



TOWN OF CHILI

BUILDING DEPARTMENT
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Finishing Basements: What You Need To Know

- Effective October 3, 2016, New York has new building code requirements for detached one- and two-family dwellings and townhouses not more than 3 stories in height, all of which are included in the new Residential Code of New York State. **This applies to all new residential construction in New York, including, for example, converting a basement space into habitable (for living, eating, sleeping or cooking) space.**
- To be able to convert a basement space into habitable space, there are several requirements that have to be met. For example, habitable rooms must have a ceiling height of not less than 6 feet 8 inches measured from the finished floor to the lowest projection from the ceiling.
- Light and ventilation need to be supplied to all habitable rooms by providing an aggregate glazing area (windows) of not less than 8 % of the floor area for light, and not less than 4% of the floor area for a minimum openable area to the outdoors for ventilation.
- Basements with habitable space and every sleeping room need to have at least one openable emergency escape and rescue opening. The opening needs to have a sill height of not more than 44 inches above the floor. As long as the opening is not more than 44 inches above or below the finished ground level outside, it must have a minimum net clear opening of 5 square feet; otherwise it must have a minimum net clear opening of 5.7 square feet. In any case, the opening must be at least 20 inches wide and 24 inches high, and operational from the inside without the use of keys or tools.
- It is also possible to use window wells for emergency egress. The horizontal dimension of the window well must provide a net clear area of at least 9 square feet, and must have a minimum horizontal projection of at least 36 inches. If the window well has a greater vertical depth than 44 inches, then it must be equipped with a permanent ladder or steps that are usable with the window open.
- It is also important to note that furnaces in basements generally need at least 1 cubic foot of space for each 10 Btu/h rating of the particular furnace. Depending on the size of the basement and any partitions proposed, this may limit what can be done in a particular space.
- Finally, if any part of the space is to be used as a sleeping room, smoke alarms must be installed in each sleeping room, outside of each sleeping area and on each additional story of the dwelling. They must be interconnected and hard-wired with a battery back-up. This applies to the entire house, including basements. At least one carbon monoxide detector must be installed in the lower level (basement).
- All of the above is just a summary of the basic requirements. Depending on the specifics of your project, there are many different ways to satisfy the code requirements. We cannot design your project for you, but we will let you know if your design complies.
- Copies of the new code book are available from the International Code Council at ICCSafe.org or by calling 1-800-786-4452.
- If you have any questions about any of the above, please feel free to contact the Building Department at (585) 889-6143 for more information.



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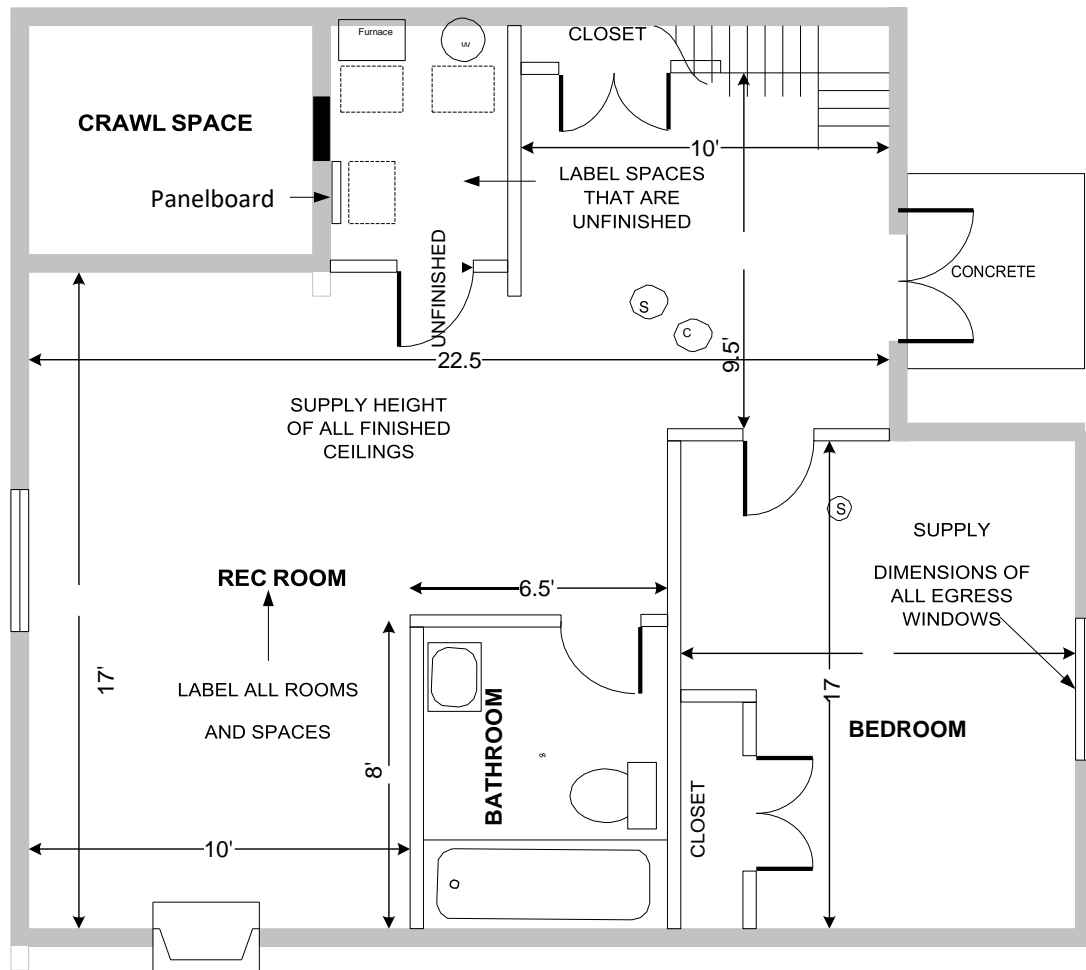
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Finishes Basement Requirements

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DRAWNING REQUIREMENTS

- Plans shall be drawn to a scale of $\frac{1}{4}''$ ($1/4'' = 1'$) on white paper in blue or black ink, and shall be dimensioned.
- Plans shall show the location of the furnace, water heater, stairs, all existing windows (including sizes) and points of egress.
- Label the intended use of all rooms, unfinished areas and make note of the total finish and unfinished square footage.



DOE RESIDENCE FINISHED BASEMENT
 1313 MOCKINGBIRD LANE

682 FINISHED SQUARE FEET
70 UNFINISHED SQUARE FEET

PROVIDE ADDRESS AND SQUARE FOOTAGE
 OF FINISHED AND UNFINISHED SPACES

SEQUENCE OF INSPECTIONS

This is a list of the most common inspections that are required for a typical Basement Finish. Some of the listed inspections may not be applicable to your project. Additional inspections may be required for other less typical projects.

Underground Plumbing (or under floor)

This inspection is performed when the base plumbing drainage system is in place. The inspection shall be approved prior to placement of concrete or floor sheathing. The system must be under test conditions at the time of the inspection with water or five pounds of air pressure shown on a 30 p.s.i. gauge, for systems other than plastic or a flow test may be performed at time of inspection.

Plastic piping shall not be tested using air.

Rough Electric – By Others - Listed on Building Permit

This inspection is to be performed when all of the wire and boxes have been installed. Grounds and neutrals shall be “made up” at the boxes and home runs completed to the panel location. No devices (outlets, switches) shall be installed at this time. All low voltage system wiring (specialty lighting, telephone, data, cable, security, etc.) shall be installed at the time of the Rough Electric Inspection.

Rough Frame

This inspection is performed once all of the framing, plumbing, and mechanical rough-ins are completed. This inspection may be requested on the same day as the Rough Electric, but cannot be requested before requesting a Rough Electric inspection.

Interior Gas Line

This inspection is typically performed at the same time as the Rough Frame inspection. The pipe system shall be completed and visually inspected with a 10 pound air test on a maximum 30 pound gauge,

unless alternative piping is used.

Rough Plumbing

Rough inspection of plumbing, mechanical & gas systems shall be made prior to covering or concealment. Nail guards in place, vent/drain stacks pressurized. Supply lines pressurized. "Built in place" shower bases shall be sloped and lined in accordance with the code and filled with water. Hard wired smoke & Carbon Monoxide detectors will also be inspected at this time.

Insulation

This inspection is performed after the basement is insulated and vapor retarders are installed where required. The insulation shall be a minimum of an R-19 in the frame cavities or a continuous blanket of R-15.

Final Electric – By Others - Listed on Building Permit

This inspection is performed when all electrical outlets, lights and switches with cover plates are installed. The electrical panel shall be complete and circuits properly labeled and appliances that are required to be hardwired need to be installed.

Final Building

This inspection is performed when all life safety items have been completed and the basement finish is completed in accordance with the approved plans.

GENERAL BUILDING REQUIREMENTS

Room Sizes

Habitable space shall have a floor area not less than 70 square feet and shall not be less than 7'-0" in any horizontal dimension.

Hallways

Hallways shall not be less than 36" in width, finished.

Ceiling Heights

Habitable spaces & hallways shall have a ceiling height of not less than 7 ft. Bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6 ft 8 in. Beams, girders, ducts and other obstructions shall not project to within 6ft 4in. of the finished floor.

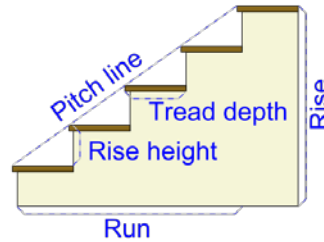
Bathroom Ventilation

Bathrooms and toilet rooms shall be mechanically vented directly to the outdoors at a minimum rate of 50 c.f.m. Mechanical ventilation is not required when a window is provided with minimum operable opening of 1.5 s.f.

Stairway

- Basement stairs shall be provided with a means to illuminate the treads and landings of the stairs. There shall be a switch to the light at the top and bottom of the stairs on stairs with 6 risers or more.
- Minimum head clearance from the nosing of the stair treads to the finished ceiling shall not be less than 6'-8".
- The maximum riser height shall be 8 1/4" with a minimum tread depth of 9".

- A continuous and graspable handrail on one side of the stair is required to extend for the full length of the flight. The handrail shall be between 34" - 38" measured vertically from the sloped



plane of the treads (Pitch line).

- Guards shall be located along open-sided walking surfaces, including stairs, ramps and landings that are located more than 30" measured vertically to the floor below.

Stair Protection

Enclosed accessible space under stairs shall have walls and ceilings protected with ½" drywall on the enclosed side.

Smoke Alarms

- When finishing a basement, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be equipped throughout with smoke alarms located as required for new dwellings.
- New smoke alarms shall receive their primary power from building wiring (120 volt, with battery backup) and be interconnected so that when one is activated, all will sound.
- Smoke alarms shall be interconnected by hardwire, or radio frequency wireless.
- Shall not be located within 36" of environmental air vents (supply and return).
- Shall follow manufacturer's specifications for location near ceiling fans.

Carbon Monoxide Alarms

- Where work requiring a permit occurs in existing dwellings that have attached garages or fuel fired appliances, carbon monoxide alarms shall be provided.
- Carbon monoxide alarms shall be installed within 15 feet of the entrance to all bedrooms throughout the home.
- Carbon monoxide alarms shall plug into a dwelling's electrical outlet and have a battery backup, or be hardwired into the dwelling's electrical system and have a battery backup.
- Carbon monoxide alarms may be combined with a smoke alarm. The combined unit must produce an alarm, or an alarm and voice signal, in a manner that clearly differentiates between the two hazards.

Basement Exterior Wall Insulation

Insulation is required to be a minimum of R-15 continuous blanket insulation or a minimum of R-19 batt insulation in all the stud cavities for the full height and length of the basement wall and crawl spaces. The vapor barrier, either the manufacturers kraft paper, or a clear 4 mil thick (min) polyethylene plastic sheeting, shall be installed on the 'warm in winter' side of the wall (behind the drywall).

EMERGENCY EGRESS REQUIREMENTS

Where Required

Emergency egress is required for all finished basements regardless of when the house was originally constructed. Emergency egress is required in all basement bedrooms. However, basements with bedrooms are only required to have emergency egress in the bedrooms.

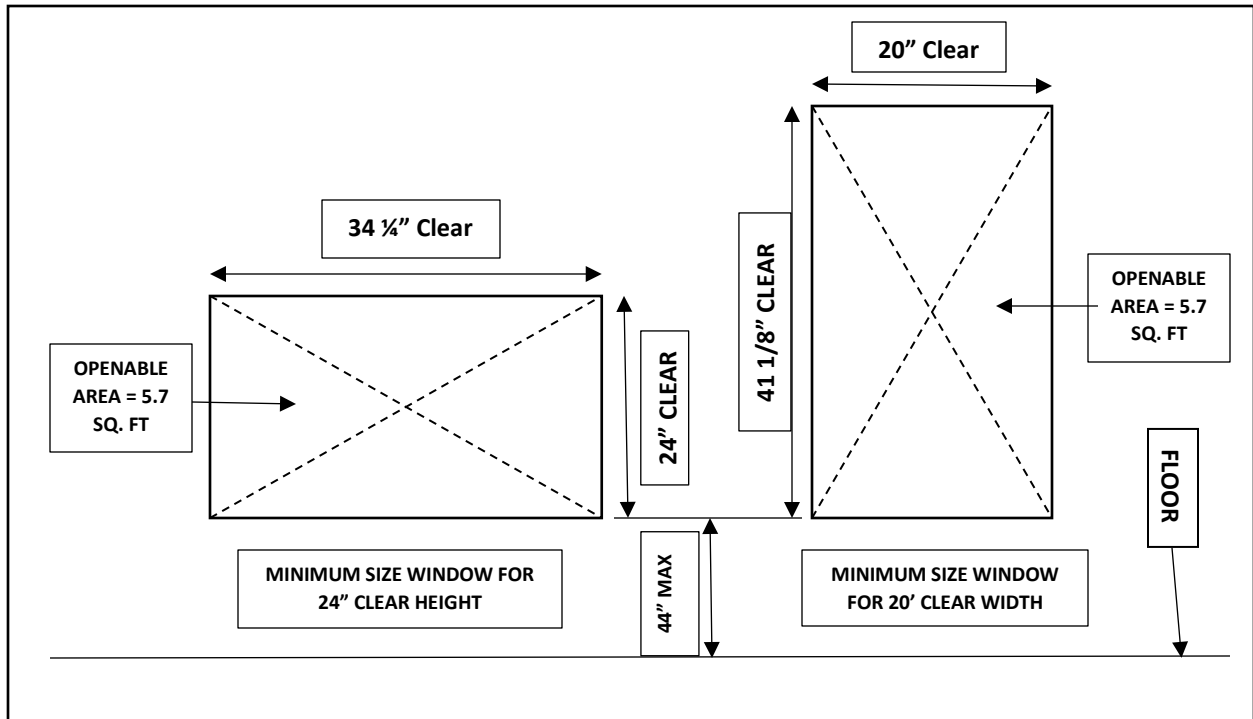
If your basement does not currently have one of the emergency egress options listed below, then you shall provide one. **Cutting openings in existing basement walls is outside the scope of these details. Therefore, a stamped structural engineered plan submission will be required for the new openings.**

Emergency Egress Options

- Escape window opening directly to the outside (walk-out basement condition).
- Escape window opening into a window well.
- Door opening directly to outside (walk-out basement condition).
- Door opening to bulkhead enclosure.

Requirements

- All doors and windows utilized as emergency egress shall be operated from the inside without the use of keys, tools, or special knowledge.
- All emergency egress windows shall provide a minimum clear opening of 5.7 square feet.
- Minimum clear openable window height of not less than 24".
- Minimum clear openable window width of not less than 20"
- Windows shall have a sill 44" or less above the finished floor.



Minimum width and height requirements for an egress window opening to meet 5.7 sq.ft.

Width	20	20.5	21	21.5	22	22.5	23	23.5	24	24.5	25	25.5	26	26.5	27	27.5	28	28.5	29	29.5	30	30.5	31	31.5	32	32.5	33	33.5	34
Height	41	40.0	39.1	38.2	37.3	36.5	35.7	34.9	34.2	33.5	32.8	32.2	31.6	31.0	30.4	29.8	29.3	28.8	28.3	27.8	27.3	26.9	26.5	26.1	25.7	25.3	24.9	24.5	24

Window Well Requirements

When grade conditions require the sill of the egress windows to be below the outside grade elevation, then a window well shall be constructed. The required horizontal area of a window well shall be 9 square feet with a minimum horizontal projection and width of 36 inches. The area of the window well shall allow emergency escape and rescue opening to be fully opened. Covers shall be openable with the use of a key or tool.

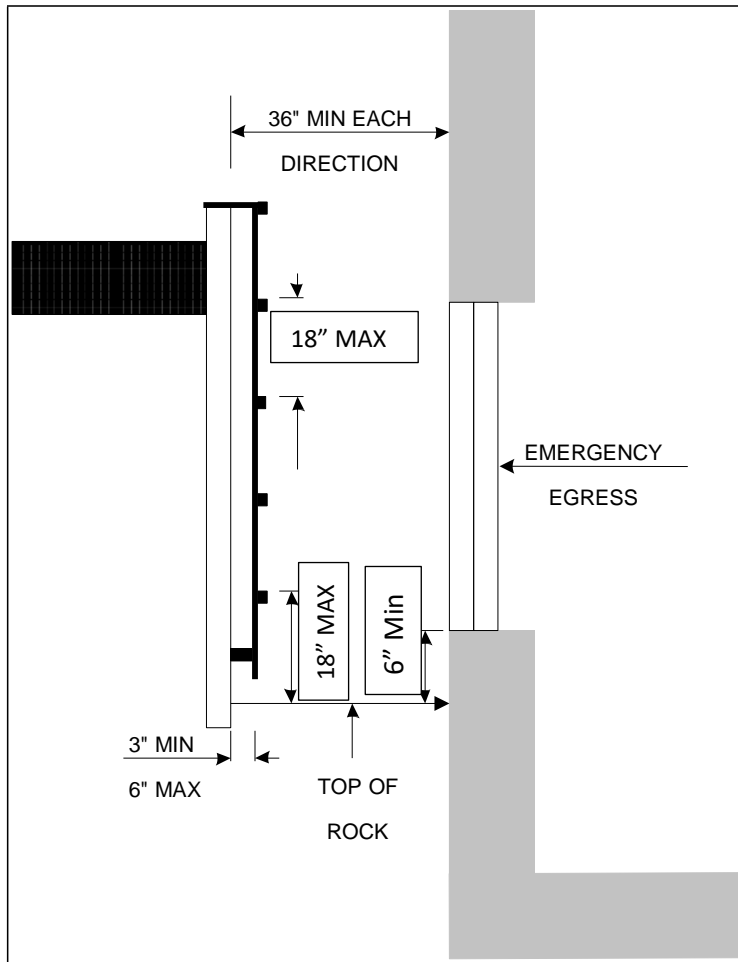


FIGURE 2: Typical Window Well Requirements

Ladder Requirements

When a window well is greater than 44" deep, a permanently attached ladder or steps shall be provided. Ladders shall be a minimum of 12" wide and rungs shall be spaced a maximum of 18" on center. The bottom rung of the ladder shall not be more than 18" above finish grade of the well. The ladder shall be a minimum of 3" away from the wall or well and shall not project into the required window well more than 6". If the ladder projects more than 6" into the required area, the size of the window well shall be increased to maintain the required area.

REQUIREMENTS FOR WALL CONSTRUCTION

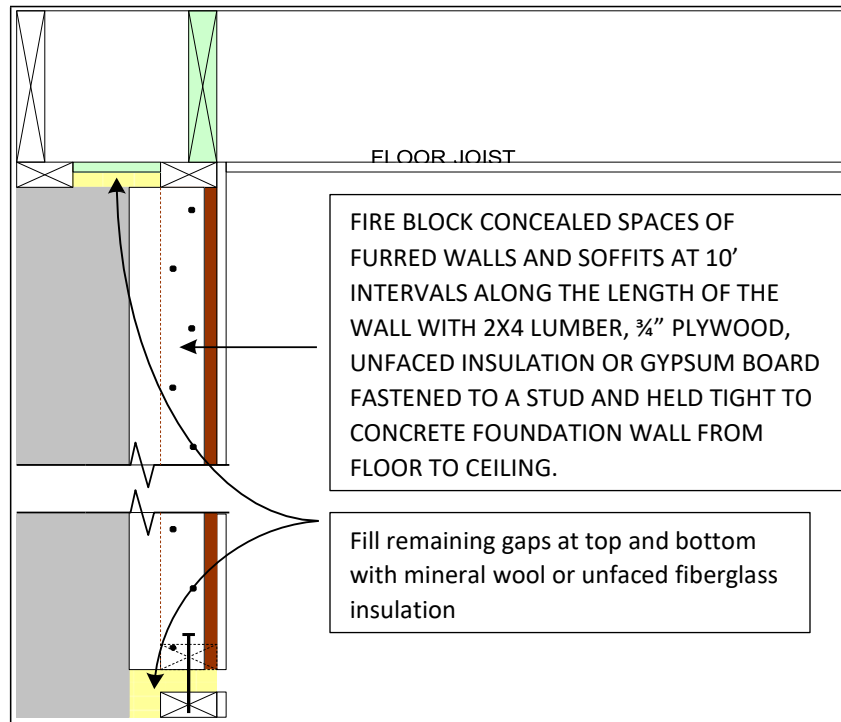


FIGURE 7: Vertical Fire Blocking at Walls

Drywall

- Water resistant drywall shall not be installed over a vapor retarder in a shower or tub compartment.
- Screws shall be placed 12" on center (Nails 7" on center)
- Screws shall penetrate wood members a minimum of $\frac{5}{8}$ " (Nails $\frac{7}{8}$ ").
- Screws shall penetrate steel members a minimum $\frac{3}{8}$ ".
- Check manufacturer's recommendations for cementitious or tile backer materials. Several require corrosion resistant fasteners to be used.

REQUIREMENTS FOR FLOOR / CEILING CONSTRUCTION

Drilling and Notching Joists

Notches in the top or bottom of joists shall not exceed one-sixth of the joists' depth and cannot be located in the middle third of the span.

Cantilevered (overhanging) joists cannot be notched. Holes drilled in joists shall not be within 2" of the top or bottom of joists, and their diameter shall not exceed one-third the depth of the joist.

See **FIGURE 11**. Drilling and notching of engineered wood products (TJI, BCI, LVL) shall be in accordance with manufacturer's instructions.

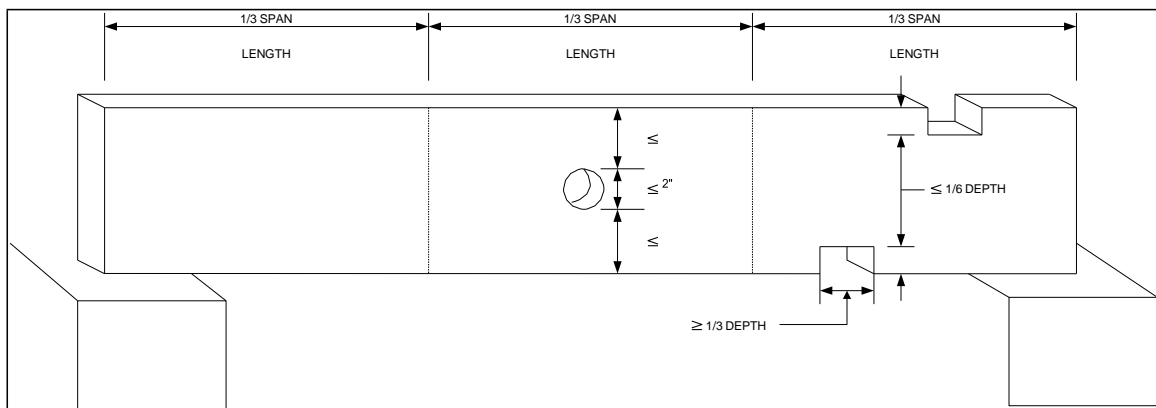


FIGURE 11: Drilling and Notching of Joists

MECHANICAL REQUIREMENTS

Appliance Access

Furnaces, water heaters, and other appliances shall be accessible without removing permanent construction and shall meet the following minimum criteria:

- 30" x 30" clear floor space at front / control side.
- Clearances may be achieved by opening a door(s) in front of the appliance; door shall be min. 6" from appliance when closed.
- 3" clearance all other sides and top with a total width of at least 12" wider than the appliance.
- Doors to furnace rooms shall be a minimum of 24" wide and be of sufficient size to remove the largest appliance.
- Additional return air is required when finishing the basement level. The minimum size is 100 square inches.
- Unfinished mechanical rooms shall have a light and a GFCI outlet.
- Access to a mechanical room shall not be located in or get combustion air from a sleeping room, bathroom, storage closet or toilet room.

Clothes Dryer

- Exhaust for the dryer shall not exceed 35' in length. Reduce the total length 2.5' for every 45-degree bend and 5' for each 90-degree bend.
- Dryers located in a closet shall be provided with makeup air having an opening not less than 100 square inches.

PLUMBING REQUIREMENTS

Showers

Showers and shower compartments shall meet the following requirements:

- Shower compartments shall have a minimum dimension of 30" x 30" and a minimum ceiling height of 70" measured from the drain inlet.
- Hinged shower doors shall open outward.
- All glass which encloses a shower or tub shall be safety glazed.
- Shower control valves shall be scald resistant (in accordance with ASSE 1016 or CSA B125) with a hot water limit of 120° F.
- Poured pans are required to have a liner inspection. The liner shall turn up on all sides and extend at least 2" above the finished threshold level and pitch a minimum of 2 % slope towards the drain.

Fixture Clearances

Toilets, sinks, and showers shall have the minimum clearances listed below. See FIGURE 13.

- 21" in front of sinks and toilets
- 24" in front of shower stall opening
- 15" clearance from a toilet's centering to an adjacent fixture or wall on each side.

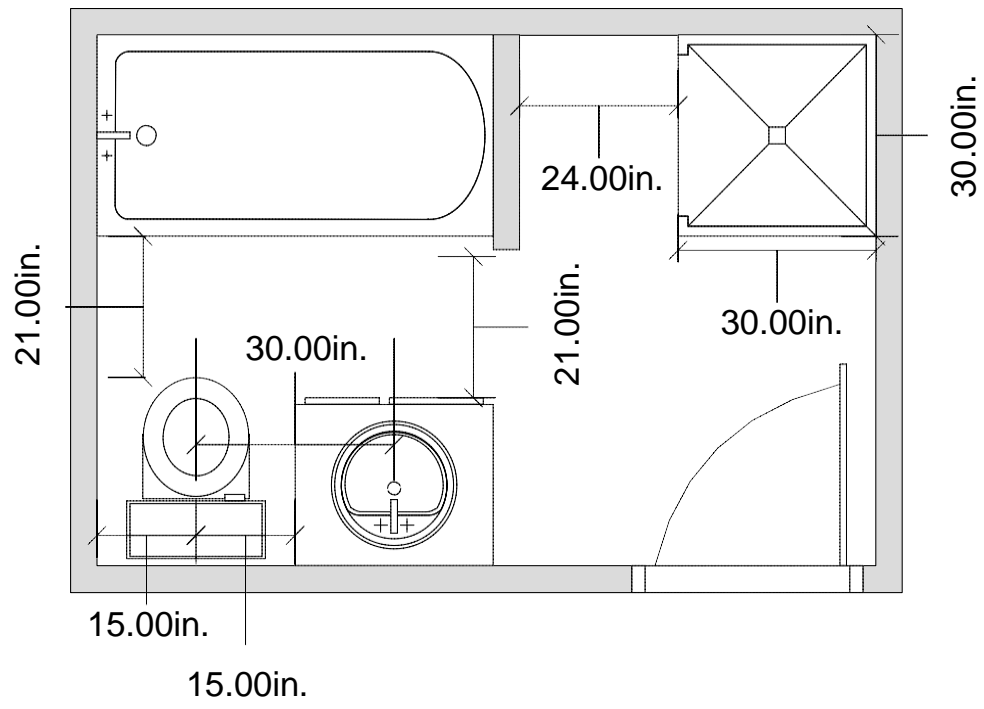


FIGURE 13: Water Closets

ELECTRICAL REQUIREMENTS

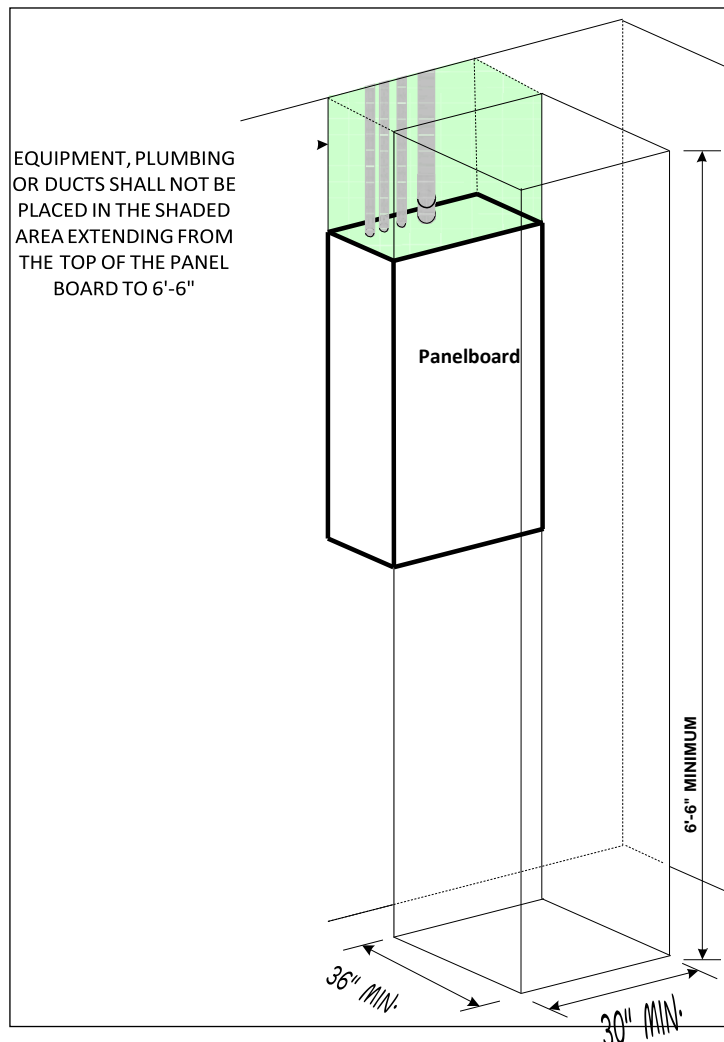
Panelboard (circuit breaker box)

Panelboards shall meet the requirements listed below.

- A workspace 30" wide or the width of the equipment, whichever is greater and 36" deep from the face of the cover from floor to the ceiling with a minimum height of 6'-6" shall be provided in front of the panelboards, measured from either edge of the panelboard.
- Panelboard workspace shall not be used for storage at any time.
- Panelboards shall not be located in clothes closets, bathrooms, or toilet rooms.
- Provide a light for the panelboard workspace.
- Panel door shall open to greater than or equal to 90 degrees.
- All grounding electrode terminations (UFER) shall remain accessible.

SEE FIGURE 14

FIGURE 14: Panel Board



Smoke Alarms – See Page 6 for detailed requirements

Carbon Monoxide Alarms – See Page 6 for detailed requirements

Branch Circuits

Branch circuits shall meet the requirements listed below.

- Use a 15 or 20 ampere rated branch circuit for general use purposes such as lighting and receptacles.
- A 20 ampere branch circuit shall be provided to serve laundry room outlets only.
- A 20 ampere branch circuit shall be provided to serve bathroom receptacle(s), lighting and exhaust fan. This circuit shall have no other outlets.
- Circuits serving habitable rooms, lighting, receptacles, and smoke detector outlets shall have arc-fault circuit breakers.

	Circuit Rating		
	15 amp	20 amp	30 amp
Min. conductor size	14	12	10
Outlets rating, amperes	15 Max.	15 or 20	30
Max. number of outlets and lights	10	12	1 (240v)

Receptacles (outlets)

Outlets shall meet the requirements listed below:

- All 125 volt 15 & 20 amp receptacles shall be tamper resistant.
- Receptacles shall be placed so that no location along the floor/wall line is more than 6'-0" from a receptacle. FIGURE 15
- The minimum wall length which requires a receptacle is 2'-0".

- Kneewalls, built-in bars, and other fixed room dividers shall be included in wall length for outlet spacing.
- Hallways more than 10'-0" long shall have a minimum of one receptacle.
- Receptacles installed for specific appliances shall be within 6'-0" of the appliance location.
- Bathrooms shall have at least one receptacle located on a wall adjacent to, and within 36" of each bathroom sink, and within 12" of basin top. All bathroom receptacles shall have ground fault circuit interrupter (GFCI) protection. Arc-fault circuit protection is not required in the Bathrooms.
- At least one receptacle shall be provided to serve laundry appliances. This Branch Circuit requires 20amp 12 wire AFCI protection.
- Each unfinished portion of the basement is required to have at least one receptacle with ground fault circuit interrupter (GFCI) protection.
- A receptacle shall be provided within 25'-0" of heating and air-conditioning appliances and equipment at the same level.

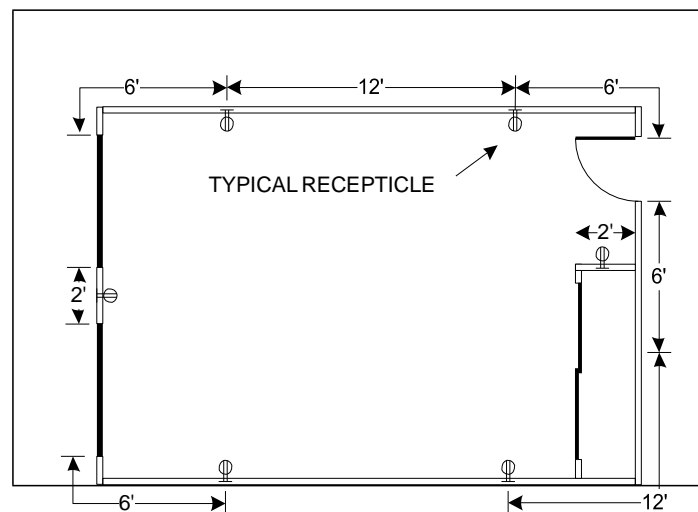


FIGURE 15: Typical Outlet Distribution

Lighting Requirements

Lights shall meet the requirements listed below:

- At least one switch controlled light shall be provided in each room and hallway. A switch controlled receptacle may be substituted in all rooms except bathrooms, kitchens and hallways.
- At least one switch controlled or pull chain light shall be provided in each storage area and at or near heating and air-conditioning appliances and equipment.
- Lighting fixtures shall not be installed within 3'-0" horizontally and 8'-0" vertically of a bathtub rim or shower stall threshold. A light fixture may be installed above a shower if it is constructed so that water cannot enter or accumulate in wiring areas and the lighting fixture is marked "suitable for wet locations".
- Light fixtures shall be installed so that combustible materials are not subject to temperatures greater than 90° F.

Light Fixtures in Closets

The types of fixtures installed in clothes closets shall be limited to surface mounted, recessed incandescent fixtures, or LED luminaries with completely enclosed lamps, and surface mounted or recessed fluorescent fixtures. Incandescent fixtures with open or partially enclosed lamps and pendant fixtures or lamp holders are prohibited. See the below table for clearance requirements.

Fixture Type	Bulb Type		
	Fluorescent	Incandescent*	LED*
Surface Mounted	6"	12"	12"
Recessed	6"	6"	6"

*Bulb shall be in a completely enclosed lamp.