



BASEMENT FINISH PERMIT AND BUILDING CODE REQUIREMENTS

(REVISED 3/20/2009)

PERMIT SUBMITAL CHECKLIST:

- Signed and completed Building Permit application form.
- 2 Copies of plans showing proposed layout and materials. Plans shall be drawn to scale and shall include the following information:
 1. A floor plan indicating the following:
 - Location and type (block or stud) of exterior basement walls.
 - Location of all existing and proposed walls of basement with dimensions.
 - Name of each existing and proposed room.
 - Location and sizes of windows and doors.
 - Wall construction materials.
 - Location of plumbing fixtures, furnace and water heater.
 - Location of stairway, fireplaces, smoke detectors etc.
 2. A cross section plan indicating the following:
 - Proposed finished ceiling height.
 - Wall, floor and ceiling finish materials.
 - Existing and proposed insulation and vapor barrier.

GENERAL BUILDING CODE REQUIREMENTS:

- Bottom plates of proposed walls in contact with a concrete slab that is in direct contact to the ground shall be approved treated lumber or separated from such slab with an approved impervious moisture barrier.
- Properly sized beams and headers must be used in structural bearing conditions. Specify intended sizes of such beams and headers on plans.
- Fireblocking shall be provided from wall cavities to soffits and drop ceilings. Soffits and walls shall be blocked every 10 feet horizontal. Fiberglass insulation may be used as fireblocking. Penetrations from walls to ceilings shall be sealed. (i.e. ducts and wires)
- Stairs with 4 or more risers shall be provided with a continuous handrail located 34 to 38 inches above the nosing. Open side(s) of stairways more than 30 inches above the floor shall be provided with a guardrail having intermediate rails spaced to resist the passage of a 4-3/8 inch sphere. The guardrail must be placed not less than 34 inches above the nosing of the treads.
- Every sleeping room shall be provided with an escape or rescue window having:
 - A minimum net clear openable area of not less than 5.7 square feet.
 - A minimum net clear opening height dimension of 24 inches.
 - A minimum net clear opening width dimension of 20 inches.
 - A finished sill height of not more than 44 inches above the floor.

- Smoke alarms shall be hardwired and interconnected with battery backup and installed in the following locations:
 - In each sleeping room.
 - Outside each sleeping room in the immediate vicinity of the sleeping rooms.
 - One per floor if no sleeping rooms are provided on that floor.

Note: Basement finishes require that the entire home be brought up to code as far as smoke alarms, smoke alarms installed in existing finished locations of the house are allowed to be battery powered and not interconnected where the only means of interconnecting the smoke detectors requires the removal of finish materials.
- Effective August 1, 2008, all existing homes shall be equipped with UL listed carbon monoxide detectors within 10 feet of every sleeping room. (MN 299F.51) Carbon monoxide detectors shall be directly plugged into an un-switched outlet, hardwired, or battery powered.
- Foam plastic (rigid) insulation shall be covered with ½-inch thick gypsum board or other approved thermal barrier material.
- Enclosed usable space under stairs must be protected on the underside and sidewalls with ½-inch type gypsum board.
- Fiberglass insulation left exposed in exterior walls must be covered on the interior by not less than a 4-mil thick flame retardant vapor barrier.
- If an engineered rim with built-in insulation was used on the construction of the home, do not add additional insulation to the rim area.
- Habitable rooms, hallways, and bathrooms shall have a ceiling height of not less than 7 feet. Beams spaced not less than 4 feet on center may project not more than 6 inches below the required ceiling height.

MECHANICAL CODE REQUIREMENTS:

- Recommended minimum 1 return air duct for every 2 Supply air ducts.
- Must be able to heat all habitable spaces to a minimum 68 degrees. If using forced air, must install supply and return ducts in each room.
- Return air ducts are prohibited in closets, kitchens, laundry rooms, bathrooms, storage or mechanical rooms.
- Bathrooms must have operable window, bath fan or have draw point air exchanger. The duct must be installed with the last 3 feet insulated from the exterior.
- White plastic flexible duct for dryer vent or bath fan exhaust is prohibited. Metal duct (dryer) or UL listed insulated flexible duct (bath fan) is approved.
- Adding ductwork in basement will decrease airflow in other areas of the house.
- Plastic pipe in supply air duct is prohibited.
- Heat ducts must be metal or listed flexible duct.
- Duct joints must be tight and secured with minimum 3 sheet metal screws.
- Provide combustion air for the furnace and water heater if needed. Secure with 1 ½ inch wide straps every 4 feet. Outlet of duct to be in mechanical room.

- Provide 2 feet minimum clearance from combustion air to water heater burner to prevent accidental blow out and any water lines to prevent freezing.
- Gas lines must be air tested to 25 pounds for 10 minutes minimum and be supported every 4 feet with copper straps.
- Provide 30" minimum clear space in front of furnace and water heater for access.
- Provide at least 1" clearance to back and sides of furnace and water heater or follow installation instructions for furnace and water heater.
- Provide minimum 1" clearance from furnace flue B-Vent to combustibles.
- Provide at least 6" clearance from single wall furnace and water heater vents to combustibles.
- Vent-less gas appliances or fireplaces are not allowed.

PLUMBING CODE REQUIREMENTS:

- Homes with septic system and adding a bedroom will have to have a compliance inspection accomplished by a licensed ISTS Inspector.
- No more than 3 fixtures on ½" water line.
- Water closet (toilet) must be vented with minimum 2" pipe.
- Bathtub, shower, whirlpool, bar sink, kitchen sink and lavatory can be vented with 1½" pipe.
- Cannot glue ABS (black) to PVC (white) pipe together. Provide continuous steel banded rubber coupling, male adaptor/female adapter or other approved mechanical fitting.
- Clearance to water closet (toilet) must be 24" in front and 15" from the center of the water closet to each side.
- Showers and bath bay tubs must have Anti-scald tub or shower faucets.
- Bathrooms must have operable window, bath fan or have draw point HRV. The fan must be installed with the last 3 feet of pipe insulated from the exterior.
- Cannot use PVC for water piping. Pex water pipe may be used when installed by a licensed plumber certified to install pex or CPVC plastic tubing.
- Provide nail plates or stud guards to protect the plumbing pipes within 1¼ inches of the edge of studs from drywall screws and nails.
- If adding a new bathroom where no in-floor plumbing has been roughed in, a 5-pound air test for fifteen minutes must be performed and inspected by the City inspector.
- Vent pipes shall not run horizontal until 6 inches above the flood level rim.
- Cleanouts must remain accessible.
- 1½ inch trap arm for sinks may be a maximum of 42 inches from the vent, only one 90 degree or two 45 degree bends allowed between the vent and drain.
- 2 inch trap arm for sinks may be a maximum a 60 inches from the vent, only one 90 degree or two 45 degree bends allowed between the vent and drain.
- Toilet vent may be a maximum of 48 inches from the drain, only one 90 degree or two 45 degree bends allowed between the vent and drain.

- Notching and or boring of floor joists not allowed in engineered products such as TJI or similar product (knockouts provided).
- Notching and or boring of floor joists in nominal wood joists consult with building inspector. Holes in joists shall not be within 2 inches of the top or bottom of the joist and the diameter of any such hole shall not exceed 1/3 of the depth of the joist.
- Cutting and notching studs:
 - Bearing walls max. 25% of stud width.
 - Non-bearing walls max. 40% of stud width.
- Bored holes in studs:
 - Bearing walls max. 40% of width of stud.
 - Non-bearing walls max. 60% of stud only if doubled stud.
 - No nearer than 5/8 inch from edge.

ELECTRICAL CODE REQUIREMENTS:

- Only licensed electrical contractors can do work in townhouse units that have meter banks on the end of the building and all rental units.
- All electrical products must be listed or labeled by a recognized testing lab. NEC 110.3B
- Receptacles shall be placed that no point measured horizontally along the floor line will be more than 6 feet reach to a receptacle (12 feet apart). Wall area of 2 feet or more is required to have a receptacle. Hallways 10 feet or more required to have a receptacle. NEC 210.52A.
- Arc fault protection of circuits required for all 15 and 20 amp 125 volt circuits in all rooms other than kitchen and bathrooms. A combination type arc fault is required. NEC 210.12 B
- Newly installed receptacles are required to be rated tamper resistant. NEC 406.11
- Multiwire circuits must be provided with means to simultaneously disconnect all ungrounded conductors, NEC 210.4 (B)
- All ungrounded and grounded conductors of a multewire circuits, must be grouped together. NEC 210.4 (D)
- Type SE cable must use the 60C ampacity rating. NEC 338.10 (B) (4) a
- Bathrooms are required to have a 20 amp bathroom circuit to a GFI protected receptacle within 3 feet of the sink basin. A dedicated circuit to a single bathroom can have the lights and fan on that circuit, must use #12 AWG wire. NEC 210.52.
- A wall switch shall be provided for lighting in every habitable room. A switched receptacle can meet this requirement. NEC 210.70A.
- All boxes on outside walls with fiberglass insulation shall be an approved energy seal type box per the energy code.
- Circuit loads shall be evenly distributed. For residential a load of 3 watts per square foot shall be calculated. A 15 amp circuit will cover 600 square feet. NEC 220.12.

- Where cables are bored through framing members the hole shall be bored so the edge is not less than 1¼ inches from the edge, or be protected by a nail plate at least 1/16 inch thick. NEC 300.4.
- Where cables are strapped parallel to framing members, there shall be at least 1¼ inches from the edges, or a spacer to bring the cable away from the framing member edge so a screw or nail missing the framing member will not hit the cable. NEC 300.4.
- A switch shall be installed at stairways with 6 steps or more where there is an entrance to the stairway. NEC 210.70
- Plastic boxes cannot be installed in cold air return spaces. NEC 300.22B.
- Plastic cable cannot be installed in cold air returns unless sleeved in a metal type raceway. NEC 300.22B.
- All receptacles within 6 feet of a bar or laundry sink required to be GFI protected. NEC 210.8A.
- At least one GFI protected receptacle shall be provided in basement unfinished areas. NEC 210.52G
- Bedroom circuits are required to be on an Arc Fault breaker. This includes light fixtures and smoke detectors. A separate neutral is required for an Arc Fault circuit.
- Boxes shall not be over filled. The sum of conductors plus devices shall not exceed the cubic inch of the box. A device would be counted as two conductors; conductors are counted at 2 cubic inches for #14 gauge, 2¼ cubic inches for #12 gauge, and 3 cubic inches for #10 gauge. The grounds will be counted as one conductor no matter how many. NEC 314.16.
- Boxes used for ceiling fans shall be listed for fan support. NEC 314.27D
- NM cable shall be strapped 8 inches from boxes and 4½ feet between. NEC 334.30
- 6 inches of free conductor shall be provided at boxes for splices. NEC 300.14.
- There shall be a minimum of ¼ inch of NM sheathing inside the boxes. NEC 314.17.
- Non IC type recessed lighting cans shall not have thermal insulation above nor within 3 inches of the rough-in can, all parts must have a ½ inch clearance from combustible materials. NEC 410.116.
- Breaker panels shall not be installed in closets or bathrooms. NEC 240D,E.
- Clearance of 3 feet in front of breaker panels required from floor to top of panel and 30 inches side to side. NEC 110.26
- Multi-wire circuits (where a common neutral is used for two circuits) are required to have a two pole breaker. NEC 210.4B
- Flexible lamp cord shall not be used for wiring decorative or accent lighting.(i.e. under cabinet) NEC 400.8
- Receptacles shall not be installed in bathtub or shower spaces. NEC 406.8.
- Lights in clothes closets shall be, 12 inches for incandescent and 6 inches for fluorescent lights, away from shelves. NEC 410.16

- No parts of suspended lighting, track lighting or ceiling fans shall be located within 3 feet of tub or shower areas. NEC 410.10D
- Light trims in shower areas shall be listed for wet locations. NEC 410.10A.

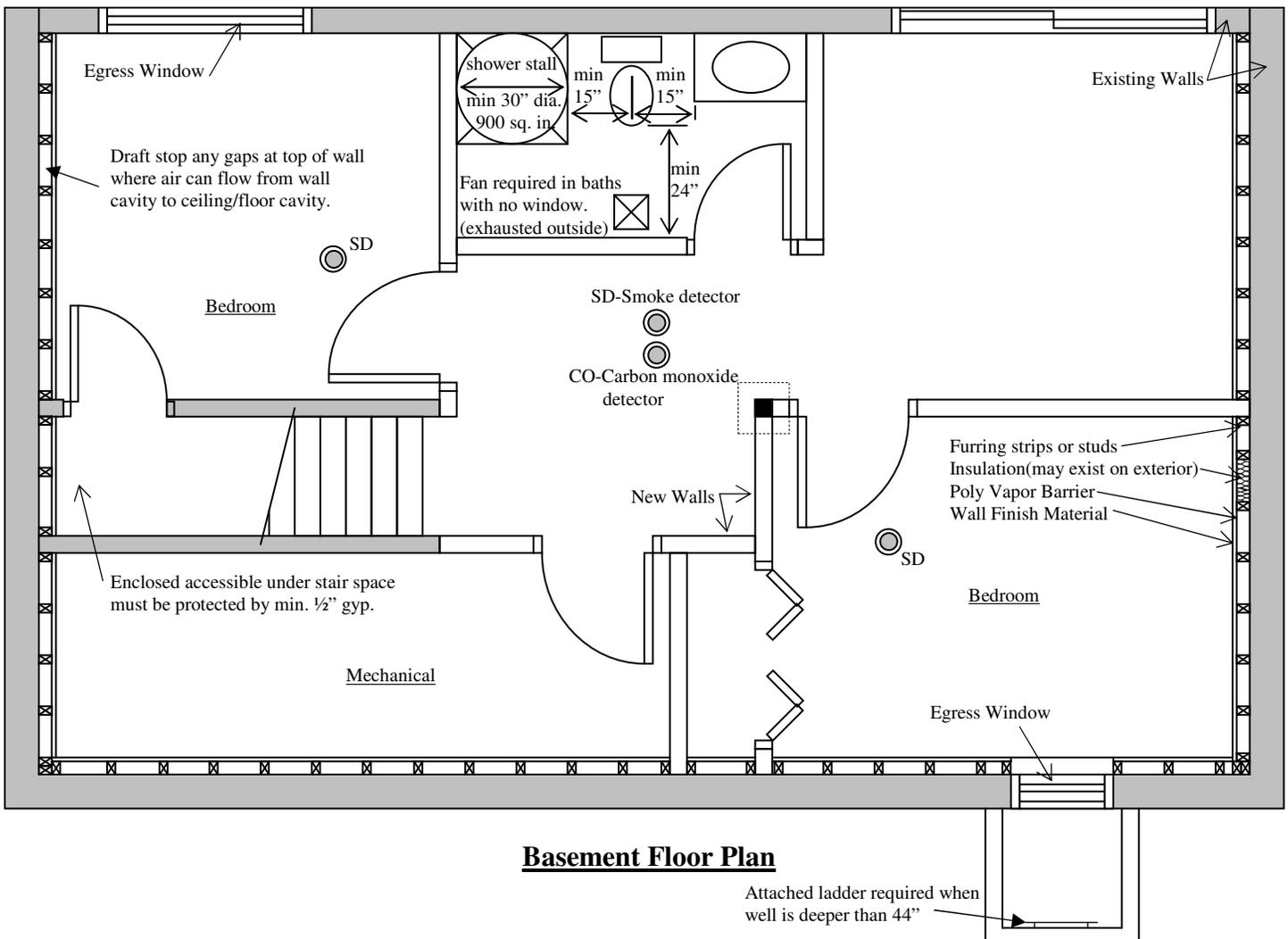
REQUIRED INSPECTIONS:

1. **Electrical rough-in:** Splices completed, minimum 6 inches of conductor - not energized.
2. **Framing/Insulation/mechanical/plumbing:** Framing, insulation, ductwork and plumbing systems are installed but before covering and the rough-in electrical has been approved.
3. **Electrical Final:** When wiring is complete and all fixtures installed.
4. **Building Final:** When complete and final electrical inspection approved.

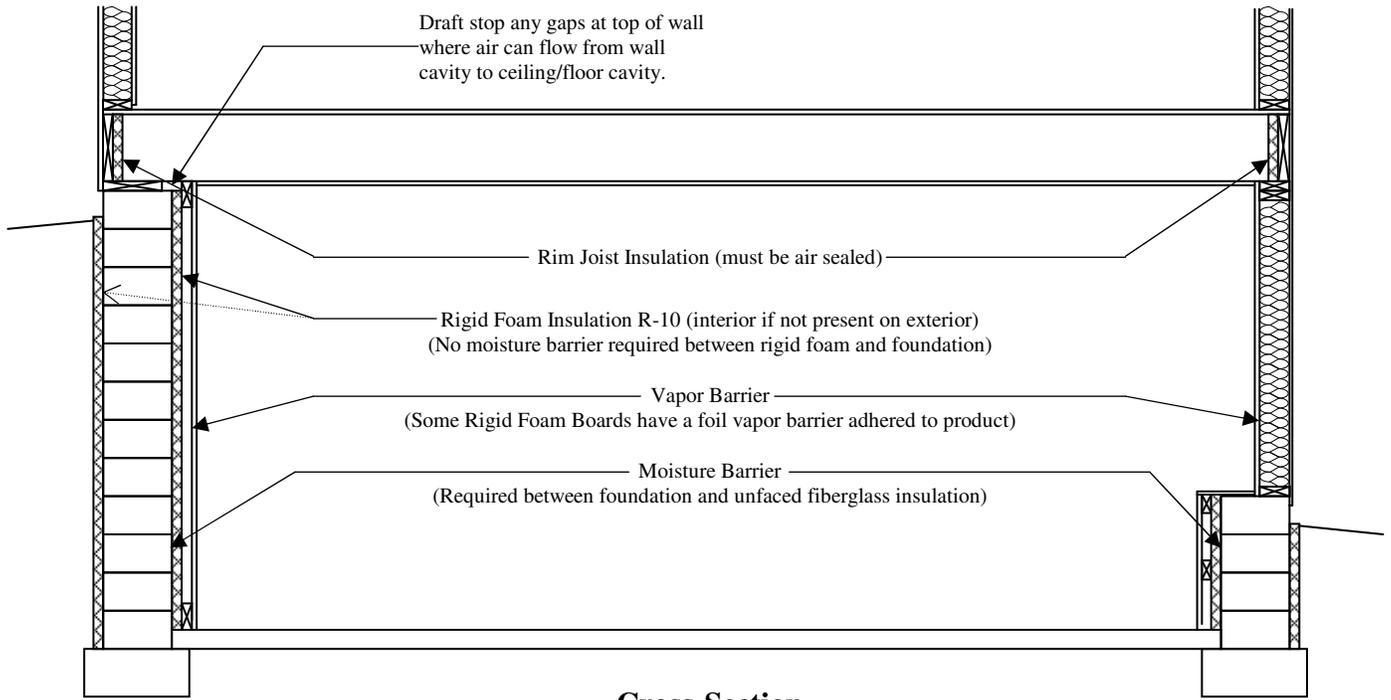
GENERAL NOTES:

1. The stamped, approved plan shall be kept on job site until final inspection has been made. The Inspection Record Card shall remain posted in a prominent location in the construction area until the final inspection has been made.
2. Call (952) 985-4440 between 8:00 A.M. and 4:30 P.M. to arrange for an inspection. Provide permit number when scheduling any inspections.

ALLOW MINIMUM 24 HOURS FOR ALL INSPECTIONS!!



Basement Floor Plan



Cross-Section

Clarification Images



-electrical rough-in have all boxes made up and ready with minimum 6 inch tails.



-fireplace vent minimum 12 inches from grade. (see manufactures specs for other)



-sealed boxes required in exterior walls to be insulated with fiberglass.



-seal all penetrations through the top sill plate on walls. (missing in photo)

Clarification Images



-plywood used as fireblocking from the soffit to the wall cavities.



-fiberglass insulation used as fireblocking every 10 feet horizontally in the soffit and separating soffit from wall cavity.



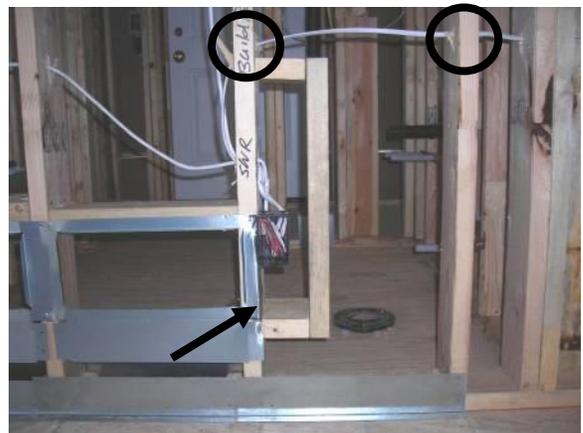
-1 ½ rigid foam insulation used behind heat runs in exterior walls.



-insulated flex duct from bath fan leading to exterior, minimum 3 feet from exterior wall in required to be insulated.



-metal box with mud ring and Greenfield flex used in cold air return if necessary to locate electrical in a cold air return.



-box around outlet to separate from cold air return. Seal wires passing through cold air returns.