

# MONTGOMERY TOWNSHIP

## Guide and Requirements for FINISHED BASEMENTS

### GENERAL REQUIREMENTS

1. Please submit two sets of scaled drawings. All drawings shall indicate owner's name, address, block and lot number. To draw your own plans you must be the owner and occupant of said property, if not, you will need plans drawn by a New Jersey registered architect. If you do draw your own plans, each page of both sets shall be signed by you. On the inside cover of the application folder, there is a box for you to check and a space for you to sign that certifies that you drew your own plans.
2. Under the regulations, you as the homeowner/occupant may perform all or some of the actual construction. On the inside cover of the application folder is a section you must fill out when performing your own work. Under the heading OWNER SECTION, LETTER C, you can certify that you will perform or supervise the Building and Fire Protection work. You can also certify that you will perform the electrical and plumbing work. By checking off on the electrical and plumbing sections, you are certifying that you personally will be performing this work. When not checking this section, your Electrical and Plumbing Subcode Technical Sections must be signed and sealed by N.J. licensed contractors.
3. The drawings submitted shall include the following information:
  - a) Show entire basement floor plan (finished and unfinished), indicate location of all partitions, doors (their size and direction of swing), windows, stairways, any new guard rails or hand rails, closets, columns, electrical layout, heating layout (if heating), furnace, water heater, washer and dryer locations, plumbing fixture locations such as sinks, showers, tubs and lavatories, show location of any existing and new smoke detectors, label all rooms and spaces as to their use and include ceiling heights.
  - b) Show wall cross section indicating stud sizes, stud spacing, fire stopping, insulation (if using), wall covering material, ceiling material and floor covering to be used.

### SPECIFIC REQUIREMENTS

1. BUILDING

- a. All finish materials for walls and ceilings must meet CLASS III Flame Spread Rating (76-200) and a Smoke-developed rating of no more than 450. While drywall (sheetrock) meets both of these requirements you will be required to submit supporting documentation for paneling, drop in ceilings and any other material.
- b. Firestopping shall be installed so as to keep a fire in the walls from spreading throughout the ceiling. All fireblocking shall consist of approved noncombustible materials securely fastened in place. Gypsum board of ½ inch thickness and ¾ inch plywood are also acceptable for use as fireblocking. All penetrations in fireblocking are to be filled with approved noncombustible material.
- c. Whenever a bathroom is added and a bathtub or a shower is to be installed, the bathroom shall have water-resistant gypsum or approved equivalent installed on the walls,
- d. Although the Rehab Code does not require it for alterations, a bathroom exhaust fan that terminates at the exterior of the building is recommended for obvious reasons. (Odors, moisture accumulation, mold)
- e. A room in the basement shall not be used as a bedroom unless it has one of two means of egress, a door directly to the outside or a means of egress window located in the bedroom. When a window is used it shall be operable, have a sill height of no more than 44 inches, have a width of at least 20 inches, a height of at least 24 inches and a minimum total area 5.7 square feet measured from head to sill and from side to side. A Bilco door does not meet the requirements for a door exit.

## 2. FIRE

- a. Existing smoke detectors in basements shall be relocated to the bottom side of new ceilings.
- b. Whenever a bedroom is created a hardwired smoke detector with battery backup shall be installed in the bedroom. A second hardwired smoke detector with battery backup shall be located outside the bedroom in the immediate vicinity. These smoke detectors shall be interconnected so that when one goes off, they both go off.
- c. Rooms containing appliances (furnaces, boilers, water heaters, etc.) requiring access shall be provided with a door or unobstructed passageway measuring not less than 24 inches in width but large enough to allow removal of the largest appliance in the space. A service space of not less than 30 inches deep shall be provided in front of the service side of the appliance. Keep this in mind when laying out partition locations.
- d. There are certain minimum clearances to combustible material (framing members) you must maintain around your appliances. Consult your manufacturers installation instructions for these dimensions. They will tell you how close you can place your new construction to the sides, back and top of your appliances.
- e. If your basement contains sprinkler heads, contact the Fire Official for special instructions.

- f. The number one reason why basement plans are rejected is because the issue of “combustion air” is not addressed or it is addressed incorrectly. Combustion air can be defined as, “the amount of air required for the safe and proper combustion of a fuel”. When your house was built, the calculations for the amount of combustion air required for your appliances were figured using a wide-open basement. Now that you will be putting up partitions and more than likely enclosing the appliances in a separate room, we no longer have the entire basement to draw from. The code allows us to connect these rooms or spaces together by using vents/grills that will allow air to flow between these rooms or spaces so that they may be totaled together when figuring required total cubic volume of air required for the appliances. The code requires 50 cubic feet of air volume for every 1,000 BTU’s of input rating of the appliance. The cubic volume of a room can be found by multiplying the width X length X height of the room or space. The input rating of the appliance can be found on the appliance although you may have to remove the service panel door on furnaces and boilers to find.

As an example let’s say you have a furnace with an input rating of 95,000 BTU’s and a water heater rated at 45,000 BTU’s of input. So now remember that the code states 50 cubic feet of volume for every 1,000 BTU’s of input rating.

95,000	Furnace input
<u>+45,000</u>	Water heater input
140,000	Total

140 X 50 cubic feet = 7,000 cubic feet required.

In the example above, the room that the furnace and water heater are located in would have to be 7,000 cubic feet in volume or greater to meet code.

Using the same example above, lets say that the room is less than 7,000 cubic feet in volume, now what? Remember we said the code allows us to connect rooms or spaces together so that the two or more spaces can be combined in our calculations. So how do we connect them together and how large does the vent/grills have to be? Code states that two permanent openings, each having a minimum free opening of 1 square inch per 1,000 BTU’s of input rating for all the equipment in that space. One opening shall commence within 12 inches of the top and the other within 12 inches of the bottom of the room or space. In no instance shall the openings be less than 100 square inches.

Now lets say that the room outside the room housing the furnace and water heater, when combined will put us over the 7,000 cubic feet

required. Using the 1 square inch per 1,000 BTU's of input, we would need each vent to be 140 square inches of free area. Lets say our furnace and water heater add up to 90,000 BTU's of input. Could we use two vents each measuring 90 square inches? The answer would be no, because remember we said at no time can the vent /grills be less than 100 square inches. You may ask what is meant by free area. The code states that for metal grills we get 75% credit and for wood grills we get 25% credit. Lets say you needed grills to supply 100 square inches each and used 10 inch X 10 inch grills. Would this meet code? The answer would be no since  $100 \times 75\% = 75$  square inches. You would be required to use a grill more like 12 inch X 12 inch to supply the 100 square inches.  $144 \times 75\% = 108$  sq. in. of free opening.

It should be noted that appliances shall not be located in or obtain combustion air from:

- a. Sleeping rooms
- b. Bathrooms
- c. Toilet rooms

There is one exception to this entire section on combustion air, and that is Direct Vent Appliances that obtain all their combustion air directly from the outdoors. Documentation that would verify this would have to be submitted with your application.

### 3. PLUMBING

- a) Sections A, B, C and D must be filled out on the Plumbing Subcode Technical Section.
- b) You must supply waste, water and vent drawing, also called an isometric drawing. Indicate all pipe sizes on drawing.
- c) If a sewer ejector pump is to be used, supply the manufacturers specification sheet on the unit.
- d) Indicate on drawings how large (gallons) existing water heater is.
- e) When showers or tubs are installed they shall have thermostatic or pressure balancing valves with internal stops.
- f) Vent for bathroom should tie into existing first floor vent or go up through the roof.

### 4. ELECTRICAL

- a) Homeowner/contractor shall submit two copies of drawings showing the locations of all devices to be installed in the basement. Devices shall include but not be limited to receptacles, light fixtures, smoke and carbon detectors, speakers and any other devices that may be installed.
- b) Homeowner/contractor shall give total device count for each item being installed in item a) above. Example: 10 receptacles, 5 switches, 15 light

fixtures, etc. This will be done on the Electrical Subcode Technical Section.

- c) Homeowner/contractor will submit the wattage or VA for each light fixture and any appliance being installed.
- d) Homeowner/contractor will submit the number of new branch circuits being installed along with the ampere rating (breaker size) and the calculated loads for each branch circuit.
- e) Homeowner/contractor shall indicate how many light fixtures will be on a branch circuit or receptacles.
- f) A drop ceiling rough inspection is required if a drop ceiling is to be installed. If a sheetrock ceiling is to be installed, all items to be removed from the existing ceiling shall be removed prior to the rough electrical inspection.
- g) The National Electric Code requires a working clearance a minimum of 30 inches in front of all electric panels, alarm equipment, emergency generator panels and transfer switch gear.
- h) The N.E.C. requires GFCI receptacles in all unfinished areas where there is serviceable equipment. A switched light is also required in these areas.
- i) All crawl spaces require a light with a switch located at the entrance to the crawl space. If there is serviceable equipment in the crawl space, a GFCI receptacle is required and also a light above the equipment work area.
- j) A light over the basement staircase on a 3-way switch lighting the stairwell is required.

## SUMMATION

While this guide will not cover every situation that can or will occur, it should cover 99% of the basement permit applications. As always, if you have any question feel free to stop in or call.

Included in this handout is a “combustion air” calculation sheet for your use, a sample “typical wall section” and a sheet showing wall vents used for combustion air. GOOD LUCK on your project.

## ZONING

When you drop off your completed application at the Code Enforcement counter it will first be given to the Zoning Officer. He will check to see if any zoning laws are going to be violated. This would include any basements that appear to be used as apartments or offices. Areas of concern for apartments are, separate entrances, full kitchens, bedrooms and bathrooms. Any space or room labeled as an office will be checked to make sure you will not have to register as a “Home Based Business”. Any questions regarding these items may be directed to the Zoning Officer.

## BOARD OF HEALTH

Any basement permit application that has a bathroom in it, and the house is served by a SEPTIC SYSTEM, will be reviewed by the Board of Health. Their concerns will center around the impact on the existing septic system. Any questions regarding this may be directed to the Board of Health.

## REQUIRED INSPECTIONS

In Order:

1. Rough electric
2. Rough plumbing (if applicable)
3. Rough framing
4. Insulation (if applicable)
5. Final electric
6. Final plumbing (if applicable)
7. Final fire
8. Final building

## FEES

Building:

Your building fee portion is a charge of \$25 for every \$1,000 of estimated cost of construction. Do not include any cost associated with plumbing, electric or fire. Minimum fee of \$75.

Plumbing:

Your plumbing fee will be figured on a fixture count. For example, toilets, showers and tubs are \$15 each. Ejector pumps and gas piping are \$65 each. Minimum fee \$75.

Electric:

This fee is also figured on a fixture count. Switches, fixtures and receptacles, from 1 to 9 devices are \$75. Each additional 40 devices are \$20. Minimum fee of \$75.

Fire:

If no smoke detectors are being added the fee is \$75. If smoke detectors are being added the fee is \$75.

## CARBON MONOXIDE DETECTORS

Effective April 7, 2003, the Uniform Construction Code has mandated that carbon monoxide detectors be added to all new homes built in the state, and that they be

added to existing homes anytime a repair, renovation, alteration or reconstruction project occurs in your home. Your basement permit falls under an alteration in the U.C.C. and therefore will be required to install carbon monoxide detectors as per the code.

Carbon monoxide detectors shall be installed and maintained in full operating condition in the immediate vicinity of each sleeping area (outside the bedrooms, regardless of the floor level located on) if the building contains a fuel burning appliance or has an attached garage. Carbon monoxide alarms shall be battery operated, hard-wired or of the plug-in type.

The installation of the carbon monoxide alarms does not require a permit nor an inspection from this department, except in the case of a bedroom being added. It is your responsibility as the homeowner/contractor to make sure that the provisions of the Uniform Construction Code have been met.