an attic for storage, is the attic considered a story?

The code defines an attic as unfinished space between the ceiling and roof assemblies and a habitable attic as finished or unfinished habitable space within an attic. Closets, storage, utility spaces and similar uses are not considered habitable space.

A habitable attic is **not** considered a story when complying with **all** of the following requirements:

1. the occupiable floor area is 70 square feet or more;
2. the occupiable floor area has a ceiling height of 7'-0" or more;
3. the occupiable space is enclosed by roof assembly above, knee walls (if applicable) on the sides and the floor-ceiling assembly below; and
4. the floor of the occupiable space does not extend beyond the exterior walls of the floor below.

(See full code text) [R202, R325.6, R304, R305]

Are anchor bolts required for slab on grade construction?

Foundation anchorage is necessary because structures must support all loads (i.e. dead loads, live loads, roof loads, snow loads, wind loads) and provide a complete load path to through the foundation to the supporting soils. Wood sill plates at exterior walls on monolithic slabs must be anchored to the foundation with anchor bolts spaced a maximum of 6 feet on center. Bolts must be at least 1/2-inch in diameter and extend a minimum of 7 inches into concrete. Locate the bolts in the middle third of the width of the plate. A nut and washer must be tightened on each bolt. Foundation anchor straps equivalent to anchor bolts are permitted in accordance with the manufacturer's installation instructions and design. (See full code content) [R403.1.6]

Is a storage shed built elsewhere and delivered to a property considered a manufactured structures?

Storage sheds built off site are usually not considered manufactured structures by the code because they are of open construction with all framing visible and the structural panel siding attached directly to the stud wall framing. Minnesota Rules, chapters 1360 and 1361, address manufactured structures of closed construction as "prefabricated" or "industrialized/modular." Closed construction is any building manufactured in a manner in which all portions cannot be readily inspected at the installation site without disassembly, damage, or destruction of the building. Open construction is not regulated by MR 1360 or MR 1361.

Are manufactured storage sheds on skids required to be placed on level ground, crushed rock or concrete slab?

The storage shed manufacturer should provide instructions with recommendations for placement so the shed is stable and level. The instructions may also address air flow for the floor system and other considerations.

Is the siding on manufactured and site-built storage sheds required to have 6 inches of clearance above the ground?

All storage sheds constructed with wood support skids, wood floor joist, wood floor sheathing, exterior wall framing and wood exterior structural panel siding must be protected from decay as required by the code. The code requires the following to be decay protected: wood joists or the bottom of a wood structural floor closer than 18 inches or wood girders closer than 12 inches to the ground and wood siding, sheathing and wall framing on the exterior of the structure having a clearance of less than 6 inches. Wood products that protect against decay are naturally durable wood or preservative treated wood. [R317.1, R317.1.2]

Do manufactured or site-built storage sheds require floor systems designed to the code?

Storage sheds constructed with wood support skids, wood floor joist, wood floor sheathing, must be designed as conventional construction with floor joist spacing based on the grade and species of the joist material, span limitations of the structural panel floor sheathing, and required joist bearing requirements. The code includes requirements for decay resistance materials for floor systems. [2020 MNRC Chapter 5, R317.1, R317.1.2]

Does the code include manufactured storage shed anchorage requirements?

The code provides prescriptive requirements for foundations and anchorage for structures built with conventional construction practices. Storage sheds, like other structures regulated by the code, must be anchored in place to prevent movement or overturning due to weather events. The shed manufacturer must install or provide an anchoring system based on the individual shed's area, height, wind exposure and accepted engineering practices. [R301.1, R301.3, R310.2]

Are storage sheds required to have a water-resistive barrier (WRB) at exterior wall assemblies?

The code requires a WRB over the exterior wall sheathing prior to the installation of siding to prevent water accumulation within the wall assembly for both heated and unheated structures. Structures built using the post/frame method (pole buildings) or with structural panels attached directly to the studs as the siding and exterior sheathing must have a WRB or an alternative secondary drainage plane to drain moisture to the structure's exterior. An alternative method for the secondary drainage plane must comply with the intent of the code and be approved by the jurisdiction's building official. Previous model codes exempted detached accessory structures from WRB installation requirements, but the exception was removed in the 2018 IRC. [R703.2, R703.1.1, MR 1300.0110]

Are detached storage sheds required to have an ice barrier installed before installing asphalt shingles?

The code does not require ice barriers for detached accessory structures that do not contain conditioned floor area. However, the asphalt shingle manufacturer may require ice barriers in their installation instructions. Asphalt shingles must be installed in accordance with the code and the manufacturer's installation instructions. [R905.1.2, R905.2.7, R905.1]

Instead of buying wood trusses for a storage shed, can an individual fabricate their own?

Wood trusses are engineered components of the roof and ceiling structure and must be designed by a Minnesota licensed engineer to accepted standards. A structurally compliant roof and ceiling structure can be constructed without trusses in accordance with the 2020 MNRC prescriptive requirements for hand framing of ridge boards, rafters and ceiling joists. [R802.10 R802.3, R802.4, R802.5]

Can a storage shed be finished to create a dwelling such as a "tiny home" or "accessory dwelling unit?"

Local zoning ordinances dictate if a tiny home or accessory dwelling unit (ADU) is allowed on the property. Municipal zoning ordinances vary by municipality and regulate land use, including location, height, width, type of foundation, number of stories and size of buildings. Zoning ordinances may also limit the number of dwellings on a property.

A shed converted into a tiny house or ADU must comply with the 2020 MNRC requirements for dwellings. A dwelling is defined as a single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation and a tiny house is a dwelling with 400 square feet or less in floor area excluding lofts. Tiny homes and ADUs must comply with code requirements for structural design, foundations, energy code compliance, light, ventilation, heating, minimum room sizes, ceiling heights, emergency escape and rescue openings, means of egress, smoke alarms and carbon monoxide alarms, sanitation, and toilet, bath and showers spaces. View more about tiny houses at www.dli.mn.gov/sites/default/files/pdf/tiny_houses.pdf.

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