

Bear Creek Township

Building Department

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Single Story Residential Accessory Structures

Code compliance list for Garages, Pole Buildings, Storage Sheds, etc.

2009 Michigan Residential Building Code

The following, is a list of building code requirements, for single story residential accessory structures. These requirements may pertain to your building. Should your building contain a second floor storage or loft area, there are additional code requirements that must also be met. This list is categorized into the different phases of construction such as footings and foundations, framing, etc. Should you have any questions regarding this list, or other code requirements, feel free to call the building department at the number shown above.

When is a permit required

1. Section R105 - A building permit is required for any residential accessory structure exceeding 200 square feet in size. Applicant shall file an application for all required permits, and receive approval for all required permits, prior to construction. Required permits may include zoning, driveway, building, and if sub-trade work is involved, electrical, mechanical, and/or plumbing.
2. Section R109 - The permit holder shall notify the building department when the work is ready for the following inspections: footing, foundation, frame, rough and final. All work shall be inspected, and approved prior to being concealed.
3. Section R202 - Definition: "Accessory Structure": A structure not greater than 3000 square feet in floor area, and not over two stories in height, the use of which is customarily accessory to and incidental to that of the dwelling(s) and which is located on the same lot.

Building design, location & fire protection

4. Tables R301.2(1), R301.5 - The following geographic and climatic design criteria shall be used in the design of this building: Ground snow load = 70 psf; Wind speed = 90 mph for a 3 second gust; Damage from weathering - severe; Frost depth = 42"; Winter design temperature = -10 degrees F. The following uniformly distributed floor loads shall be the minimum used for the design of the framing system: Rooms = 40 psf; Decks = 40 psf; Garage floors = 50 psf; Attics with limited storage = 20 psf; Attics without storage = 10 psf, habitable attics and attics with fixed stairs = 30 psf.
5. Section R302.9 - Interior wall and ceiling finish materials shall have a flame spread rating of less than 200, and a smoke developed rating of less than 450.
6. Sections R316.4 - Foam plastic shall be separated from the interior of a building with ½" gypsum board or other material, having at least a 15 minute finish rating.
7. Section R302.1 - An exterior wall, with a fire separation distance of less than 5 feet to a lot line, shall be constructed with a 1 hour fire resistive rating tested with exposure to fire from both sides.
8. Section R302.1 Projections of garages accessory structures to a dwelling located between 2 feet and 5 feet from the property line, shall be constructed with 1 hour rated protection on the underside.
9. Section R302.1 - No openings are permitted in exterior walls having a fire separation distance of less than 3 feet.
10. Section R302.6 - Separation required - Garages located less than 3 feet from a dwelling unit on the same lot shall be protected with not less than ½ inch gypsum board applied to the interior side of exterior walls that are within this area. Openings in these walls shall be regulated by Section 302.5.1 and be equipped with solid wood doors not less than 1-3/8 inch in thickness, solid or honeycomb steel doors not less than 1-3/8 inch in thickness, or other approved 20 minute fire rated doors.

Safety glazing in windows

11. Section R308.4 - Approved safety glazing materials shall be installed in glazing within 24 inches of the vertical edge of a door, glazing having an area greater than 9 square feet with the bottom edge less than 18 inches above the floor and the top edge greater than 36 inches above the floor and having a walking surface within 36 inches horizontally of the glazing, and glazing in walls enclosing stairway landings or within 5 feet of the bottom of the stairway where the bottom edge of the glass is less than 5 feet above the walking surface.

Footings and Foundations

12. Section R403.1.1 - Concrete and masonry footings shall comply with Table R403.1 and Figure R403.1(1). Spread footings shall be at least 6" thick and project at least 2" but not more than the thickness of the footing beyond the foundation wall for their required minimum width. Pole building footings must be sized accordingly to support the loads placed on the footings by the posts.
13. Section R403.1.4 - Unless frost protected in accordance with Section R403.3 or erected on solid rock, all footings shall extend below frost line, (typically 42" below finished grade), except accessory buildings that are less than 600 square feet in area, 10' in height and are of light frame construction, or structures under 400 square feet in size, under 10' in height and of other than light frame construction, require a footing extending a minimum of 12" below grade or to undisturbed soils.
14. Section R403.1.6 - Sill plates shall be anchored to the foundation with ½" anchor bolts @ 6' o.c. and within 12" of the end of each piece of sill plate. Bolts shall extend at least 7" into grouted masonry or concrete. If anchor straps are used, anchor straps shall be spaced to provide equivalent anchorage as indicated by the anchor strap manufacturer.
15. Section R406.1 - Concrete or masonry foundations enclosing habitable or useable space below grade shall be dampproofed. Masonry walls shall have 3/8" Portland cement parging on the exterior. The dampproofing material shall be a material approved for use as dampproofing.
16. Section R317.1 - Preservative treated wood shall be used for wood posts or columns that are in direct contact with the ground and support permanent structures.
17. Section R317.1.1 - Field Treatment - Field cut ends, notches and drilled holes of preservative treated wood shall be treated in the field in accordance with AWPA M4.
18. Section R506.1 - Concrete slabs on ground shall be at least 3.5" thick.
19. Section R506.2.4 - Reinforcement support - Where provided in slabs on ground, reinforcement shall be supported to remain in place from the center to upper one third of the slab for the duration of the concrete placement.
20. Section R309.1 - Garage floor surfaces shall be of an approved noncombustible material. The area of floor used for parking of vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.
21. Section R506.2.1 - Fill material under a slab on grade shall not exceed 24" in depth for clean sand and gravel and 8" for earth.
22. Section R506.2.2 - For concrete slabs below grade, a 4" base course of sand, gravel, crushed stone, etc. shall be placed on the sub-grade unless the soil is a Group I soil.

Framing

23. Section R317.1 - Preservative treated wood or naturally durable wood shall be used when wood sills or plates rest on exterior foundation walls and are less than 8 inches from exposed earth; when wood sleepers or sills on concrete slabs without an impervious moisture barrier that are in direct contact with the earth; where the ends of wood beams enter exterior masonry or concrete walls with less than ½" clearance on the top, sides and end; wood siding, sheathing and framing with less than 6" of clearance from the ground; wood supporting moisture permeable floor or roofs that are exposed to the weather and wood furring strips attached directly to the interior of exterior masonry or concrete walls below grade.
24. Section R317.3.1 - Fasteners for pressure treated wood shall be hot-dipped galvanized steel, stainless steel, silicon bronze or copper.
25. Sections R502, R602 & R802 - Conventional framing lumber used for joists, beams, girders, studs, plates, headers, rafters, trusses and ceiling joists shall have an approved grade stamp or certificate of inspection from an approved lumber grading or inspection agency.
26. Sections R502.2, R602.3 & R802.2 - Design & Construction - Requires framed buildings to be constructed in accordance with AF&PA National Design Standards.
27. Sections R502.5 & R602.7 - Spans for girders and headers using conventional lumber shall be in accordance with Tables R502.5(1) & (2).
28. Section R502.6 - Joists, beams and girders shall bear at least 1.5" on wood or metal and at least 3" on masonry or concrete, or be supported with approved hangers.
29. Section R502.8.1 & R802.7.1 - Notches in sawn lumber joists, rafters and beams shall not exceed 1/6 nor be longer than 1/3 of the depth of the member, and shall not be located in the middle third of the span. These notches are not allowed on the bottom of members with a nominal width of 4" or more. Notches in the end shall not exceed 1/4 the depth of the member. Holes shall not exceed 1/3 the depth of the member and shall not be closer than 2" to the top or bottom or any other hole or notch. Rafter overhangs may extend 2' from the exterior wall as long as at least 4" of the rafter remains.
30. Section R502.8.2 & R802.7.2 - Cuts, notches or holes are not permitted in engineered floor and roof framing members without engineering analysis.
31. Section R502.11 & R802.10 - Submit truss design drawings and install all required bracing.

32. Section R802.10.4 - Trusses shall not be altered in any way without approved engineering analysis.
33. Section R502.9 - Posts and beams or girders shall have positive connections to resist uplift and lateral movement.
34. Section R602.3 - Exterior wall components shall be fastened in accordance with Tables R602.3(1), (2), (3) & (4).
35. Section R602.3.1 - Bearing studs 10' or less in height shall be spaced as indicated in Table R602.3(5). Bearing studs more than 10' in height shall be spaced as indicated in Table R602.3.1.
36. Section R602.3.2 - Stud walls shall have a double top plate overlapped at all corners with end joints offset at least 24". A single top plate may be used if all joints, corners and intersecting walls are tied together with a 3" x 6" galvanized steel plate with at least 6 - 8d nails on each side, and the rafters and joists are centered over the studs.
37. Section R602.3.3 - Joists, rafters and trusses spaced more than 16" o.c. shall bear within 5" of the stud below if the studs are spaced 24" o.c. unless the two top plates are 2" x 6", three top plates are installed or solid blocking reinforces the double top plate.
38. Section R602.6 - Exterior and bearing studs cannot be cut or notched in excess of 25% of its width. Non-bearing studs cannot be cut or notched in excess of 40% of its width. Holes drilled in studs cannot exceed 40% of its width and shall be no closer than 5/8" to the edge of the stud. A double stud cannot have holes exceeding 60% of its width.
39. Section R602.6.1 - Wall top plates cannot be cut by more than 50% unless a 1.5" wide galvanized metal tie is fastened to the top plate on each side with at least 8 - 10d nails. Wood structural sheathing may be used in lieu of the metal ties on one side of the wall.
40. Section R802.3 - Rafters shall be framed to at least a nominal 1" x ridge board or to each other with a gusset plate as a tie. Valley and hip rafters shall be at least a nominal 2" x. Hip and valley rafters shall be supported at the ridge by a brace to a bearing partition.
41. Section R802.3.1 - Fastening of ceiling joists to rafters shall be in compliance with Table R802.5.1(9). Where ceiling joists or rafter ties are not provided at the top wall plate, a properly designed ridge beam shall be installed.
42. Section R802.4 - Spans for ceiling joists shall be in accordance with Tables R802.4(1) or (2) dependent upon whether or not the attic is to be used for limited storage.
43. Section R802.5 - Rafter spans shall be in accordance with Tables R802.5.1 (emmet county) or (7) dependent upon whether or not the ceiling is attached to the rafters.
44. Section R802.5.1 - Purlins providing support for rafters in compliance with Figure R802.5.1 shall be the same size as the rafters. The purlins shall be supported @ 4' o.c. with 2" x 4" braces extending to bearing walls with a slope not less than 45 degrees from horizontal and an unbraced length not exceeding 8'.
45. Section R802.6 - Rafters and ceiling joists shall bear at least 1.5" on wood or metal and at least 3" on concrete or masonry.
46. Section R802.8 - larger rafters and ceiling joists exceeding a 5 to 1 depth to thickness ratio shall be provided with lateral support at bearing points to prevent rotation.
47. Section R802.10.5 - Truss to wall connection - Trusses shall be connected to wall plates by the use of approved connectors having a resistance to uplift of not less than 175 pounds, and be installed in accordance with manufacturer's specifications. Truss requiring additional uplift resistance shall have connectors meeting those requirements as noted on the truss engineering.
48. Section R802.11 - Roof assemblies subject to wind uplift pressures greater than 20 psf for wind zone 1 and wind area of 100 sf shall have tie-downs at bearing locations capable of resisting the pounds of uplift indicated in Table R802.11.
49. Section R807.1 - Provide a 22" x 30" attic access opening in a readily accessible location to all attic areas that exceed 30 sf and have a vertical height of 30" or greater.

Roofing

50. Section R905.1 - All roof coverings shall be applied in accordance with the applicable provisions of section R905 and the manufacturer's installation instructions.
51. Section R905.2.1 - Asphalt shingles shall be installed over solidly sheathed decks.
52. Section R905.2.2 - Asphalt shingles shall only be installed on roof slopes of 2:12 or steeper.
53. Section R905.2.6 - Asphalt shingles shall be attached in accordance with the shingle manufacturer's specifications for attachment, but not less than four fasteners per strip shingle or two fasteners per individual shingle. Roof slopes exceeding 21 units vertical in 12 unit horizontal must use special methods of fastening as required by the shingle manufacturer.
54. Section R905.2.7 - Asphalt shingle underlayment for slopes of 2:12 up to 4:12 shall be two layers of 15 pound felt. For slopes of 4:12 and steeper, only 1 layer of 15 pound felt is required.
55. Section R905.2.7.1 - An approved ice barrier shall be installed under asphalt shingles extending from the eave edge to a point 2' inside the exterior wall. Exception - Detached accessory structures that contain no conditioned floor area.