



Building Guide

Colorado Chapter of the International Code Council

Single Family Residential Basement Finish

How to Use this Guide

Check with your jurisdiction regarding type of submittal (paper or electronic) and for additional requirements. Draw to scale and complete the following (hint: use graph paper with $\frac{1}{4}$ " squares. Example: $\frac{1}{4}$ " = 1')

1. Review this Building Guide

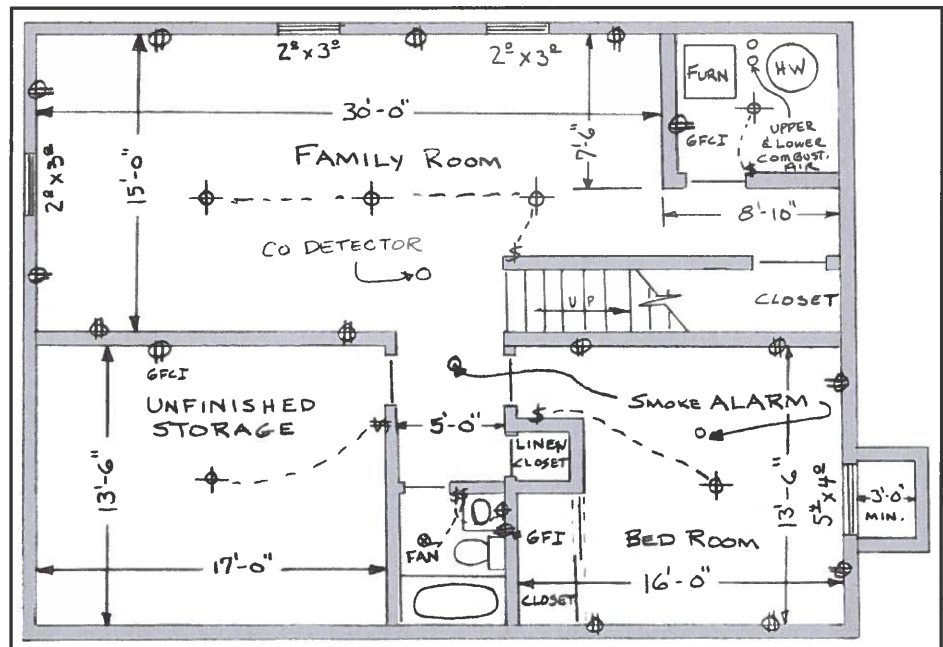
2. Provide Floor Plans

3. Fill out a Building Permit Application

The majority of permit applications are processed with little delay. The submitted documents will help determine if the project is in compliance with building safety codes, zoning ordinances and other applicable laws.

Smoke alarms and carbon monoxide alarms are required.

The Colorado Chapter of the International Code Council is a professional organization seeking to promote the public health, safety and welfare to building construction. We appreciate your feedback and suggestions. A copy of this building guide, can be downloaded from the Colorado Chapter website at:
<http://www.coloradochaptericc.org>



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PARKER
COLORADO

20120 Mainstreet, Parker, CO 80138

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Single Family Residential Basement Finish

Directions

- Upload one complete electronic copy of plans in PDF format
- Draw a floor plan with dimensions drawn to scale, showing the layout of the entire basement. Label the use for all of the rooms.
- Show electrical outlets, smoke alarms, carbon monoxide alarms, lighting, fans, plumbing modifications, cleanouts, furnace/heating appliances, and water heater.
- List window sizes and types, identify emergency escape and rescue windows, and egress window wells with ladder and clear dimensions of window well.
- Identify modifications to the existing structure such as posts, beams and floor joists.
- Indicate height of dropped ceiling areas less than 7 feet.
- A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6' 8" above a minimum area 30" by 30" at the showerhead. See Exception 2, P2708.1.
- See page 4 for minimum plumbing fixtures clearances.
- Show insulation values

Basement Finish Requirements

1. Ceiling Heights:

If the finished ceiling will be less than 7', please consult your Building Department.

2. Emergency Escapes:

All basements and sleeping rooms must have an emergency escape window or exterior door. Emergency escape windows with a sill height below grade must be provided with an emergency escape window well and ladder if more than 44 inches deep. (For emergency escape window and window well requirements, see page 3.)

3. Smoke Alarms:

Smoke alarms are required in all basements. If the finished basement contains a sleeping room, a smoke alarm must be installed on the ceiling or wall in the sleeping room and in the hallway or area immediately outside of the sleeping room. Smoke alarms added to satisfy the above requirements must be hard-wired with battery backup, and interconnected with existing smoke alarms. Smoke alarms are required to be hardwired and interconnected in new and existing bedrooms, halls and on each level unless removal of interior wall or ceiling finishes would be required. In this case, battery operated devices are acceptable. Listed wireless alarms are acceptable.

4. Carbon Monoxide Alarms:

Carbon Monoxide alarms are required on each floor with bedrooms. They are recommended to be located no farther than 15 ft. from any bedroom entrance. Do not install within 15 ft. of a fuel burning appliances. Follow manufacturer's recommendations for location testing and replacement.

5. Fuel Burning Appliances:

Furnaces and water heaters cannot be located in a bedroom or bathroom unless appliances are installed in a dedicated enclosure in which all combustion air is taken directly from outdoors, and a weather stripped solid door equipped with an approved self closing device is installed. If the furnace and water heater are being enclosed, adequate combustion air must be provided for these appliances to operate properly (exception - direct vent appliances). For maintenance purposes, a minimum of 30 inches clear working space must be provided in front of furnaces and water heaters. Maintenance or removal of each appliance must be possible without removing the other or disturbing walls, piping, valves, ducts, vents, wiring or junction boxes. For typical furnace and water heater clearances see page 4.

6. Floated Walls:

In areas subject to floor heaving, non-bearing walls on basement floor slabs should be built to accommodate not less than 1-1/2 inches of floor movement. A detail of a typical floated wall is included on Page 3 of this hand-out.

7. Fireblocking:

Fireblocking must be installed in concealed spaces of wood-furred walls at the ceiling level, at 10-foot intervals along the length of the wall and at all interconnections of concealed vertical and horizontal spaces such as intersection of stud walls and soffits or dropped ceilings. A detail of typical fireblocking is included on the following page of this handout. Fireblocks may be constructed of 1-1/2 inch lumber, 3/4 inch plywood, OSB or particle board, 1/2 inch gypsum board or fiberglass insulation 16 inches minimum in height, securely fastened.

8. Insulation:

Check with your Building Department for insulation requirements.

9. Space Under Stairs:

If access to the area or space under the basement stairs is provided for storage or other uses, the walls and ceiling of this enclosed space must be protected on the inside with 1/2 inch gypsum board.

10. Bathrooms:

Toilets must be provided with a minimum of 21 inches in front of the toilet and 15 inches from the center of the toilet and any sidewall or other obstruction. Showers shall have a minimum inside dimension of 900 square inches, capable of encompassing a 30 inch circle and be finished 72 inches above the floor with non-absorbent materials.

Shower door minimum clear opening width is 22 inches. See Exception 2, P2708.1. See page 4 for minimum fixture clearances.

A ventilation fan is required in toilet rooms and bathrooms with unopenable windows. The fan must be vented to the exterior of the building and not to terminate within 3 feet of an opening.

11. Lighting & Ventilation:

Lighting and ventilation are required for any finished portion of the basement. Contact your Building Department for specific requirements.

The Building Department staff can help you determine what is necessary to meet minimum safety requirements.

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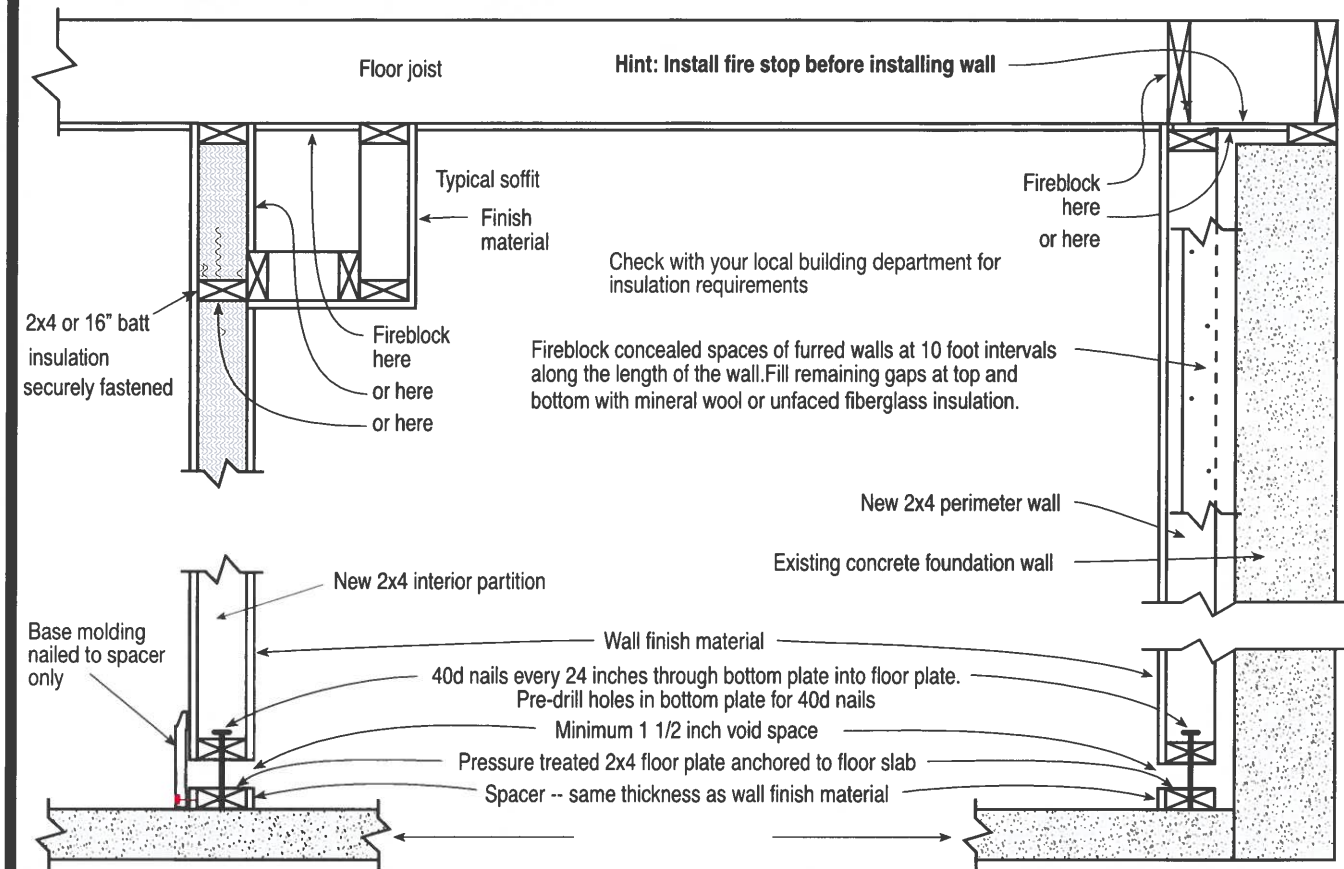


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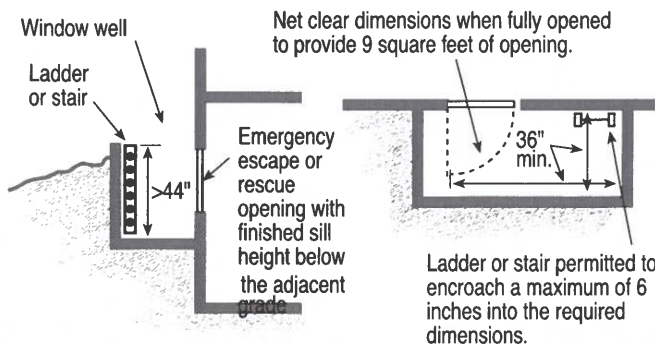
Single Family Residential Basement Finish

Basement Finish Details



Emergency Escape & Rescue Window Well

Emergency Escape And Rescue window wells must provide a minimum area of 9 square feet with a minimum dimension of 36 inches and shall enable the window to open fully. If the depth of the window well exceeds 44 inches, a permanently affixed ladder must be provided. The ladder must not interfere with the operation of the window.

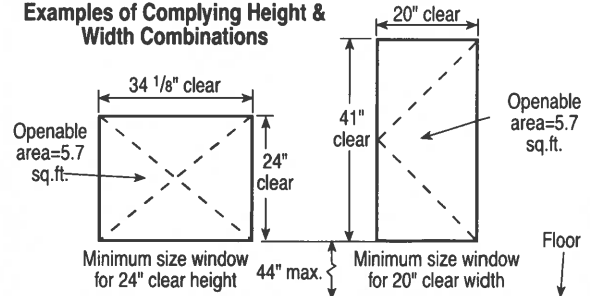


Emergency Escape & Rescue Window

Emergency Escape And Rescue Windows must meet the following criteria:

- A minimum total openable area of not less than 5.7 square feet
- A minimum clear openable height of not less than 24 inches
- A minimum clear openable width of not less than 20 inches.
- A finished sill height of not more than 44 inches above the floor and the window should be openable from the inside with normal operation and without the use of tools, keys or special knowledge.

Examples of Complying Height & Width Combinations



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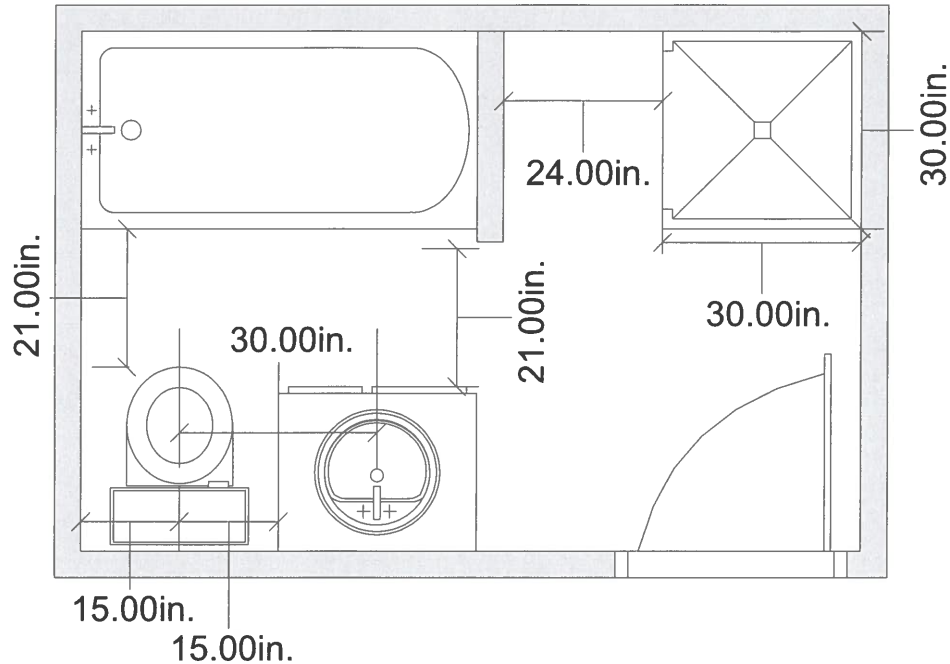
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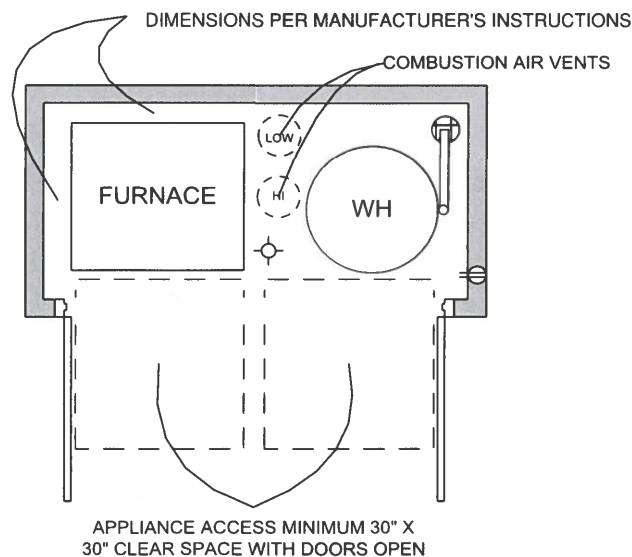
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Bathroom Fixture Clearances



Furnace and water heater clearances



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PARKER BUILDING DEPARTMENT 2021 IRC BASEMENT FINISH AMENDMENTS

Permit # _____

Project Name _____

The additional notes below are designed to assist you in the plan review process along with the building guide handout. All general items concerning electrical, mechanical and plumbing are subject to field verification by the inspector. If there are further questions, please contact us by calling, (303) 841-1970. Thank you, Building Department Staff.

Permanently installed cooking appliances such as stoves, cooktops, ovens range or similar appliances will require additional information and forms for the consideration of a "Secondary Family Space" to comply with Ordinance #4.91.4.

All reviews are based off:
2021 IRC and IECC also the 2023 NEC

Additional requirements below coincide with the building guide handout, numerically:

- #2 Basements in existing R-3 occupancies with 24" deep egress window wells will be allowed to remain by following the Board of Appeals illustration for the ladder location. The well width must be full width of the window.
- #4 Carbon monoxide alarms are required within 15' of all rooms used for sleeping and must comply on all levels of the home as well as smoke detectors per 2021 IRC and amended by the Town of Parker.
- #5 **Mechanical systems installed 2006 and after** are a designed and approved installation by the original builder and may not be altered without the approval from the Building Official. Any alterations (relocation of furnace, size change, new supply & return ducts, etc...) may affect the overall performance of the home. It is highly recommended that you contact the original company who installed the system. Testing of the altered system may be required.

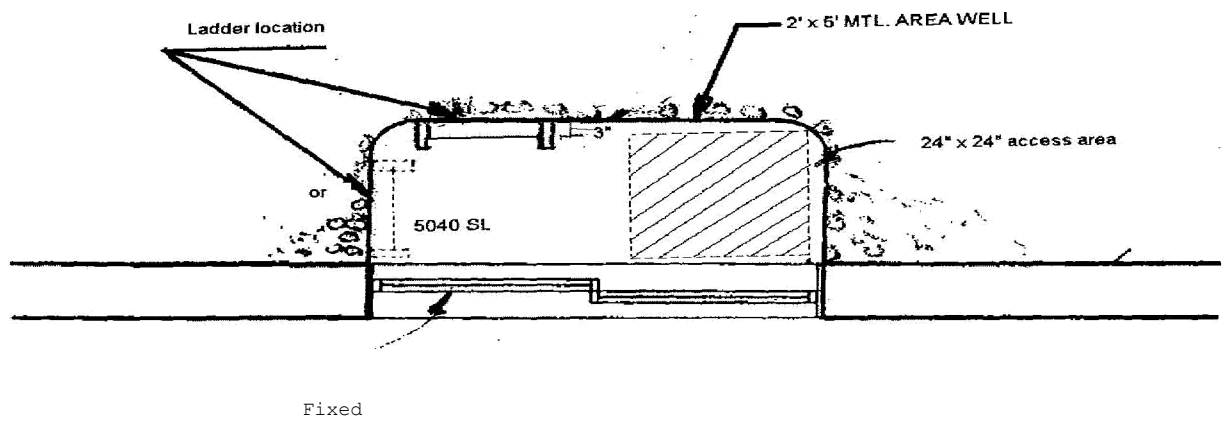
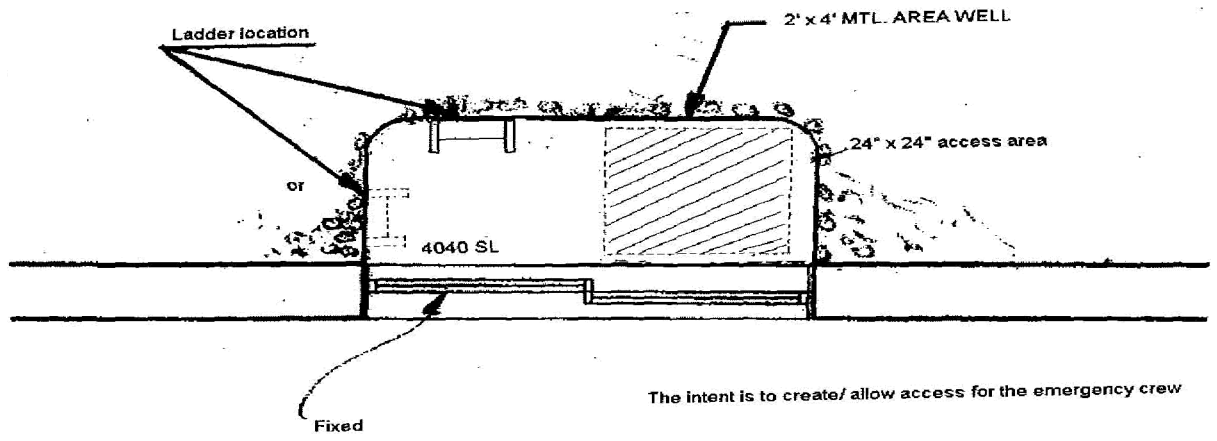
Any alterations to mechanical systems installed prior to 2006 (relocation of furnace, size change, etc...) may affect the overall performance of the home. Testing of the original system performance and testing of the altered system will be required. Normal modification (adding supply & return ducts) can be installed like the existing methods. Piggyback tees/take-offs from existing supply air ducts is not allowed.

A minimum 6" return air duct must be installed if not currently existing. Please discuss location requirements with the plan's examiner or inspector.

- #7 Fire-blocking must be installed at all vertical to horizontal concealed spaces with both wood and metal framed walls in basement finishes.
- #8 **Alteration of any existing insulation installed by the original home builder is not allowed.** If adding additional or new insulation to walls or ceiling, please discuss with field inspector prior to installation.
- #10 Plumbing that is added, altered, or moved will require inspections prior to covering or concealment of that area. (Leave it exposed)
- Poured shower pan or built-up pan installations require additional inspections, (first lift, liner and water testing). Please discuss with field inspector prior to installation.
- #10a Non-absorbent materials; water-resistance gypsum or other approved material installed per 2021 IRC and manufactures recommendations. Materials that are approved for that use are cement, fiber-cement type (Hardie Backer Board, Durock) and fiberglass mat such as Dens-Shield) **Water resistant gypsum (white, green, purple or blue colored) products are not allowed per code where there is direct exposure to water, behind tiles or in areas subject to high humidity.**
- #10b Mechanical exhaust ventilation is required in toilet rooms and bathrooms even if windows are present. Mechanical exhaust capacity of 50 cfm intermittent or 20 CFM continuous
- #11 Habitable rooms in basements of R occupancies shall be provided with aggregate glazing area of not less than 4% of the finished floor area of such rooms. Natural ventilation of not less than 2% of the finished floor area shall be through windows, doors, louvers or other approved openings to the outdoor air. Such openings shall be provided with ready access or shall otherwise be readily controllable by the building occupants.
- NOTE:** If natural light and ventilation is not or cannot be provided a mechanical ventilation system may be substituted. Provide a **minimum 4-inch insulated duct** from the exterior of the house and connect it directly to the return air plenum a minimum of 5 foot away from the furnace blower. Examples are any fully finished rooms with no windows like sewing rooms, offices, workout room etc... This does not include bedrooms; they must always have an egress window and well.
- #11a A minimum of 100% of the lamps installed in permanently installed light fixtures need to be high efficacy lamps per 2021 IECC.

General Notes:

1. All hallways and landings at the top and bottom of stairways must have a finished measurement of 36" in the direction of travel.
2. All under floor and above floor crawl spaces must be maintained for minimum access requirements and ventilation



Basement Finish Electrical General Notes

2023 NEC, 2021 IRC, 2021 IECC and as amended by The Town of Parker

1. Outlets must be installed at any wall space 24 inches or greater, within 6 feet of all wall breaks, and 12 feet thereafter.
2. All basement outlet openings must be protected by a listed combination type Arc-Fault Circuit Interrupter (breaker), except bathrooms and unfinished areas. This includes lights and smoke detectors.
3. Listed tamper resistant receptacles are required for all 125-volt, 15 and 20 amp receptacles in all areas; except when located 5 ½ 'above floor.
4. The bathroom will need to include at least one 20-amp circuit to feed bathroom only. Receptacles are not allowed to be located less than 36 inches from a bathtub or shower.
5. The furnace room must have a GFCI protected outlet within 25 feet and a light at the equipment.
6. All 125-volt outlets in unfinished storage areas must be GFCI protected. A minimum of 1 is required to be installed.
7. All low voltage wiring must be installed prior to rough inspection. All low volt installed in walls must be listed for in wall use. (Speaker wires, HDMI cables, phone, cable, security, etc.). All LV boxes must be closed for final inspection.
8. All 125-volt through 250-volt receptacles shall have GFCI protection.
9. Nonmetallic-Sheathed Cable (NM) must be supported every 4 foot 6 inches, within 12 inches of boxes with cable clamps, and within 8 inches of boxes without cable clamps.
10. The number of outlets on a branch circuit shall not exceed 10 outlets on a 15-amp circuit and 13 outlets on a 20-amp circuit.
11. All multiwire branch circuits (i.e. 14-3, 12-3) need to simultaneously disconnect at the panelboard breaker(s).
12. All conductors or cables installed in raceways on the exterior of the house are required to be rated for wet locations. (i.e., THWN, XHHW). **NM cable does not have wet location conductors. **
13. Lighting control boxes that will be concealed and controlled at a single location shall contain the grounded (neutral) conductor.
14. Sufficient access and working space shall be provided and maintained at all panels to permit ready access, operation, and maintenance of such equipment. The minimum clearances are 30" W by 36" D by 6'6"H directly in front of panel.



Your kind of place.

15. ** A minimum of 90% of the lamps installed in permanently installed light fixtures need to be high efficacy lamps. (i.e., compact florescent lamps, T-8 or smaller diameter florescent lamps). ** per 2021 IECC.
16. All permanent lighting fixtures shall be controlled by a motion sensor or dimmer per 2021 IECC. Exceptions are lighting in bathrooms and safety lighting such as in hallways and at stairs.
17. Smoke alarms shall not be installed less than 3 feet from a bathroom door opening.
18. Wet bar countertop work surfaces shall have an outlet or outlets and shall be on a 20-amp rated circuit.

Inspection Request Phases

The following inspections for **Basement Finish** are required:

Phase I a) Underground plumbing- inspection may be done separately if needed.
All following inspections to be performed at the same time

- b) Rough Frame; (Fire & Draft Stop to be completed)
- c) Rough Electric; (All grounds to be made up)
- d) Drain Waste Vent; (DWV Shall be on test)
- e) Water Piping; (On test or connected to supply)
- f) Supply/Return Duct; (Air return to be completed)
- g) Vent & Vent Connector; (Combustion air if necessary)
- h) Gas Piping; (If applicable)

Phase II a) Insulation (if used as fireblocking and draftstopping min 16” depth tightly packed/secured)
b) Gypsum (drywall) Board Type & Fastening
c) Shower pan (If poured pan ask for this inspection to be added)

Phase III **The following inspections to be performed on the same day.**

- a) Final Electrical
- b) Final Plumbing
- c) Final Mechanical
- d) Final Building

SCHEDULE ALL INSPECTIONS THROUGH YOUR eTRAKiT ACCOUNT (ONLINE)

If you need to call, then the following information will be required:

1. Permit number
2. Project address
3. Date when the inspection is requested
4. Type of inspection

Inspections are scheduled for the **next business date** for all inquiries or online requests received **before 4 PM the day prior** (unless otherwise instructed).

Important Note for Homeowners

Homeowners **only receive a two-hour ETA window**, provided they call between **8:30 AM - 9:00 AM** the morning of the scheduled inspection and speak directly to the assigned inspector(s).