

Office of Building Permits and Inspections

Misc. Notes for Residential Construction

The following observations have been made over several years of inspections as the most common problem areas in residential construction but a few items apply to commercial construction as well. The list is not all-inclusive. For further information consult the 2009 edition of the International Residential Code and the 2009 edition of the International Building Code and 2009 IECC Code.

1. When calling to schedule an inspection do not call the inspectors in the field but call the office, with the Permit Number, between 8:30 am and 4:30 pm. The phone number is **(301) 334-7470**.
2. The Building Permit Card must be posted on the job site so that it can be found. Failure to do so will create communication problems. The Inspector needs a centralized location to leave inspection stickers and/or Correction Notices.
3. Due to the volume of inspections any calls for inspection needs to be made a minimum 24 hours in advance. We cannot set a specific time for an inspection we can only give an approximation as to whether it will be a.m. or p.m. During times of inclement weather some footer inspections may be scheduled on a last minute basis.
4. Plans must be available on the job site for inspectors to review and will need to be there from the Footer through to the Final inspections. These plans must match the house as built as well as match the plans left at the office. Subsequent changes to plans during construction shall require review by the Permits Office.
5. FOOTERS: This inspection is to be made prior to pouring of any concrete. Minimum depth from the bottom of the footer to the finish grade will be no less than 36". Thickness is usually 8" or more with an absolute min. of 6". Width is usually twice the width of the block size being used (16", 20" or 24") with an absolute minimum of 4" wider than the masonry or concrete placed on top of the footer. Final size will depend on soil type and number of stories to be carried. Steps, sometimes called jumps, in the footer will be formed and poured level and plumb. The vertical portion of these steps (jumps) shall meet the same width and thickness requirements as the footers. Footers shall be continuous around the perimeter of each level of the foundation. Steps (jumps) should be kept as short as practical, preferably no more than 48" in height. All grade pins and bulkheads need to be installed. Loose fill, topsoil, roots or other vegetation shall be removed before concrete is poured. If a thickened slab is to be used under load carrying walls this area will need to meet the same requirements as the rest of the footings as to width and thickness. Pouring of concrete during times of inclement weather will require protection from the elements. No concrete shall be poured on frozen ground. (See additional info: [Pouring Concrete in Cold Weather](#))
6. FOUNDATIONS: All bed and head joints in masonry walls shall be filled as the masonry is laid. DO NOT try to fill them later with parging. Foundation coating as well as parging must go from the finish grade all the way down to the footer. It is recommended that a slight cove be formed at the junction of the wall and footer. Do not apply foundation coating directly to the block unless approved by the manufacturer for this method. To determine if and when

core pouring and/or rebar will be needed consult with the Building Permits Office or the Building Inspectors. As a rule of thumb, dividing the block width by two will give you the maximum height of backfill that can be placed without the need for core pouring and/or rebar. Typically a maximum 4 ft of backfill would be placed against 8" block, 5 ft for 10" block and 6 ft for 12" block. The final height of the wall and final height of the backfill will determine the spacing for any core filling and the size and number of rebar. Anchor bolts, minimum 1/2" diameter, shall be placed a maximum of 6' on center and within 12" of the corners. Anchor straps traditionally require a closer spacing and usually require that holes be drilled through the sill plate the same as anchor bolts. Anchor straps shall be installed per mfr installation instructions. French Drain shall also be installed prior to inspection. Do not backfill or begin framing until the Foundation has passed inspection. (See additional info: [Masonry Construction in Cold Weather](#))

7. **FRAMING:** The biggest single continual problem in framing is the lack of nails in OSB or plywood sheathing on walls, floors and roofs. Maximum nail spacing per Code is 6" on center on all supported edges and 12" on center throughout the rest of the sheet. Nails installed to hold siding in place do not count towards the required minimums. Laminated girders and headers shall have all joints located over a load bearing point such as a post, pier or wall. Check your codebook for acceptable locations for holes and notches in framing members. Manufactured framing materials must be installed per Mfr Installation Instructions. Girder trusses have specific nailing requirements that the Mfr will send along with the trusses. If you do not receive a copy of these requirements with your trusses ask for it. LVL's and Glulams can have holes drilled horizontally but these are limited as to size, location and total number of holes. Check Mfr. Installation Instructions for details. LVL's cannot have holes drilled vertically. In some cases Glulams can have vertical holes but the Mfr or an engineer must size the beam large enough to allow for the hole. If notches are required check with the Mfr or an engineer. Be prepared to justify any modifications to these manufactured beams. Before calling for a Framing Inspection be sure all trade work; plumbing, electric, HVAC, has been roughed-in.
8. **DECKS:** Joist hangers are needed on both ends of the joists whenever they butt up against a beam or header. Do not use roofing, siding, sheetrock or other unapproved nails or screws in joist hangers. Check the Mfr's Installation Book for nailing options. When the outer band is to be used as a header, spans greater than 48" between supports will need to be doubled. For header spans greater than this check readily available span charts. Through bolts or lag screws with a minimum 1/2" diameter should be used to attach the deck to the house. For joists spans up to 10 ft, one bolt 24" on center. From 10 - 15 ft, 16" on center. From 15 - 20 ft, 12" on center. Beyond this span engineering will be required. For decks that will hold hot tubs an engineered drawing will be required based on the weight of the tub and potential load of people. Any deck 30" or more off the ground will require guardrails and handrails. Minimum guardrail height is 36", handrail height is 32" - 38". Baluster, sometimes called pickets, spacing is a maximum of 4" between each baluster. Handrails, both interior and exterior, shall have the ends return to a wall or end in a Newell post and shall be continuous the entire length of the stairs. Flashing will be needed on decks attached to houses. If a deck or steps are not installed at the time of the Final Inspection a guard will need to be installed at the door to keep anyone from falling out of the door. Decks not approved for HOT TUBS will be noted on the Use & Occupancy Permit.
9. **WINDOWS:** At least one egress window will be required for each sleeping area if a door is

not available. Each egress window must meet a minimum size opening in the normal operation of the window. Tilt sash windows will not meet the minimum openings unless they meet the following requirements. Grade floor windows can be 5 sq ft (720 sq in) only if the maximum height from the finished floor to the finished sill or from the finished grade outside to the finished sill is no more than 44". If a window is more than 44" from the finished grade to the finished sill a larger 5.7 (820 sq in) window will be needed. In most cases it is better to get the larger size window. Windows close to the floor may sometimes need tempered glass. The majority of windows installed above a tub need tempered glass. Check your codebooks or other info. available from this office for more details. If a finish trim is installed that protrudes beyond the surface of siding or the flange of a window such as a 1 x 4, then a Z flashing will be needed above the trim to keep water from going down behind the trim. If a window well is used it must have a minimum floor area of 9 sq. ft. with a minimum projection and width of 36". If a casement window is used the 36" width would be measured from the window in the fully open position over to the edge of the window well. If the window well is more than 44" deep a ladder or steps shall be provided for the full height of the window well. (See additional info: [Egress Window Sizing & Tempered Glass location requirements.](#)) A guardrail is required for window wells 44" or deeper. Windows less than 24" off the floor and greater than 6' off the ground cannot open more than 4".

10. GARAGES: Any attached garages must be fully separated from the house with 5/8" Type X fire rated drywall. Doors shall be solid wood, honeycomb or solid steel not less than 1 3/8" thick or 20 minute fire-rated. Any ductwork penetrating the walls or ceilings shall be a minimum 26 gauge sheet steel or other approved materials. No heat duct openings are allowed. A floor height separation of 4" is required between the house and garage with the garage floor being lower than the house floor. For openings to the basement from the garage a minimum 4" tall curb will be needed around the stairwell. Any heating and cooling appliances located in a garage shall be protected from impact. Appliances that generated a glow, spark or flame capable of igniting gasoline vapors shall be installed with burners, burner ignition devices or heating elements and switches at least 18" above the floor. If a set of pull down stairs is desired in the garage then the attic area will need to have a firewall installed to separate the house and garage. The same 5/8" Type X drywall will be needed for this firewall. Firewalls must be taped. Any garage within 3 ft. of the house must be fire rated on the wall next to the house.
11. RAFTER TIES: Whenever a roof is constructed with rafters and a load carrying ridge is not installed then rafter ties will be needed. They shall be placed in the lower third of the overall height from the perimeter walls to the ridge. A tie will be needed every 48".
12. FIREPLACES: Any fireplace with the potential to burn solid fuel will need an outside air source with a minimum 6 sq in opening and a maximum of 55 sq in. Hearth extensions shall be built to be self-supporting and independent of the floor framing. When the firebox opening is 6 sq ft or less the hearth shall extend outwards a minimum 16" and to the sides 8". If the firebox is larger than 6 sq ft the hearth shall extend outwards 20" and 12" to the sides. An airspace of 2" is needed around fireplaces and chimneys and 4" to the rear of the firebox. The minimum wall thickness shall be 8" of solid masonry or hollow units fully grouted. Do not use hollow block only. Combustibles may be in contact with the area around the firebox if the walls are a minimum 12" of solid masonry. When laying up liners use fire clay or refractory cement and tight joints. Firebrick should not have more than a 1/4" thick joint. Chimneys must extend 24" taller than any obstruction within a 10 ft. radius.

13. **GAS FIRED APPLIANCES:** All gas-fired appliances shall have shut off valves. For the proper location consult your codebook, sections G2419.5 and G2419.5.1.
14. **INSULATION:** Ceilings, R38; Walls, R20; Floors, R30. The kraft paper on insulation cannot be left exposed because of its flammability in any application. Foams must be fire rated or covered and meet the 2009 IECC Code.

REMINDER: A FINAL PLUMBING AND ELECTRIC INSPECTION MUST BE COMPLETED BEFORE THE USE AND OCCUPANCY PERMIT CAN BE ISSUED! PLEASE CONTACT MDIA OR MEGCO TO SET UP YOUR INSPECTIONS.