



# Guidelines for Finishing Your Basement

Version 2019-0710



This information packet contains information regarding *finishing a basement*. If you are making structural alterations or repairs, planning to add an addition, or otherwise enlarge your home, please refer to [Residential Plan Review Requirements](#) available at the Building Development Division or at [www.pwcgov.org/BDD](http://www.pwcgov.org/BDD). The selected sections of the International Residential Code briefly summarized in this handout will be helpful in your basement finishing project. They are not, however, all inclusive and should not be considered a comprehensive set of instructions. The responsible party should consult the code book for complete information. Certain conditions may prohibit you from finishing your basement. Before you begin planning your project, please read **Four Facts You Should Know Before Starting**.

## Four Facts You Should Know Before Starting:

### 1. Emergency Escape and Rescue Openings

Effective November 16, 2006, all “new” basements and each sleeping room shall have at least one emergency escape and rescue window or an exterior door opening for emergency escape and rescue (Section R310). **SEE FIGURE 2.** Where “existing” basements undergo alterations or repairs; an emergency escape and rescue opening is not required unless new sleeping rooms are created. If presently there is only one escape window in the basement and a bedroom is to be built, the window must be in the bedroom. Where grade conditions require the sill of the emergency escape and rescue window to be below the outside grade elevation, a window well must be installed/constructed, and also equipped with a drain. The minimum horizontal area of the window well shall be 9 square feet. See **FIGURE 2A.**

### 2. Wall Openings and Fire Separation Distance to the Property Line

If adding a door or window is required, please verify the fire separation distance is adequate. Openings shall not be permitted in the exterior wall of a dwelling or accessory building with a fire separation distance to the property line of less than three feet (Section R302).

### 3. Secondary Food Preparation Area or “Second Unit”

Secondary Food Preparation Areas are regulated by the Zoning Ordinance and are permitted by the Zoning Administrator only when specific conditions are met. Please refer to the “[Secondary Food Preparation Area](#)” webpage for more information. **Please note:** The basement in which a second kitchen is located may not be represented in any way as having a “second unit” or any other quarters that can be rented or otherwise used as a private, separate, or independent living area. For complete details and further information contact the Zoning Division at 703-792-6830.

### 4. Prince William Health District Approval of Additional Bedrooms

Adding a bedroom(s) to a dwelling on a private well and septic system requires written approval of the Health Department prior to the issuance of a building permit. For complete details and further information, contact the Prince William Health District at 703-792-6310 or the [Early Assistance Desk](#) in the lobby at [5 County Complex Court, Prince William, VA 22192](#).

## Where to Submit Your Plans and Obtain Your Permit

- The Building Development Division Building Plan Intake Counter is open 8:00 a.m. to 4:00 p.m., Monday through Friday. We are located at the Prince William County Development Services Building: [5 County Complex Court](#), Prince William, Virginia 22192. 703-792-4040.

## What to Bring

- **Plans: *Floor Plan* with room dimensions, square footage and intended use.**  
Applicants must prepare and submit a layout showing the entire basement square footage, including room dimensions with each room labeled and its proposed use (e.g. bedroom, bathroom, media room, etc.). The floor layout must also distinguish existing rooms and areas that are already finished and not covered under the scope of work being applied for. The acceptable paper size shall be 8.5"x11" or 11"x17". If structural modifications are being proposed in the scope of work, details of the structural components must be provided with two sets of plans and submitted for review.
- **Be prepared to answer the following questions:**
  1. Does the basement presently have a door opening directly to the outside?
  2. If not, is there a window that can serve as an *Emergency Escape and Rescue Opening*?
  3. If there are no doors, what are the dimensions of the windows?
  4. Do you plan to add a second kitchen?
  5. Do you plan to add a bedroom?
  6. If yes, is there an appropriate sized window in the room?
  7. What is the square footage of the area to be finished?
  8. What is the approximate dollar value of the project?
  9. Will you be hiring a contractor?
- **If a second kitchen or a wet bar is planned**, zoning approval will be required. Contact the Zoning Division at 703-792-6830 for more information.
- **The Building Permit fee** is based on the square footage of the area to be finished. The fee includes the permit and regular inspections. The fee is calculated per the approved [Building Development Fee Schedule](#). The Trade Permits (Electrical, Plumbing, Mechanical, and Gas) are priced based on the amount of equipment being installed.
- **A Filing fee** is not required unless you are submitting a plan.

## Contractor Licenses, Business Licenses, Exemptions?

- The homeowner may obtain the permits and perform the work or the homeowner may hire a contractor to obtain the permits and perform the work. Please see further information on the ["Who Should Apply for a Permit?"](#) webpage.
  - If the homeowner is to obtain all permits and be the responsible party, a completed [Statement of Exemption](#) will be required.
  - If the contractor is to obtain all permits and be the responsible party, a copy of the contractor's State Contractor License and a copy of the contractor's Prince William County Business License are required.
  - If the homeowner is hiring a contractor and obtaining the permits on behalf of the contractor, the homeowner may present copies of the contractor's state and county licenses and obtain the permits as the agent for the contractor without the contractor required to be present.
  - Please read further information on [Hiring a Contractor](#).

## Code Compliance

- All construction shall comply with International Residential Code (IRC) and the Virginia Uniform Statewide Building Code (VUSBC). Please refer to the [Virginia Uniform Statewide Building Code](#) webpage for more information on the codes and code year which are applicable to your project.
- The IRC Code book is available for purchase at various booksellers, from the International Code Council by calling 1-888-699-0541, or through the Web site at [www.iccsafe.org](http://www.iccsafe.org). It is also available for reference at the Building Plan Review Section and at the following Prince William County Libraries: Bull Run Regional, Central Community, Chinn Park Regional, Haymarket Gainesville Community and Potomac Community.
- The VUSBC is available [online](#) or at the Virginia Department of Housing & Community Development: The Jackson Center, 501 North Second Street, Richmond, Virginia 23219-1321. Phone 804-371-7000.

## Scheduling Inspections

- Building inspections are conducted between 8:00 a.m. and 3:00 p.m. during the work week.
- In order for staff to conduct an inspection, the permit must be affixed to the front window of the residence and the Inspector must have reasonable and safe access to the work area.
- To schedule an inspection, go online to [www.pwcgov.org/ePortal](http://www.pwcgov.org/ePortal) or call the automated phone system at 1-866-457-5280. The ePortal System will prompt for the permit number. The automated phone will prompt for the PIN Number. A complete list of inspection codes will be provided at the time of permit issuance. The inspections required may vary depending on the extent of the work. The most common inspection types and codes for finishing a basement are:
  - **CODE 198 - RESIDENTIAL COMBINATION CONCEALMENT**
  - **CODE 199 - RESIDENTIAL COMBINATION FINAL**
  - **CODE 401 - PLUMBING GROUNDWORK**
- Schedule the 198 inspection *before* the wall finishes are applied and electrical devices are connected. The framing, fireblocking, wiring, plumbing, and mechanical will be inspected at the same time during the 198 inspection. Do not install the insulation until *after* the 198 is approved or the inspector allows.
- When adding plumbing for a wet bar or bathroom, the Plumbing Groundwork (401) is performed *before* replacing any of the slab.
- Schedule the 199 inspection *after* the completion of work by all trades.
- For further information about *scheduling* inspections call 703-792-7006.
- Please refer to the [Residential Construction Inspections](#) webpage for more information.

## ABOUT INSPECTIONS

### The most common *building problems* observed on basement finish projects are:

#### At the Close-In (a.k.a. **CODE 198 - RESIDENTIAL COMBINATION CONCEALMENT**)

1. Un-permitted work being performed.
2. Headroom height for bulkheads not correct.
3. Fireblocking not installed. See **FIGURE 1**.
4. Stud spacing not per code.
5. Drywall blocking missing.
6. Support columns have been removed or relocated.
7. Required Emergency Escape and Rescue openings not installed or not installed per code for each sleeping room. See **FIGURE 2** for requirements.

### The most common *electrical problems* on basement finish projects are:

#### At the Close-In (a.k.a. **CODE 198 - RESIDENTIAL COMBINATION CONCEALMENT**)

- Receptacles spaced more than 12' apart. No receptacle for a wall space 24" and wider or for a hallway 10' or more in length. Receptacle not within 6' from wall opening (e.g. door, fireplace, cased openings, etc.). **SEE FIGURE 3, page 8.**

- Cables not supported within 8” of boxes without clamps, 12” with clamps, and every 4.5’ thereafter.
- Cables not inside outlet boxes, stripped out, splices not made, equipment grounds not made up and pigtailed for the device. The switch or receptacle should **not** be installed for close in.
- Cables energized at concealment inspection creating a hazard for the Inspector and occupant.
- Metal boxes and bath exhaust fans not grounded.
- Protection (kick plates) not provided where cables are run closer than 1¼” to edge of framing and where holes for cables notched or drilled are closer than 1¼” to edge of stud or framing.
- Romex connectors or clamps not provided for cables entering metal boxes, recessed light junction boxes, and bath exhaust fans.
- Smoke detectors not provided in bedrooms and within 15’ outside of the bedroom. Smoke detectors to be A/C powered with battery backup and interconnected. Listed “wireless” alarms accepted for interconnection only.
- GFCI protected receptacle not provided in each unfinished portion of basement.
- Bathroom receptacle not wired with #12 conductors on a 20 amp dedicated circuit and GFCI protected.
- Approved fan boxes not used for the support of paddle fans.
- Lighting for stairs not per code. (Fixture required at each landing or directly over each stair section. Switch required at top and bottom of stairs for six (6) or more risers).
- Close unused openings in boxes and panels.
- Maintain required workspace at panel. Panel cannot be located in bathrooms or clothes closets.
- Doorbell transformers and junction boxes need to be installed in an accessible location.
- Bonding of Corrugated Stainless Steel Tubing (CSST) per manufacturer’s installation instructions.
  - **SEE FIGURE 3, page 8 for more Electrical Requirements Guidelines.**

**The most common *plumbing problems* on basement finish projects are:**

1. D.W.V. & Water piping not strapped properly.
2. D.W.V. not graded properly.
3. Kick plates not installed where required (within 1 ¼” of the nailing surface of framing members).
4. Proper type of fittings and piping not used.
5. Non-corrosive screws not used to secure shower head and toilet flange.
6. Proper type tub/shower valve not used.
7. Shower pan not built to the minimum size.
8. Drain piping too small for fixture connected.
9. New piping not tested or not tested properly.
10. Proper fixture clearances not maintained.
11. Improper glue/primer used.

**The most common *mechanical problems* on basement finish projects are:**

1. Bath exhaust fan is not vented to the outside.
2. Clearances to B-Vent or single wall vent connectors not maintained (e.g. furnace, water heaters, fireplaces, etc.).
3. Combustion Air requirements for fuel fired equipment not met (e.g. furnace, water heaters, fireplaces, etc.).
4. Branch ducts for HVAC cannot be tapped into existing branch lines (common problem).
5. Existing taps in trunk line not sealed when blanking off for new flex lines.
6. Clearances around equipment not maintained (clearance to combustibles and working clearance).
7. New gas pipe installed without permit or inspection (new pre-fab fireplace).
8. Venting of pre-fab fireplace (gas, pellet or wood) not per manufacturer’s instructions.
9. Unions in gas piping that will be concealed.
10. Existing HVAC is damaged during basement build-out.
11. Dryer vent not per code; length, number of elbows, material, support.
12. New CSST gas piping not “bonded.”
13. New flex ducts not installed per listing; connections, length, support.

## The most common reasons for rejection at Final:

### Final Inspection (a.k.a. CODE 199 - RESIDENTIAL COMBINATION FINAL)

1. All electrical devices and covers not installed and working. All lights, fans and smoke detectors not installed and working.
2. All circuit breakers not installed and properly identified.
3. Provide disconnects for all appliances not within sight of panel box.
4. Handrail, with returns at the top and bottom of the rail, not provided on at least one side of stairs.
5. Guardrails not provided on open side(s) of stairs.
6. Smoke detector locations not correct.
7. Under stair protection not provided.
8. Incomplete plumbing (fixtures not installed).
9. Combustion Air *Grills* not installed (gas equipment).
10. Arc fault breakers not installed for bedroom circuits, to include circuits for receptacles, lights and smoke alarms.
11. Tamper resistant receptacles not installed for all 125 volt, 15 and 20 amp receptacles.
12. GFCI protection not provided for **ALL** receptacles within 6' of a sinks, bathtubs or showers.
13. Furniture blocking access to areas to be inspected (e.g. receptacles, etc.).
14. Missing GFCI protection for all 120V 15 and 20 amp receptacles in laundry room.

## Selected Sections of the International Residential Code

### • Minimum required ceiling heights (Section R305) (Reference IRC 2015):

- The dimension must be measured from the finished floor to the lowest projection of the ceiling.
- Minimum Height - Habitable space, hallways and portions of basements containing these spaces shall have a ceiling height of not less than 7' (2134 mm). Bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6' 8" (2032 mm).

#### Exceptions:

1. For rooms with sloped ceilings, the required floor area of the room shall have a ceiling height of not less than 5' feet (1524 mm) and not less than 50 percent of the required floor area shall have a ceiling height of not less than 7' (2134 mm).
  2. The ceiling height above bathroom and toilet room fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or tub equipped with a showerhead shall have a ceiling height of not less than 6' 8" (2032 mm) above an area of not less than 30" (762 mm) by 30" (762 mm) at the showerhead.
  3. Beams, girders, ducts or other obstructions in basements containing habitable space shall be permitted to project to within 6' 4" (1931 mm) of the finished floor.
- Portions of basements that do not contain habitable space or hallways shall have a ceiling height of not less than 6' 8" (2032 mm).

Exception: At beams, girders, ducts or other obstructions, the ceiling height shall be not less than 6' 4" (1931 mm) from the finished floor.

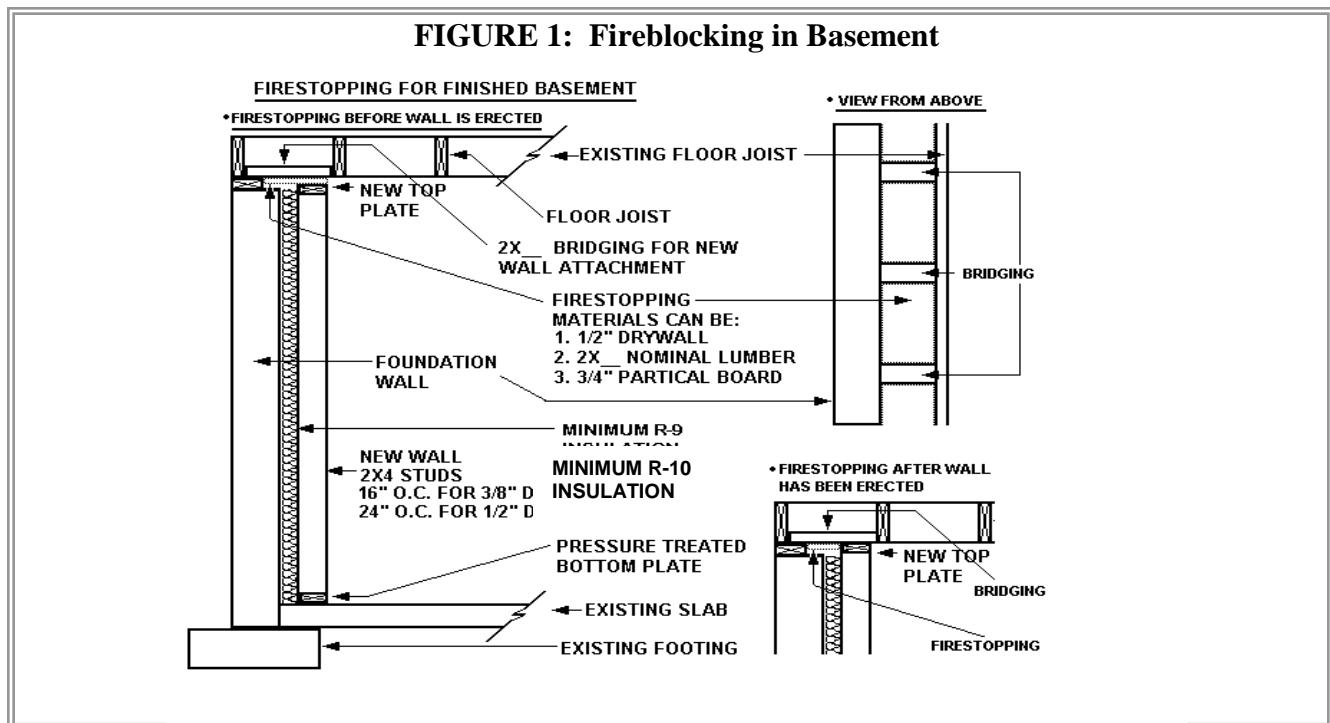
### • Protection against decay (Section R317)

- All lumber (sleepers, sills, plates, studs, joists, beams, etc.) that rest on concrete or masonry slabs or exterior walls shall be pressure preservative treated unless separated from the ground by an impervious moisture barrier.

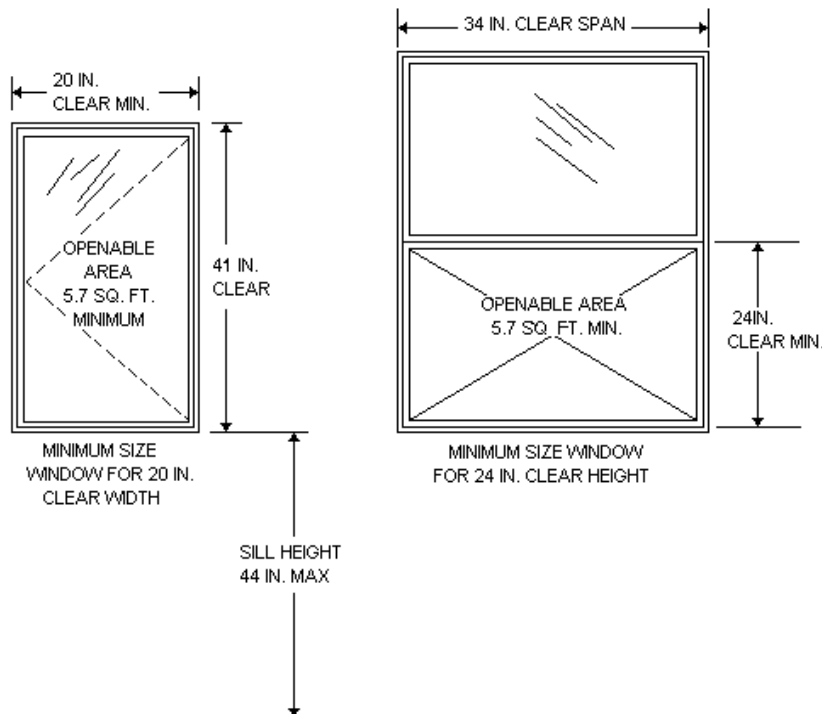
### • Insulation & Building Envelope (Section N1102)

- Concrete exterior walls shall be insulated with a minimum R-10 insulation.
- Wood frame exterior walls shall be insulated with a minimum R-13 insulation.

- Fireblocking (a.k.a. Firestopping) (Section R302.11)**
  - Fireblocking shall be provided to cut off concealed draft openings (both vertical and horizontal) and to form an effective fire barrier between stories. The most critical areas are the space between the top plate of the studded exterior walls and the concrete wall or sill plate on the concrete wall and at the connection between a stud wall and a bulkhead.
  - Except as provided in Section R302.11 Item 4, fireblocking shall consist of 2" (51 mm) nominal lumber, or two thicknesses of 1" (25.4 mm) nominal lumber with broken lap joints, or one thickness of 23/32" (19.8 mm) wood structural panels with joints backed by 23/32" (19.8 mm) wood structural panels or one thickness of 3/4" (19.1 mm) particleboard with joints backed by 3/4" (19.1 mm) particleboard, 1/2" (12.7 mm) gypsum board, or 1/4" (6.4 mm) cement-based millboard.
  - In small areas, fire resistant caulk or *Rockwool* may be used.
  - For more information **SEE FIGURE 1, page 6** or visit the Plan Review Office where one of our staff may explain fireblocking techniques using scale models on display.
- Smoke Alarms (Section R314)**
  - Hardwired interconnected smoke alarms shall be installed on each story of the home, in each sleeping room and within 15' of the outside of each sleeping room. Interconnections of smoke alarms in existing areas shall not be required where alterations or repairs do not result in removal of interior wall or ceiling finishes exposing the structure, **unless** there is an attic, crawl space or basement available that could provide access for interconnection without the removal of interior finishes. Listed "wireless" alarms accepted for interconnection only.
- Under Stair Protection (Section R302.7)**
  - Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with 1/2" gypsum board.
- Emergency Escape and Rescue Opening (Section R310)**
  - Basements with habitable space and every sleeping room shall have at least one emergency escape and rescue window or exterior door opening for emergency escape and rescue. A window in a bedroom shall meet the requirements for the window in the basement. **SEE FIGURE 2, page 7.** For "existing basements"; see P.1, 1.



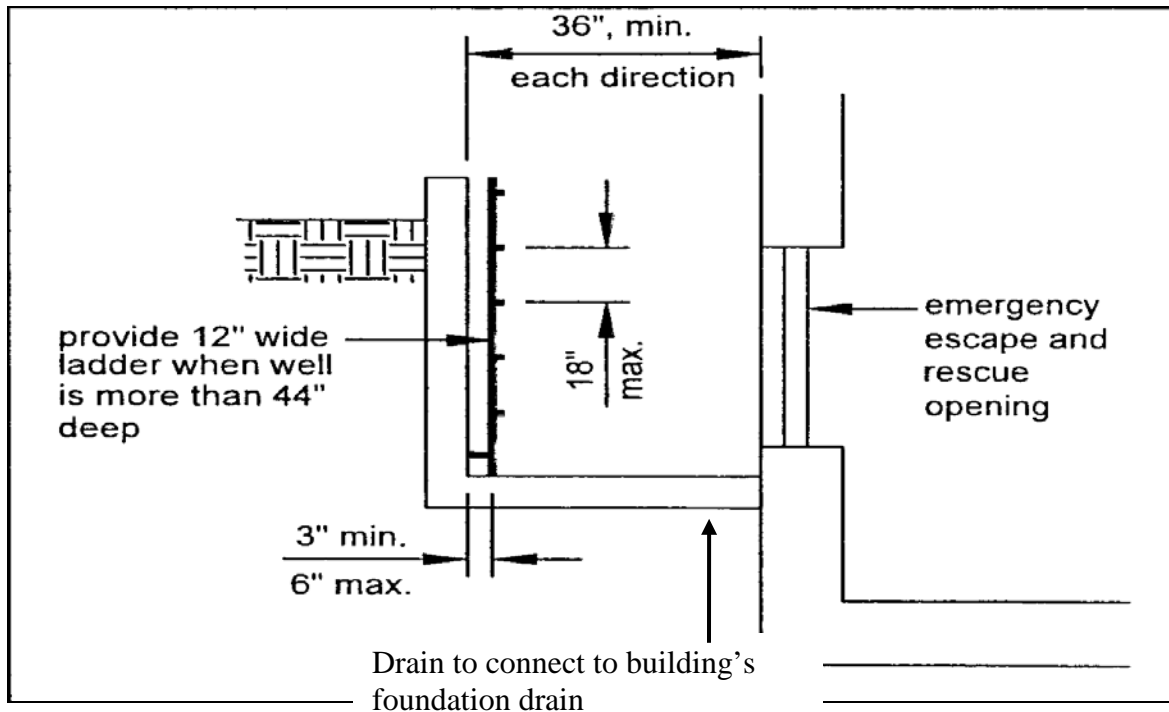
**FIGURE 2: Emergency Escape and Rescue Opening**



**Note:** Window opening must be larger than the minimum width and height measurements to provide the minimum required openable area.

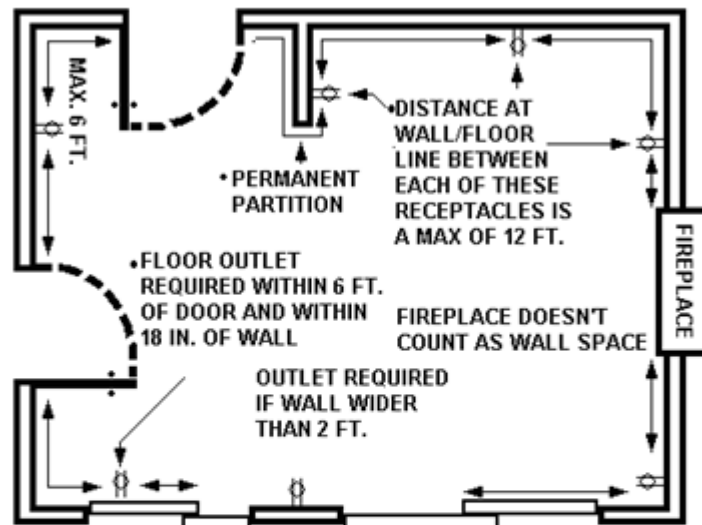
**Exception:** Grade floor or below grade openings shall have a minimum net clear opening of 5 square feet (0.465 m<sup>2</sup>).

**FIGURE 2A: Window Well Requirements**



**FIGURE 3:**

**GUIDELINES FOR ELECTRICAL REQUIREMENTS**



- RECEPTACLES ARE REQUIRED WITHIN 6 FT. OF ANY DOOR ON BOTH SIDES
- A SWITCH IS REQUIRED AT DOORS FOR AN OUTLET OR FOR A CEILING LIGHT
- GFI OUTLET REQUIRED FOR BATHROOM
- HALLWAYS GREATER THAN 10 FT. REQUIRE AN OUTLET
- MUST BE ABLE TO PLUG IN A 6 FT. CORD ANYWHERE ALONG WALL
- ALL SPLICING MUST BE DONE WITH APPROVED CONNECTORS IN JUNCTION BOXES THAT ARE ACCESSIBLE

- Except general outlet and lighting circuits that can be calculated at 3 volt amperes per sq. ft. (e.g. 450 sq. ft. room x 3 = 1350 volt amperes :- 120 volts = 11.25 amps).
- Normal 15 amp branch circuits will have 10 devices (lights or outlets) per circuit. For circuits with excessive recessed lights or track lighting, take a maximum rating of each fixture added together and divided by volts. (e.g. 9 lights at 150 watts each = 1350 :- 120 volts = 11.25)
- Loading of circuits shall be 80% of breaker rating for all the circuits (e.g. 15amp breaker would allow 12 amp load on a circuit).
- Basements that require zoning approval for second kitchens shall utilize two 20 amp small appliance circuits for outlets. All bathrooms require a 20 amp G.F.I outlet at each basin. Appliances or equipment may require additional circuits per the manufacturer's specifications (e.g. fan/light/heat units, sump pump, etc.). Check for amp and volt ratings.
- 14/2 gauge wire is rated for 15 amps and 12/2 is rated for 20 amps.

### Frequently Used Phone Numbers and Automated Systems

**Technical Questions:** Please call the Building Construction Inspections Branch at 703-792-7006 with any technical questions you may have on your basement finishing project.

**Ready to Schedule an Inspection?:** Go online to [www.pwcgov.org/ePortal](http://www.pwcgov.org/ePortal) or call 1-866-457-5280.

**For Scheduling Inspections Issues/Questions:** Please call Building Permitting Services at 703-792-6924.

**Daily Inspection Schedule:** To see the order in which the Building Inspection Staff will arrive at their inspections for the day, please go online to [www.pwcgov.org/ePortal](http://www.pwcgov.org/ePortal).