

Carroll County Bureau of Permits and Inspection

Residential Code Compliance Guidelines

Attached Garage

The following list of code requirements is intended to assist you in complying with the Code of Public Local Laws and Ordinances of Carroll County, Chapter 170, **but does not encompass the entire code.** (See: <https://www.carrollcountymd.gov/government/directory/public-works/permits-inspections/> for current codes and links to ICC ecodes.) Failure to comply with all applicable code requirements will result in a notice of violation and/or Stop Work Order until such violations are corrected.

THE BUILDING PERMIT AND ONE SET OF APPROVED DRAWINGS MUST BE MADE AVAILABLE AT THE SITE FOR THE REQUIRED INSPECTION.

Should you have any questions regarding these requirements, please call 410-386-2674.

1. BUILDING DESIGN

- a. Frost Line Depth 30"
- b. Floor Live Loads
 - i. Living Rooms 40# PSF add 10# dead load
 - ii. Sleeping Areas & Attic Storage w/stairs 30# PSF add 10# dead load
 - iii. Attic Storage Area (light storage-no stairs) 20# PSF add 10# dead load
 - iv. Decks 40# PSF
- c. Roof Loads
 - i. 10# PSF bottom chord dead load
 - ii. 40# PSF ground snow load
- d. Wind Speed Design 115 MPH ultimate
- e. Exterior walls, projections, openings and penetrations of structure adjacent to property lines and existing structures shall be installed in accordance with the fire-resistant construction requirements of the code.

2. FOOTING

- a. Minimum depth finished grade to bottom of all footings – 30" or extended to solid bearing, whichever is greater.
- b. Size – must be 8" thick and extend a minimum of 4" beyond wall on each side.
- c. Top surface to be level, bottom surface not greater than 1 in 10 slope.
- d. Step footings – top run shall overlap preceding run and tie together.
- e. Monolithic Pour – footers, wall, and slab poured at same time – can be used with minimum of 12" wide 30" deep and a 3 ½" slab.

3. FOUNDATION WALLS

- a. Top course of block shall be a solid unit or filled solid.
- b. Top of wall at least 6" above grade.
- c. Wall thickness according to depth of backfill. Maximum backfill for 8" hollow block 4', for 10" block 5', for 12" block 6'. The Code Official, when soil conditions warrant, may decrease the amount of backfill allowed or ask for an engineer's report.
- d. Plate anchors – approved straps shall be spaced and installed per manufacturer's instruction. ½" bolts at maximum 6' on center, 7" into masonry and a maximum 12" from corners.
- e. Where walls of masonry hollow units or masonry bonded hollow walls are decreased in thickness, a course of solid masonry shall be constructed between wall below and the thinner wall above.
- f. Masonry stem wall construction shall be installed in accordance with code.

4. FOUNDATION DRAINAGE, WATER PROOFING

- a. Drain tile perforated = 3" minimum diameter or approved drainage system with ICC ES report. Installed on the exterior perimeter of walls where interior grade is below exterior grade.
- b. Tile surrounded by 4" gravel and covered with approved filter material.
- c. Drain tile shall discharge to a sealed sump pit, which contains a pump or provides gravity flow to grade, discharging a minimum of 10' from house and 10' from property line.
- d. The exterior of masonry walls shall be parged with 3/8" portland cement cove at bottom and covered with an approved waterproofing when slab is lower than exterior grade.
- e. Poured concrete walls enclosing areas below grade must have wall ties broken off flush with face and covered with an approved waterproofing.

5. PROTECTION AGAINST DECAY

- a. Pressure treated sill plates less than 8" from finished grade.
- b. All wood in contact with earth or in contact with concrete must be pressure treated.
- c. Sills and sleepers on a concrete or masonry slab in direct contact with ground must be pressure treated, unless separated from such slab by an impervious moisture barrier.
- d. Siding, sheathing, wall framing on exterior less than 6" from ground shall be pressure treated wood, or protected in an approved manner.
- e. All wood in contact with the ground and supports permanent structures shall be treated lumber.
- f. All fasteners for pressure treated wood shall be hot-dipped, zinc-coated, galvanized, stainless steel, silicon bronze, or copper.

6. SEPARATION

- a. The garage shall be completely separated from the residence and its attic area by means of ½” gypsum board or equivalent applied to the garage side. 5/8” Type X must be installed on the ceiling when an occupiable room is above and ½” applied to the walls supporting the room above.
- b. Openings from garage directly to a room used for sleeping are not permitted.
- c. Other openings between garage and residence shall be equipped with either solid wood doors not less than 1 3/8” in thickness or 20 minute fire-rated doors or equivalent. Doors shall be self-closing.

7. WALL CONSTRUCTION

- a. Bearing walls – interior and exterior. Double top plate. Exception: Single top plate may be installed in bearing and exterior walls, provided the plate is adequately tied at joints, corners, and intersecting walls by at least the equivalent of 3” by 6” by 0.9036” thick galvanized steel that is nailed to rack wall or segment of wall by three 8d nails or equivalent, provided the rafters or joists are centered over the studs with a tolerance of no more than 1”.
- b. Firestop all concealed spaces of stud wall partitions to cut off all concealed draft opening and to form an effective fire barrier between stories and roof.
- c. Buildings shall be braced in accordance with the code or engineered design.
- d. Studs shall be continuous from floor/foundation to ceiling or roof assembly.
- e. All header and beam spans shall be installed in accordance with the code or designed in accordance with accepted engineering practices.

8. GENERAL MASONRY CONSTRUCTION

- a. Minimum thickness of masonry bearing wall more than one story shall be 8”.
- b. **SOLID** masonry walls of one story dwellings and garages shall not be less than 6” in thickness when not greater than 9’ in height.
- c. Where walls of masonry hollow units or masonry bonded hollow walls are decreased in thickness, a course of solid masonry shall be constructed between wall below and the thinner wall above.
- d. Masonry over openings shall be supported by steel lintels, reinforced concrete or masonry lintels or masonry arches designed to support load imposed.
- e. Beams, girders, or other concentrated loads supported by a wall or column shall have a bearing of at least 3” in length upon solid masonry not less than 4” in thickness, or upon a metal bearing plate of adequate design.
- f. Masonry stem walls with a height and length of 48” or less shall be reinforced.

9. WALL COVERINGS

- a. Siding, soffit, ceiling or approved type for exterior use.
 - i. Water resistive barrier required behind vinyl siding.
- b. Masonry veneer
 - i. 1" air space or 1" mortared space to framing.
 - ii. Masonry veneer shall not support any vertical load other than the dead load of the veneer above.
 - iii. Attached to the supporting wall with corrosion-resistant metal ties.
 - iv. Metal wall ties shall be spaced not more than 24" on center horizontally and shall support not more than 2.67 sq. ft. of wall area.
 - v. Felt paper free from holes and breaks or other approved weather-resistant material shall be applied over all exterior walls.
 - vi. Flashing for masonry veneer shall be located beneath the first course of masonry above finished ground level above the foundation wall or slab.
 - vii. Weep holes shall be provided in the outside wythe of masonry walls at a maximum spacing of 33" on center, not less than $\frac{3}{16}$ " in diameter.
 - viii. Flashing shall be used around windows and doors, under and at the ends of masonry, above all projecting, wood trim, where porches, decks, or stairs attached to a wall or floor assembly, all wall and roof intersections.

10. RAFTERS OR TRUSSES

- a. Roof and ceiling construction shall be capable of accommodating all loads imposed according to load requirements and of transmitting the resulting loads to the supporting structural elements.
- b. Trusses shall be braced to prevent rotation and provide lateral stability in accordance with requirements specified in the construction documents or BCSI 1-03 requirements. All construction documents shall be on site.
- c. Roof sheathing:
 - i. Plywood – $\frac{1}{2}$ " 24" on center no clips; $\frac{3}{8}$ " 24" on center use clips or blocking
 - ii. OSB Plywood – $\frac{1}{2}$ " 24" on center no clips; $\frac{7}{16}$ " 24" on center no clips $\frac{3}{8}$ " 16" on center use clips or blocking.

11. VENT, ATTIC ACCESS

- a. Soffit and ridge vent, or gable vent, net free ventilation 1 sq. ft. for every 150 sq. ft. of the area of space ventilated.
- b. Provide readily accessible 22"x 30" access panel.
- c. Provide ventilation to concealed rafter spaces.

12.ROOF COVERING

- a. Underlayment as required in R905.1.1 with Roof slope greater than 4" in 12" being one ply and roof slope 4" in 12" but not less than 2" in 12" being two ply unless otherwise approved.
- b. Shingles fastened according to manufacturers printed instructions.
- c. Valley, wall and other flashing installed according to asphalt shingle manufacturer's printed instructions. Ice barriers as specified in R905.1.2 are required

13.CONCRETE FLOORS

- a. Concrete slab on grade: 3 ½" minimum thickness, compressive strength 2500 SPI, 4" thick stone sub-base.
- b. Fill shall be free of vegetation and foreign material and compacted to assure uniform support, fill should not exceed 24".
- c. Floor, non-combustible, sloped towards the main vehicle entry doorway or a drain.

14.GARAGE DOOR HEADERS

- a. See attached chart.

15.ELECTRIC

- a. Electric requires interior 1 light, 1 switch, and 1 receptacle.
- b. Each exterior side-swinging door requires 1 light on the outside and 1 switch.
- c. Smoke alarms installed as required for new dwellings; on each floor, outside of each separate sleeping area and in each sleeping room. See IRC section R314 for further information.
- d. Carbon monoxide alarms installed outside each sleeping area in the immediate vicinity of the bedrooms. See IRC section R315 for further information.

16.INSPECTIONS

- a. Footers – before pouring.
- b. Masonry Stem Walls – before top course is filled.
- c. Foundation – after waterproofing if required due to grade and prior to backfill.
- d. Draintile, if outside grade is higher than inside. Prior to backfill.
- e. Rough-in Electric. Scheduled only by the electrician listed on the application.
- f. Framing – can be done at final if interior wall and ceiling are not covered.
- g. Insulation- only if installed
- h. Electrical Final.
- i. Building Final.
- j. Grading Final – if garage is over 500 sq. ft.

GARAGE DOOR HEADER CHART

Header spans based on the use of SPF #2.

Chart does not apply where roof designed for storage or habitable space within.

Garage Depth	Header Span						
	8'	9'	10'	12'	14'	16'	18'
20'	3-2X8 w/plywood 2-2x10 w/plywood 2-2x12	3-2x10 2-2x12	3-2x12 2-1 ¾ x 9 ¼	2-1 ¾ x 11 ¼ 3-2x12 w/plywood	2-1 ¾ x 14 3-1 ¾ x 11 7/8	2-1 ¾ x 18 3-1 ¾ x 16	2-1 ¾ x 20 3-1 ¾ x 18
22'	2-2x10 w/plywood 3-2x10 2-2x12	3-2x10 2-2x12 w/plywood	3-2x12 2-1 ¾ x 9 ¼	2-1 ¾ x 11 ¼	4-1 ¾ x 11 ¼ 2-1 ¾ x 14	2-1 ¾ x 18 3-1 ¾ x 16	2-1 ¾ x 20 3-1 ¾ x 18
24'	3-2x10 2-2x12	3-2x10 w/plywood 2-1 ¾ x 9 ¼	3-2x12 2-1 ¾ x 9 ¼	2-1 ¾ x 11 7/8 3-1 ¾ x 11 ¼	2-1 ¾ x 16 3-1 ¾ x 14	2-1 ¾ x 18 3-1 ¾ x 16	2-1 ¾ x 20 3-1 ¾ x 18
26'	3-2x10 2-2x12	3-2x12 2-1 ¾ x 9 ¼	3-2x12 w/plywood 2-1 ¾ x 9 ¼	2-1 ¾ x 11 7/8 3-1 ¾ x 11 ¼	2-1 ¾ x 16 3-1 ¾ x 14	2-1 ¾ x 18 3-1 ¾ x 16	2-1 ¾ x 22 3-1 ¾ x 18
28'	3-2x10 2-2x12 w/ plywood	3-2x12 2-1 ¾ x 9 ¼	3-2x12 w/plywood 2-1 ¾ x 9 ½	2-1 ¾ x 14 3-1 ¾ x 11 ¼	2-1 ¾ x 16 3-1 ¾ x 14	2-1 ¾ x 18 3-1 ¾ x 16	2-1 ¾ x 22 3-1 ¾ x 20
30'	3-2x10 w/plywood 2-2x12 w/plywood	3-2x12 2-1 ¾ x 9 ¼	2-1 ¾ x 11 ¼ 3-1 ¾ x 9 ¼	2-1 ¾ x 14 3-1 ¾ x 11 ¼	2-1 ¾ x 16 3-1 ¾ x 14	2-1 ¾ x 20 3-1 ¾ x 16	2-1 ¾ x 22 3-1 ¾ x 20
32'	3-2x10 w/plywood 2-2x12 w/plywood	3-2x12 2-1 ¾ x 9 ¼	2-1 ¾ x 11 ¼ 3-1 ¾ x 9 ¼	2-1 ¾ x 14 3-1 ¾ x 11 ¼	2-1 ¾ x 16 3-1 ¾ x 14	2-1 ¾ x 20 3-1 ¾ x 18	2-1 ¾ x 22 3-1 ¾ x 20
34'	3-2x12 2-1 ¾ x 9 ¼	3-2x12 w/plywood 2-1 ¾ x 9 ¼	2-1 ¾ x 11 ¼ 3-1 ¾ x 9 ¼	2-1 ¾ x 14 3-1 ¾ x 11 ¼	2-1 ¾ x 16 3-1 ¾ x 14	2-1 ¾ x 20 3-1 ¾ x 18	2-1 ¾ x 24 3-1 ¾ x 20
36'	3-2x12 2-1 ¾ x 9 ¼	3-2x12 w/ plywood 2-1 ¾ x 9 ¼	2-1 ¾ x 11 ¼ 3-1 ¾ x 9 ¼	2-1 ¾ x 14 3-1 ¾ x 11 7/8	2-1 ¾ x 18 3-1 ¾ x 16	2-1 ¾ x 20 3-1 ¾ x 18	2-1 ¾ x 24 3-1 ¾ x 20

NOTES

1. Plywood between each nominal ply of lumber.
2. 1 ¾ engineered lumber (LVL's) was based on the most restrictive design. Other sizes may be suitable per manufacturer, provide design sheets at framing inspection.
3. Table based on uniform loads and simply spans.
4. Table based on beams properly fastened together with minimum of 2 rows of 16d nails at 12" on center.
5. Assumed eave overhang of 1'.
6. Where a narrow wall/portal frame design is required header height of 11 ¼" minimum is needed.