

Residential Remodel Building Permit Requirements Installation of a Gas Appliance

Important notes about building permit request submissions

- All permit applications must be submitted online using the [Customer Access](#) portal.
- There is no need to email us when you submit documents. Staff is notified automatically within one business day of your submission.
- Submit documents as PDF file type only.
- Please include the following:
 1. List the site address on all documents and plans.
 2. Include the owner's name on all documents.
- Permit review will be delayed if the required documents are not submitted online, if they are not submitted as PDFs, or if the documentation is missing information.
- All submitted documents will become a public permanent record of the property. It is in your best interest that the submitted PDFs are of the highest quality and detail, in case you or somebody else needs to refer to them in the future.

Required documents

Attach the following to the online application:

1. A legible [gas pipe isometric](#) referencing the 2021 International Residential Code (IRC) or the International Fuel Gas Code (IFGC).
2. All manufacturing instructions for all the appliances.
3. The homeowner must complete and sign a [Future Gas Appliance affidavit](#) for any "future use" appliances, if applicable. The "future" appliance connection point must be tagged with a durable tag, preferably stamped brass indicating the design capacity of the piping.
4. The installer's training certification, if welded polyethylene/CSST piping is used.

Important additional requirements for a successful inspection

1. Have all installation instructions for all the appliances or equipment on-site at the time of inspection

IMPORTANT NOTE: Contractor/owner shall have a copy of each material, fixture, equipment manufacturer's product data, and installation instructions on-site during inspection for review. Manufacturer installation requirements will be reviewed on-site during inspection for installation compliance. Deviation from manufacturer requirements will not be accepted unless expressly approved in writing by the chief building official.

2. Appliance or equipment labels must be exposed for both rough and final inspections.
3. Equipment or appliances where the listing labels are concealed by lava rock, stone, decorative logs, crushed glass, etc. at the time of inspection will not be approved.
4. Download, print and have the following documents ready for the inspector from the [Customer Access](#) portal:
 - a. A color copy of all final stamped permit documents (i.e., all the ones reviewed and approved – these documents are found in the Customer Access portal and will have the file name marked as "FINAL").
 - b. A copy of the review comments.

Residential dwelling code compliance and mandatory requirements when installing a gas appliance

Please ensure the residential dwelling abides by the following code requirements:

- Smoke and carbon monoxide alarms
 1. IRC R314: "Smoke alarms shall be installed on each story including the basement, in each sleeping room, and outside each sleeping room in the immediate vicinity of the bedroom. Smoke alarms shall be interconnected and have battery backup."
 2. IRC R315: "Carbon monoxide alarms shall comply with Section R315, and be listed in accordance with Underwriter's Laboratory 2034, along with UL 217 for combination carbon monoxide and smoke alarms. For new construction, carbon monoxide alarms shall be provided in dwelling units where either or both of the following conditions exist:
 - a. The dwelling unit contains a fuel-fired appliance.
 - b. The dwelling unit has an attached garage.

Carbon monoxide alarms in dwelling units shall be installed within fifteen feet of the entrance to each room lawfully used for sleeping purposes. Where a fuel-burning appliance is located within a bedroom or its attached bathroom, a carbon monoxide

alarm shall also be installed within the bedroom.

Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and, where primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection. Carbon monoxide alarms installed in accordance with Section R315.2.2 shall be permitted to be battery powered.

Combination carbon monoxide and smoke alarms shall be permitted to be used in lieu of carbon monoxide alarms, provided that the combined unit produces an alarm, or an alarm and voice signal, in a manner that clearly differentiates between the two hazards.”

- Gas piping
 1. Gas piping must comply with Chapter 24 of the 2021 IRC.
 2. Outside buried gas pipe must have a minimum depth beneath finished grade of 18 inches, as per Arapahoe County code [amendments](#).
 3. IRC G2414.5: “Plastic pipe must be listed and marked with ‘ASTM¹ D 2513 and Gas’ and is only allowed for use outside underground.”
 4. IRC G2414.5.1: “Piping must be installed per the manufacturer’s installation instructions including connection methods, alignment, and bedding, and installed in a manner that the labeling is visible at the time of the inspection.”
 5. Piping must be installed as shown on the County approved design. No “future” tees or stubs are allowed unless a Future Gas Appliance Documentation affidavit is included in the permit package.
 6. IRC G2415.6: “Gas pipe may not penetrate into the building below grade.”
 7. IRC G2414.5.1: “Piping manufacturer’s recommended anodeless risers are required.”
 8. Arapahoe County code [amendments](#) allow gas piping to be tested for 15-minutes at 20-psi using a 30-psi gauge. Please contact an Inspector to clarify other pressures or test methods.

¹ American Society for Testing and Material

9. New branches may not connect to existing gas pipes until after they have been tested and approved. A convenience valve at the tie-in may be installed and plugged for the rough inspection; and the tie-in can be tested using a leak detection fluid or an instrument.
 10. The contractor must provide the test materials and equipment and perform the test. Inspectors do not perform tests.
 11. IRC G2417.1.4: A valve may not be included in the test unless it is listed and labeled for the test pressure (ASME B 16.33).
 12. IRC G2404.3 / IFGC 301.3: All gas appliances and equipment including piping, tracer wire, fittings, anodeless risers, fire pits, gas grills, pool heaters, and patio heaters, etc. must be listed and labeled.
 13. Rough inspections for indoor and outdoor gas piping are: “Gas Test”, “Rough Gas Log” for fire pits and outdoor fireplaces, or “Plumbing” for other appliances such as gas grills, pool heaters, patio heaters, etc. Please request both inspections if there are both types of appliances.
 14. Final inspections for gas piping are “Gas Log” for fire pits and outdoor fireplaces or “Plumbing” for other appliances. Please request both inspections if there are both types of appliances.
- Electrical
 1. All wiring must be 2021 IRC and 2020 National Electrical Code (NEC) compliant. This includes any low voltage wiring to be installed (e.g., Class 1, Class 2 phone lines, speaker wire, coaxial lines, etc.) and proper outlet spacing, so that no point of the floor line of any wall space is more than six feet from an outlet unit.
 2. At kitchen counters, receptacles are to be installed no more than two feet from the end of the countertop and not more than four feet between receptacles. Provide Ground Fault Circuit Interrupter (GFCI) protected outlets at all receptacles serving kitchen counters, the dishwasher receptacle, and all receptacles within six feet of the kitchen sink.
 3. 2020 NEC: Provide at least one GFCI protected outlet in each unfinished basement area, in each garage, exterior receptacles at the front and rear of the building, laundry sinks, utility sinks, wet bar sinks, and at all receptacles serving bathroom and kitchen counters.
 4. Bathroom outlets must be on their own #12 copper, 20 amp, GFCI circuit.

5. NEC Article 210.12: Arc-Fault Interrupter Circuit-Interrupter Protection (AFCI): All branch circuits that supply 125-volt, single-phase, 15 and 20-ampere outlets (openings) installed in dwelling unit family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, kitchens, laundry rooms, or similar rooms or areas shall be protected by a listed arc-fault circuit interrupter, combination type, installed to provide protection of the branch circuit.
6. NEC Article 210.12(B): Arc-Fault Circuit-Interrupter Protection: Branch Circuit Extensions or Modifications-Dwelling Units. In any of the areas specified in 210.12(A), where branch-circuits wiring is modified, replaced, or extended, the branch-circuit shall be protected by one of the following:
 - a. A listed combination AFCI located at the origin of the branch circuit, or
 - b. A listed outlet branch-circuit AFCI, located at the first receptacle outlet of the existing branch circuit

Exception: AFCI protection is not required where the extension of the existing conductors is not more than six feet and does not include any additional outlets or devices.

7. NEC 2020 Article 406.12: All areas specified in 210.52, requires all 125-volt, 15- and 20-ampere receptacles shall be listed as tamper-resistant receptacles.