



New Single Family Residential Inspections

REQUIRED INSPECTIONS

Work requiring a permit shall not commence until the permit holder or his or her agent have posted an inspection record card in a conspicuous place on the premises and in such position as to allow the building official to conveniently make the required entries thereon. The inspection record card shall be maintained in such position by the permit holder until final approval has been granted by the building official. The permit holder shall obtain all inspections listed on the inspection record card. *If you are unsure which inspections are required, please call the Broomfield Building Division (303-438-6370).*

It shall be the duty of the holder of the building permit or their duly authorized agent to notify the building official when work is ready for inspection. The building official may require that every request for inspection be filed at least one working day before such inspection is desired. It shall be the duty of the permit holder to provide access to and means for inspections required by this code. It shall be the duty of the permit holder to cause the work to remain accessible and exposed for inspection purposes. Neither the building official nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the building official. The building official, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the permit holder or his or her agent wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the building official.

Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid.

There are required inspections for insulation, screw inspections for tile backers, garage gypsum board separations at the building envelope and at the stair protection. See the energy compliance handout for more information on the insulation inspections. Builders utilizing the prescriptive requirements of the IECC shall set up and perform a duct blaster test at rough mechanical inspection to be witnessed by the city inspector. All lath inspections must be done before or called in concurrently with the rough inspections.

The last page of the home's plan review is a copy of the form that the sewer and waterline installer needs to complete and provide to the inspector. This form shall show a detailed map of the installation with measurements cross corner from the foundation corners, depths of connections, location from property lines and sidewalk, distance from foundation of SDR connection, and foundation penetrations from corners of foundation. We also will do an underdrain connection check at time of sewer and water inspection; this shall be delineated on the map as well.

Special Inspections for New One-and Two-Family Dwellings

Since 1996, the City and County of Broomfield has required special inspection reports to be submitted prior to scheduling of rough inspections. These "rough letters" are required by Broomfield Municipal Code 15-05-010 (K). We have in the past allowed certain special inspection reports to be deferred until time of Certificate of Occupancy. As the language in the ordinance is quite clear, and as we have had certain issues arise with the submittal of these reports, effective immediately all of the required engineer stamped special inspection reports shall be submitted a minimum of three working days prior to requesting rough inspections. This will also serve to speed up the Certificate of Occupancy process.

- 1) **Pier inspection** – at least 25% of the total number of piers, from all levels and from opposite corners shall be inspected to conform to the structural engineer's foundation design. In order to determine compliance, a location map with **all** piers shown and inspected piers labeled to correspond with the pier drilling log shall be provided.

The pier drilling log shall show total depth, depth to bedrock, descriptions of the various strata the hole was drilled through, the condition of the hole, and whether ground water was encountered; the drilling log shall be stamped by a Colorado licensed professional engineer.

- 2) **Footing/open hole/excavation** inspection shall verify that the soils exposed in the foundation excavation are as anticipated by the site specific soils report, and that the proposed foundation is suitable for these conditions. The footing forms and reinforcing shall be inspected for compliance with the foundation design documents and the current building code. This compliance shall be specifically noted in the report.
- 3) **Foundation walls** shall be inspected just prior to placement of concrete to verify compliance with the design drawings and the applicable provisions of the adopted code.
- 4) At this time, the contractor may choose to have the special inspector check the **concrete encased electrode (UFER) ground** instead of calling for City and County of Broomfield inspection. This installation shall be checked for compliance with Article 250.2 (A) (3). The special inspector shall indicate the location of the ground rod on a floor or foundation plan or by note in the inspection report.
- 5) **Perimeter drainage systems** shall be inspected under the supervision of a Colorado licensed professional engineer. The location and specific details shall be as specified in the site specific geotechnical report. The inspection of the perimeter drain shall be to verify compliance with R401.4.3: piping in conformance with ASTM Designation D2729-89 or equivalent shall be used for perimeter drains; unless perimeter drains are designed to daylight, they shall terminate in sump pits with pumps installed; piping for sump pumps shall discharge at least five feet away from foundations or as otherwise approved by the building official; perimeter drains shall be installed in proper bedding materials of such size and installed in such manner to allow ground water to seep into the perimeter drain; and landscape fabric or other measures to restrict the passage of fines shall be used to further protect the perimeter drain from blockage. The inspection report shall include details of bedding material and pipe size, and a sketch of the layout showing pipe elevations at corners and wall midpoints and the location of the sump. See also underdrains and window well drains below.
- 6) **Window well and underdrain** connections to the perimeter drainage system shall be inspected under the supervision of a Colorado licensed professional engineer. Window wells shall have drains in the bottom that connect to the perimeter drainage system. Underdrains are required to be installed below sanitary sewer mains and laterals by the City and County of Broomfield Standards and Specifications. The underdrain connection at the street will be inspected by the Building Division during the water and sewer lateral inspection. This underdrain shall be connected to the perimeter drainage system. The inspection report shall indicate that the connections were made and **shall include a sketch showing the location of the underdrain connection and the window well drain connections. See example on last page.**
- 7) **Dampproofing** of foundation walls shall be inspected under the supervision of a Colorado licensed professional engineer to comply with IRC Section R406.1 - from the bottom of the foundation wall to the finished grade.
- 8) **All basement structural floor** systems shall be inspected under the supervision of a Colorado licensed professional engineer. The structural basement floors shall be inspected for compliance with the engineered plans including attachment and blocking and the current building code.
- 9) **Foundation, underslab, and excavation trench backfill** shall be moisture conditioned and compacted to control settlement. **Additionally, all backfill and compaction recommendations contained in the geotechnical report and the structural engineer's foundation design shall be followed. If conflicts exist, the most stringent requirement shall be followed.**

Fill materials shall not contain debris, clods over 6" diameter, or frozen soil. Water shall be added uniformly to the stockpiled materials, or as backfill is placed so that water content at the time of compaction is within tolerances established by the engineering documents. Flooding or puddling of the backfill is not allowed. Fill shall be placed in loose lifts as established by the engineering documents. The surface of each lift shall be compacted as established by the engineering documents.

Over-compaction shall be avoided to reduce potential wall damage. Backfill and compaction of foundation walls shall not take place until the wall has gained sufficient strength, temporary bracing of the walls is provided, or other equivalent measures are used to limit damage to walls during the backfill and compaction process.

The placement and compaction of **foundation, underslab, and excavation trench backfill** shall be observed by a person working under the supervision of a Colorado licensed professional engineer. At least one observation visit shall be performed for each of the following: foundation backfill, utility trench backfill, and underslab preparation. The observations shall be performed at a frequency sufficient to provide reasonable assurance that **backfill has been placed in substantial conformance** with these requirements. If soil density tests are provided, they should also contain a statement that **backfill has been placed in substantial conformance** with these requirements.

- 10) **All slab-on-grade basement floors** shall be inspected under the supervision of a Colorado licensed professional engineer. The slab-on-grade inspection shall verify compliance with the recommendations in the geotechnical report to include control joints, isolation of slabs, void spaces in partitions, and flexible utility and duct connections for basement slabs.
- 11) The **slab on grade acknowledgement letter** required for slab on grade basement floors shall be signed by the BUYER of the home and recorded in the clerk's office (\$11.00). Therefore, it is not required to be submitted until time for Certificate of Occupancy. Acceptance of this form signed just by the contractor is permitted only for spec homes with no closing dates set at time of C.O.

Reports for the above-mentioned special inspections shall be stamped by a Colorado licensed professional engineer. Framing inspections cannot be scheduled by the City prior to plans analyst approval of the special inspection reports. All reports shall be labeled with the address of the home, forwarded in a single submittal, preferably via email, and copied to all three plans analysts ([Barb Kuettel](#), [Perry Glenn](#), and [Jan Graham](#)). This will minimize chances of lost paperwork if any staff members are out of the office. Please allow three working days for approval.

Other submittals that are required prior to release of rough inspections include:

- **Building Division stamped approved gas pipe diagram and Manual D duct design** - If the gas pipe diagram or mechanical duct designs for the home have changed or were not included in the original permit submittal, they shall be submitted at least two weeks prior to requesting rough inspections. Without these approved plans, rough inspections will not be approved.
- **Foundation survey** - Most subdivisions have unique setback requirements with varying encroachments either permitted or specifically prohibited. With smaller lots and tighter setbacks, placing a home slightly off from the intended location can generate numerous additional zoning or code requirements. It is much better to catch any potential issues such as one-hour fire-resistance rated exterior wall construction prior to rough inspection than at review for Certificate of Occupancy. A Planning and Zoning request for variance or Planning Division Administrative Modification could also hold up issuance of a CO even if no building code issues exist. Please note that it is the contractor's responsibility to comply with the building code and to follow the approved plot plan; any changes or alternates are best handled at the earliest stage possible. If the foundation survey shows placement closer than approved by the City and County of Broomfield, the contractor should immediately address the issue without waiting for special inspection letter submittal. **For Building Division verification, all buildings proposed to be located within 1'0" to the subdivision setback line shall provide a foundation survey prior to rough inspection.**
- **Truss layout and profiles** - If for some reason the original permit submittal did not include the truss plans, or if the plans change during construction, truss layout and profiles shall be submitted for review as soon as available. The plans analyst will verify that these have been designed for the correct 110 mph wind speed and have been approved prior to rough inspection. Please note that trusses designed for the wrong wind or snow loads will not be approved in the field and corrections could be costly.

The following page is the checklist that we will use when reviewing submitted special inspection letters. Please share this notification with all of your consultants performing special inspections. It may be helpful for you to check off all required inspection letters as you compile the documents to assure that the submittal is complete. Reports sent in separately or piecemeal will result in delayed reviews.

Broomfield Special Inspection Letter Checklist

Address: _____ Model: _____ Permit # _____

Builder: _____ Contact: _____ Contact Phone # _____

Submitted Approved

_____ **Pier inspection:** stamped drilling log, plan with all piers shown, and inspected piers marked to correspond with pier drilling log. Check minimum 25% of piers, all levels, opposite corners, and statement that piers are in substantial compliance with the approved foundation plans.

_____ **Open hole/excavation and footing inspection:** check for stamp and statement that soils are as expected and the foundation design is appropriate for conditions. Check for statement that footings are in substantial compliance with the approved foundation plans.

_____ **Foundation walls:** check for stamp and statement that wall reinforcement and forms are in substantial compliance with the approved foundation plans.

_____ **Concrete encased electrode:** (UFER) check for stamp; location; statement of compliance with NEC or note minimum 20 feet in length of #4 rebar or bare copper conductor 4 AWG.

_____ **Perimeter drain inspection:** check for stamp and statement of compliance with soil report and sketch showing pipe invert elevations at corners and wall midpoints and the location of sump. See attached example.

_____ **Underdrain and window well drain:** check for sketch showing location of perimeter drain connection to underdrain and location of window well drains connected to the perimeter drain. See attached example.

_____ **Dampproofing:** check for stamp and statement that dampproofing was installed on foundation walls from top of footing to finished grade with approved materials.

_____ **Backfill compaction observation:** check for stamp and compliance statement for three separate areas: foundation wall backfill____, utility trench backfill____, and underslab preparation____. Observation letter and/or soil density tests should state that backfill has been placed in substantial conformance with these requirements and soils report.

_____ **Structural floor inspection:** check for stamp and statement that structural floor is in substantial compliance with the engineered structural floor plan.

_____ **Structural framing inspection:** *required in specific cases only* - see plan review comments.

_____ **Foundation location plot** - shall be provided for all homes proposed to be located within 1'0" of the subdivision setback line on the front, rear, or sides.

_____ Building Division stamped approved new / revised / as-built **Manual D, duct design or gas pipe plan**; submit two weeks before roughs if changed from original submittal. All other energy documents shall have been submitted and approved at original plan review.

_____ Verify correct **110 mph truss plans** on file.

_____ **Slab on grade inspection:** *required by C.O.* Check for stamp and statement verifying compliance with soils report. Not required for crawl space homes, structural basement floors, or garage slabs.

_____ **Slab on grade acknowledgement** -for slab on grade basement floors only - *required by C.O.* Check for legibility, **buyer name**, and recording. (\$11.00 at City and County of Broomfield)

Ok to release rough inspections: _____ Date: _____

Foundation Wall Drain/ Void/Waterproofing Observation

CLIENT: _____

ADDRESS: _____

LOT _____ BLOCK _____

FILING NO. _____ PROJECT NO. _____

Foundation Plan

BY _____ PLAN NO. _____

Foundation Type

- SPREAD FOOTINGS GRADE BEAMS AND PADS
 DRILLED FRICTION PIERS DRILLED PIERS INTO BEDROCK
 FOOTING W/MINIMUM DEADLOAD *Type 3* OTHER _____
 PROJECT NO. _____ DATED _____

Foundation Void

- REQUIRED THICKNESS 4 INCHES
 MEASURED THICKNESS 4 INCHES

Foundation Wall Condition

- EXPOSED STEEL
 SURFACE PROBLEMS (HONEYCOMBING, ETC.)
 (IF CHECKED, SHOW LOCATION ON SKETCH)

Recommended Drain Type

- EXTERIOR INTERIOR
 FIG. 4
 INSTALLED PIPE DIAMETER 4 INCHES
 WALL HEIGHT 120 INCHES
 DEPTH-TOP OF WALL TO BOTTOM OF TRENCH 134 - 148 INCHES
 SLAB ON GRADE STRUCTURAL FLOOR
 PIPE INSTALLED
 GRAVEL INSTALLED, GRAVEL SIZE _____

Type of Outlet

- GRAVITY, BELOW SEWER SUMP PIT
 UNDERDRAIN SERVICE CONNECTION VISIBLE (AT STUB)

Foundation Void:

- IN GENERAL CONFORMANCE WITH RECOMMENDATIONS
 REJECTED

Foundation Wall Drain:

- IN GENERAL CONFORMANCE WITH RECOMMENDATIONS
 REJECTED

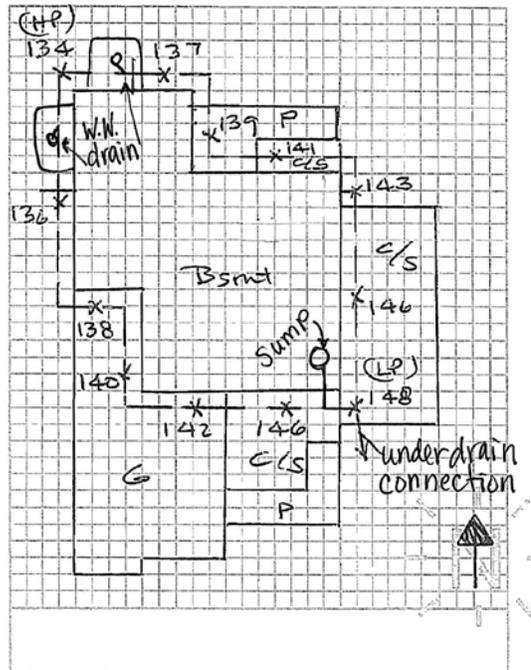
Foundation Waterproofing:

- IN GENERAL CONFORMANCE WITH RECOMMENDATIONS
 REJECTED

Exterior Insulation

MANUFACTURER _____
 HEIGHT _____ FEET
 DISTANCE BELOW FOUNDATION WALL _____ FEET

Foundation Wall Layout



RECOMMENDED CORRECTIVE PROCEDURE _____

Note: Window Well drains have been connected to the perimeter drain.

Underdrain has been connected to the perimeter drain.

FIELD REPRESENTATIVE _____

REVIEWED BY _____

DATE OF OBSERVATION _____

