

GUIDELINES FOR FINISHING YOUR BASEMENT

Prince William County, Virginia
International Residential Code 2003 Edition
Effective November 16th, 2006

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 Plan Review Counter or at www.pwcqoc.org/BDD. The selected sections of the IRC 2003 briefly summarized in this brochure 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 page 8 of this document for the **Four facts you should know before starting**.

Where to get a permit

The Building Development Division Plan Review Counter is open 8 a.m. to 4 p.m., Monday through Friday. We are located at the Prince William County Government Center in the 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.**
Prince William County does not perform a plan review to issue a Building Permit for finishing a basement when there are no structural modifications. It is recommended that homeowners prepare and bring a floor plan showing the basement square footage, room dimensions with each room labeled with its intended use (bedroom, bathroom, media room, etc).
- **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 is planned, zoning approval will be required. Contact the Office of Planning & Zoning at (703) 792-6830.**
- **Please bring cash or checks for fees, credit cards are not accepted.**

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What are the Fees?

The Building Permit fee is based on the square footage of the area to be finished. The fee includes the permit & regular inspections. The fee is calculated by multiplying the total square footage by 0.181. For example 1000 square feet is \$181.00. The minimum fee for any permit is \$62.88.

The trade permits (Electrical, Plumbing Mechanical & Gas) are priced based on the amount of equipment being installed.

Contractor Licenses, Business Licenses, Affidavits?

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. Whether the work is performed by a contractor or the homeowner, whoever signs the Building Permit Application accepts responsibility for code compliance. Please see further information on [“Who Should Pull The Permit?”](#) available at www.pwcgov.org/BDD or from the Permits Department at (703) 792-6924.

- When the homeowner will obtain all permits and be the responsible party, a completed Affidavit of Owner will be required (available at the Permits Counter).
- If a contractor will be responsible for the work, 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 Contractor License and a copy of the Contractor's Prince William County Business License to obtain the permits as the agent for the contractor without the contractor required to be present.

Hiring A Contractor

Please see further information on [“Hiring a Contractor”](#) available at www.pwcgov.org/BDD or from the Permits Department at (703) 792-6924.

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About Code Compliance

All construction shall comply with 2003 International Residential Building Code (IRC) and the Virginia Uniform Statewide Building Code 2003 (USBC). The IRC 2003 Code book is available for purchase at various booksellers, from the International Code Council by calling 888-699-0541 or through the Web site at <http://www.iccsafe.org/e/category.html>

The IRC 2003 is available for reference at the Plan Review Branch and at the following County's Libraries: Bull Run, Central, Chinn and Potomac

The USBC is available from the Virginia Department of Housing & Community Development: The Jackson Center, 501 North Second Street, Richmond, Virginia 23219-1321. (804) 371-7000
<http://www.dhcd.virginia.gov/Forms/DBFR/1USBC.pdf>

About Scheduling Inspections

Building inspections are conducted between 7:30 a.m. and 3:00 p.m. during the work week.

In order for Prince William County 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/e/inspections or call the automated phone 703-792-6970. Both systems will prompt for the permit number and inspection type and code required. 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, mechanical & insulation will be inspected at the same time.

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) 792-6924**

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About Inspections

The most common 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.
4. Stud spacing not per code.
5. Required emergency egress not provided. (Door or window from habitable space)
6. Drywall blocking missing.
7. Emergency escape window/door not provided for bedroom(s).
8. Height above floor to emergency escape window sill exceeds 44".
9. Support columns have been removed or relocated
10. Emergency escape window not correctly sized.

The most common electrical problems on basement finish projects are:

At the Close in

(a.k.a. CODE 198 - RESIDENTIAL COMBINATION CONCEALMENT)

1. Receptacles spaced more than 12' apart. No receptacle for a wall space 24" and wider or for a hallway at least 10' in length.
2. Cables not supported within 8" of boxes without clamps, 12" with clamps, and every 4.5' thereafter.
3. Cables not inside outlet boxes, stripped out, splices not made, equipment grounds not made up and pigtailed for the device. The device should not be installed for close in.
4. Metal boxes and bath exhaust fans not grounded.
5. Protection (kick plates) not provided where cables are ran closer than 1 1/4" to edge of framing and where holes for cables notched or drilled are closer than 1 1/4" to edge of stud or framing.
6. Romex connectors or clamps not provided for cables entering metal boxes, recessed light junction boxes and bath exhaust fans.
7. Smoke detectors not provided in bedrooms and in the area just outside of the bedroom. Smoke detectors to be A/C powered with battery backup and interconnected.
8. GFCI protected receptacle not provided in unfinished portions of basement.

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9. Bath room receptacle not wired with # 12 conductors on a 20 amp circuit and GFCI protected.
10. Approved fan boxes not used for the support of paddle fans.
11. Lighting for stairs not per code. (Fixture required at top & bottom or directly over stairs.)

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
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/ not tested properly
10. Proper fixture clearances not maintained

The most common mechanical problems on basement finish projects are:

1. Bath exhaust fan is not vented to the outside
2. Clearance's to B-Vent or single wall connector's not maintained (furnace, water heaters, fireplaces, etc.)
3. Combustion Air requirements for fuel fired equipment not met (furnace, water heaters, fireplaces, etc.)
4. New flex connections for HVAC can not be tapped into existing branch lines (common problem)
5. Existing taps in trunk line not sealed when blanking off for new flex lines
6. Clearance's 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 manufacturers instructions
9. Unions in gas piping that will be concealed
10. Existing HVAC is damaged during basement build-out

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Technical Questions

Please call the inspections office with any technical questions you may have on your basement finish project.

Chief Building Inspector- Bob Adkins (703) 792-6950
Building- Mike Dolan (703) 792-5870
Residential-Chad Roop (703)792-7162
Electrical-Charles Jackson (703)792-6938
Mechanical- Tom Clark (703)792-6955
Plumbing-Kenny Bedford (703)792-6954
Main Desk- (703)792-7006

Scheduling Questions

Problems or Questions about scheduling inspections call (703) 792-6924

**Ready for Inspection? Go online to www.pwcgov.org/eInspections
or call 703-792-6970**

Schedule inspections using the ***Construction Inspection Information System***

The system will prompt for the permit number and inspection type and code required. 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

Check the website for the Daily Inspection Schedule

www.pwcgov.org/eInspectionSchedule

Four facts you should know *before* starting:

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Emergency Escape and Rescue Openings

Effective November 16, 2006 basements and all sleeping rooms shall have at least one emergency escape and rescue window or an exterior door opening for emergency escape and rescue. Section R310 See attached illustration: *Emergency Escape and Rescue Opening*. If presently there is only one window in the basement and a bedroom is to be built, the window must be in the bedroom.

Wall Openings & 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

Second Kitchen or "Second Unit"

Second Kitchens are regulated by the [Zoning Ordinance Part 32-300.02\(17\)](#) and are permitted by the zoning administrator only when specific conditions are met **Please note:** The basement in which 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 Office of Planning & Zoning at (703) 792-6830

Health Department 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 Health Dept (703) 792-6311 or visit their office 8470 Kao Circle, Manassas, VA 20110.

SELECTED SECTIONS OF THE IRC 2003

Minimum required ceiling heights (Section R305)

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Measured from the finished floor to the lowest projection from the ceiling, the minimum required ceiling height for habitable areas (such as bedrooms kitchens, baths, hallways and recreation rooms) shall be 7'0".

Beams and girders spaced not less than 4 feet (1219 mm) on center may project not more than 6 inches (152 mm) below the required ceiling height.

Protection against decay (Section R320)

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 (Section R316 &: Building Envelope (Section N1102)

Concrete exterior walls shall be insulated with a minimum R-9 insulation.

Wood frame exterior walls shall be insulated with a minimum R-16 insulation. Conventional insulation products with this rating may require 2x6 framing, therefore Prince William County will accept the U.S. Dept of Energy Res-Check Program to demonstrate compliance with performance criteria. See attached memo re: Building Exterior Energy Envelope Compliance (5/3/04)

Fireblocking (Section R602.8)

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.

For more information see the attached fire blocking illustrations (*Firestopping in Basement*) or visit the Plan Review Office where one of our staff may explain fireblocking techniques using scale models on display.

Smoke Alarms (Section R313)

Hardwired *interconnected* Smoke Alarms shall be installed on each story of the home in each sleeping room, and within 20' of the outside of each sleeping room. Smoke alarms in existing areas outside of the basement are not required to be interconnected unless access to the attic area can be obtained. (See section 317.1.1 in the IRC.

Under Stair Protection (Section R311.2.2)

Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with 1/2" gypsum board.

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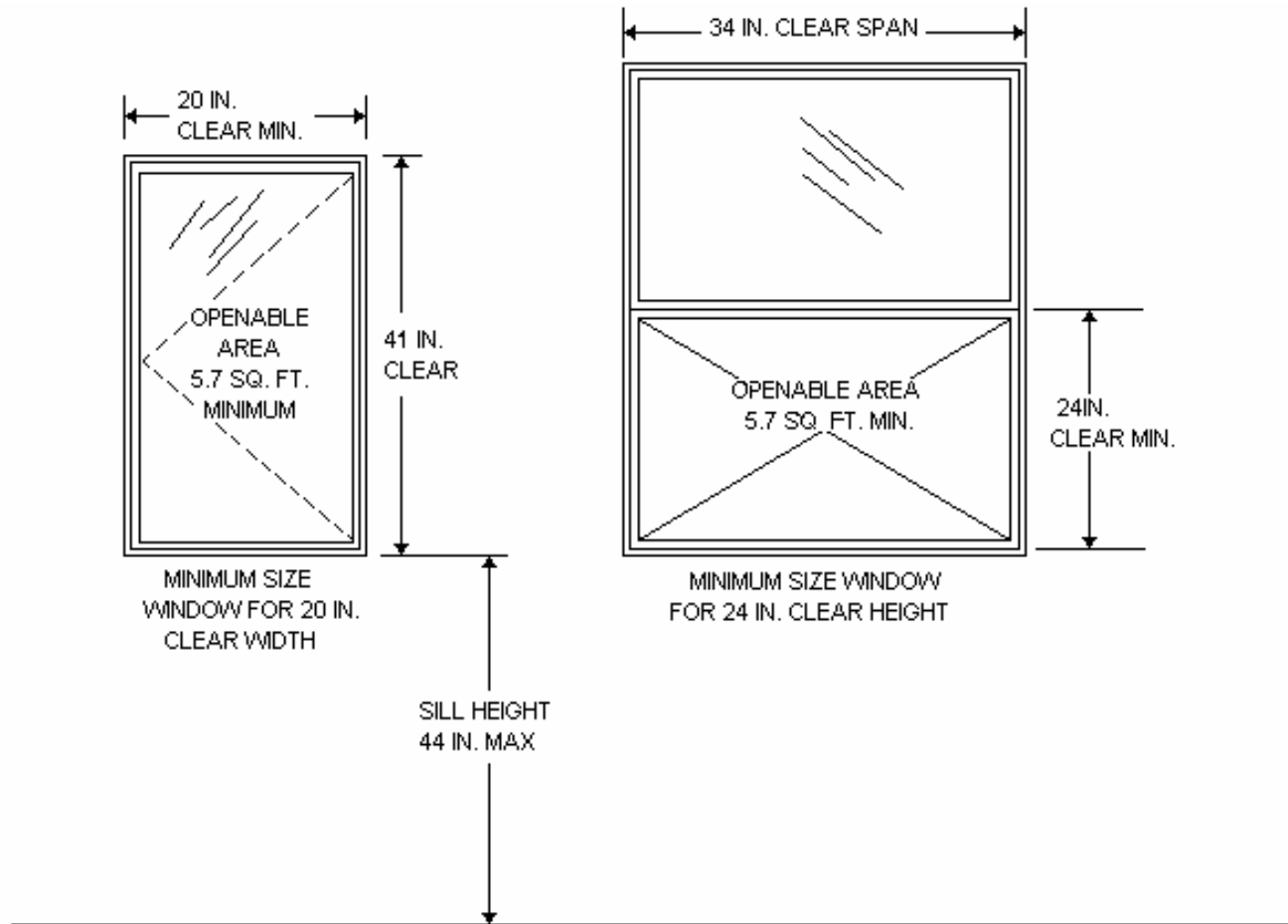
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Emergency Escape and Rescue Opening (Section R310)

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 below illustration:

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 openings shall have a minimum net clear opening of 5 square feet (0.465 m²)

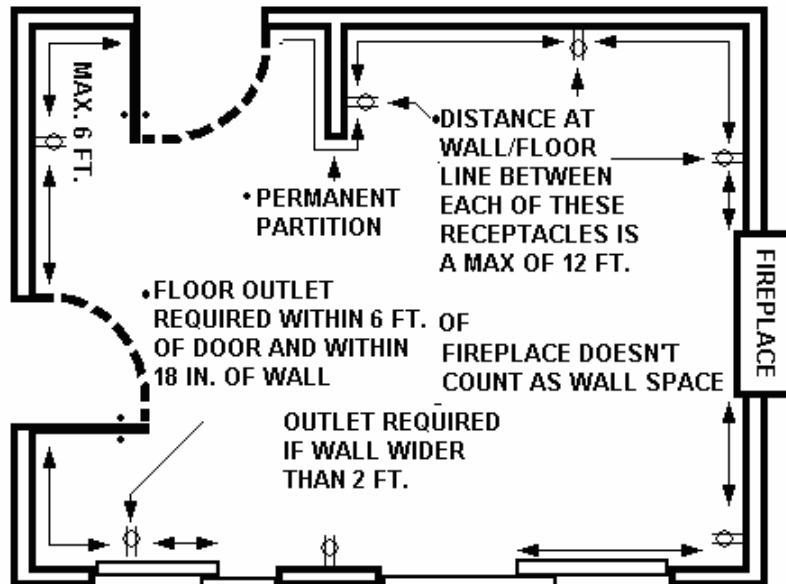
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GUIDE LINES FOR ELECTRICAL REQUIREMENTS



- 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 can be calculated at 3 volt amperes per sq. ft. (Example 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 recess lights or track lights take a maximum rating of each fixture added together and divided by volts (example 9 lights at 150 watts each = 1350 :- 120 volts = 11.25)

Loading of circuits shall be 80% of breaker rating for all the circuits (example 15amp breaker would allow 12 amp load on a circuit).

For basements that get zoning approval for second kitchens you will need (2) 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 manufacturers Specifications i.e. 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.

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FIRESTOPPING IN BASEMENT

R602.8.1 Materials. Except as provided in Item 4, firestopping shall consist of 2-inch (51 mm) nominal lumber, or two thicknesses of 1-inch (25.4 mm) nominal lumber with broken lap joints, or one thickness of 23/32-inch (19.8 mm) wood structural panels with joints backed by 23/32-inch (19.8 mm) wood structural panels or one thickness of 3/4 inch (19.1 mm) particleboard with joints backed by 3/4 inch (19.1 mm) particleboard, 1/2 inch (12.7 mm) gypsum board, or 1/4 inch (6.4 mm) cement-based millboard.

In small areas, fire resistant caulk or *Rockwool* may be used.

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