



C.Block Inspections

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# Basement Finishing

**DON'T FORGET OTHER APPLICABLE HAND-OUTS  
(EMERGENCY ESCAPE, SMOKE DETECTORS, BASEMENT INSULATION, ETC.)!**

Building permits must be obtained by an owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure (Minnesota Rules 1300.0120).

Important items to consider:

smoke detectors, egress window, treated sills, gas appliances .....	p. 3
compliant stairway, ceiling height, room heating, foam plastic insulation.....	p. 4
bathrooms.....	p. 5
insulation, moisture barrier & vapor retarder .....	p. 7-8

**PLEASE INCLUDE THE FOLLOWING WITH YOUR PERMIT:**

1. Completed **permit application**
2. **Two copies** of the following building plans:
  - A. **Floor plans**, including:
    1. Room uses, dimensions and whether room will be finished or not.
    2. Location of new mechanical equipment, including:
      - a) Mechanical (i.e. furnace, water heater, etc.)
      - b) Ventilation (air exchangers, exhaust fans, etc.)
      - c) Large appliances (washer, dryer, etc.)
      - d) Decorative appliances (gas fireplace, etc.)
    3. Smoke detector locations.
    4. Size and locations of bath tub access panels.
    5. Window and door locations and sizes.
    6. Sizes, spans and spacing of new or altered floor joist.
    7. Size of new or altered beam supporting joists.
    8. Sizes and spacing of new posts supporting beams.
    9. Safety glazing and egress window locations.
    10. Stair and landing locations, dimensions and required lighting.
  - B. **Cross section** of exterior wall, including:
    1. Foundation wall material, approx. dimensions, damp-proofing and insulation.
    2. Sill plate and rim joist type and size as well as rim joist insulation.
    3. Wall framing type, height, insulation, headers, air/vapor barrier type and location, interior wall finishing materials.
    4. Clear headroom dimensions.

This handout corresponds to the **2006 International Residential Code (IRC)** as adopted in **Minnesota Rules (MR), Chapter 1309** and applies to the construction, alteration, moving, demolition, repair and use of any detached one- and two-family dwellings as well as townhouses not more than three stories high. Other applicable city ordinances also apply.

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## REQUIRED INSPECTIONS:

The following inspections must be obtained during the construction period when they apply. It is the responsibility of the party doing the work to make arrangements with the building department for inspections (MR 1300):

- 1. Framing Inspection**  
To be made after the interior partitions, any fire blocking and bracing are in place and all rough plumbing, heating and electrical work has been completed after the electrical inspection.
- 2. Electrical Inspection: A SEPARATE PERMIT IS REQUIRED.**  
Call Steve Kletschka, State Electrical Inspector, at 507-334-3450 between the hours of 7:00-8:30 a.m.
- 3. Insulation Inspection**  
Insulation and vapor barrier are in place prior to the installation of the wall covering.
- 4. Gypsum Board (Sheetrock) Inspection**  
To be made after all material is in place but before any plastering is applied or gypsum board joints and fasteners are taped and finished.
- 5. Plumbing Inspection**  
New or altered underground plumbing pipes must be inspected before covering with dirt or concrete. Above ground vent and waste pipes must be inspected and air tested if possible before wall covering is applied.
- 6. Mechanical Heating System Inspection**  
Ducts and pipes used to convey the source of heat throughout the finished area must be accessible and exposed.
- 7. Gas Piping Inspection**  
The inspection must be made after gas piping has been installed and before any piping has been covered or concealed. The inspection must include an air pressure test at which time the fuel piping must stand a pressure of not less than 25 pounds for at least 30 minutes.
- 8. Final Inspection**  
The final inspection is to be made after work is completed and the building is ready for occupancy.



CALL AT LEAST 2 FULL BUSINESS DAYS BEFORE YOU DIG.

1-800-252-1166

1-651-454-1156

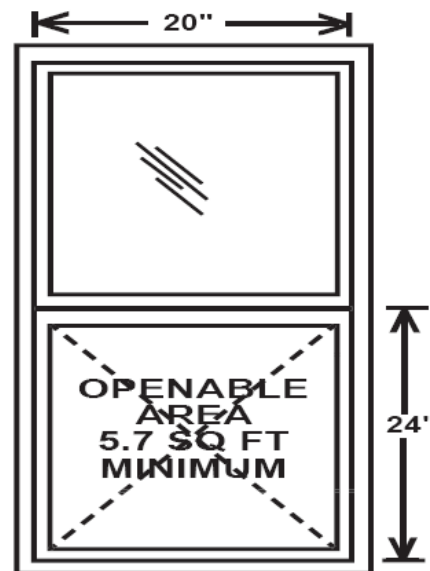
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## NEW CONSTRUCTION & REMODELED AREAS MUST MEET THE FOLLOWING CODE PROVISIONS:

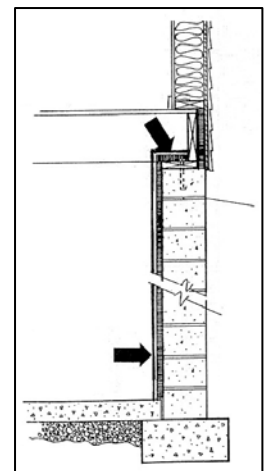
1. All **new plumbing** will be required to be air tested as per the Minnesota Plumbing Code (MR 4715).
2. Outside **sill cocks** must be protected against backflow and back-siphonage (MR 4715.2000).
3. A shower or combination shower-bath must be equipped with an **anti-scald type shower control valve** (MR 4715.1380).
4. **Gas lines** will require an air test as required in the Minnesota State Code (MR 1346).
5. All **gas appliances** and heating units shall be installed according to the manufacturer's installation instructions and inspected to meet minimum standards of applicable code(s).
6. All **electrical wire** must be inspected for code compliance (MR 1315).
7. Hardwired, interconnected **smoke detectors** with battery backup are required (IRC R313):
  - A. In each sleeping room.
  - B. Outside of each sleeping area in the immediate vicinity of the bedrooms.
  - C. One on every level.

**Please note:** When interior work requiring a permit is done, smoke detectors must be updated throughout the house and may be required to be hardwired.
8. **Emergency escape and rescue openings** required (IRC R310):
  - A. In the basement and every sleeping room.
  - B. Net clear open area must be at least 5.7 square feet when the sill is further than 44 inches above or below grade, otherwise the opening must be at least 5.0 square feet.
  - C. The clear opening height must be at least 24 inches, and the clear opening width at least 20 inches.
9. **Landings** are required on each side of each exterior door (IRC R311 & MR 1309.0311). They shall be no more than:
  - A. 1.5 inches lower than the top of the threshold.
  - B. 7 3/4 inches at exterior doorways, provided that the door, other than an exterior storm or screen door, does not swing over the landing.
10. **Guardrails** (36 inches high) and graspable **handrails** (34 to 38 inches high) must be installed where required (IRC R312 & R311.5.6).
11. **Pressure treated wood** or an approved species and grade of lumber are required for all sills and sleepers on a concrete or masonry slab that is in direct contact with the ground unless separated from the slab by an impervious moisture barrier (IRC R319).
12. **Chimney connectors** must not pass through any floor or ceiling. They must be of approved materials and maintain required clearances where they pass through walls constructed of combustible materials. (IMC 803.10.4)



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13. **Stairs** accessing a basement without habitable rooms\* must comply with the following once habitable space is created. They must have:
  - A. A riser height not exceeding 7 3/4 inches and a tread depth of at least 10 inches (IRC R311).
  - B. Headroom of not less than 6 feet, 8 inches.
  - C. Illumination (IRC R303.6).
14. **All stairs** with an enclosed accessible space underneath must have a minimum of 1/2-inch gypsum board under-stair protection (IRC R311).
15. **Room size:**
  - A. Every dwelling unit must have one (1) room with at least 120 square feet of floor area (IRC R304).
  - B. All habitable rooms\* must be at least 70 square feet (IRC R304.2).
16. A **ceiling height** of at least 7 feet is required in all habitable rooms\*, hallways, corridors, bathrooms, toilet rooms, and basements. The required height must be measured from the finished floor to the lowest projection from the ceiling. Exception: Beams and girders spaced not less than 4 feet on center may project not more than 6 inches below the 7 foot ceiling height (IRC R305).
17. A means of **heating** all habitable rooms\* to a minimum temperature of 68°F at a point 3 feet above the floor must be provided (IRC R303.8).
18. All habitable rooms must be supplied with natural **lighting** equaling at least 8 percent of its floor area and natural **ventilation** equaling at least 4 percent or an approved mechanical ventilation capable of providing 0.35 air change per hour (IRC R303).
19. **Flash** the following with sheet metal or other approved flashing (MR 1309.0703):
  - A. At top of all exterior window and door openings.
  - B. At the intersection of chimneys with frame walls.
  - C. Under and at the ends of masonry, wood or metal copings and sills.
  - D. Continuously above all projecting wood trim.
  - E. Where the porches, decks or stairs attach to wood-frame construction.
  - F. At wall and roof intersections.
  - G. Where exterior material meets in other than a vertical line.
20. **Foam plastic insulation** must comply with the following:
  - A. It must have a flame-spread rating of not more than 75 and a smoke-developed rating of not more than 450 (IRC R314).
  - B. It must be separated from interior habitable spaces of the building by minimum 1/2-inch gypsum board (IRC R314).



\* HABITABLE ROOMS includes those used for living, sleeping, eating or cooking. Not considered habitable rooms are bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas. (IRC R202).

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21. **Bathroom fixtures** must be spaced according to the following figure:

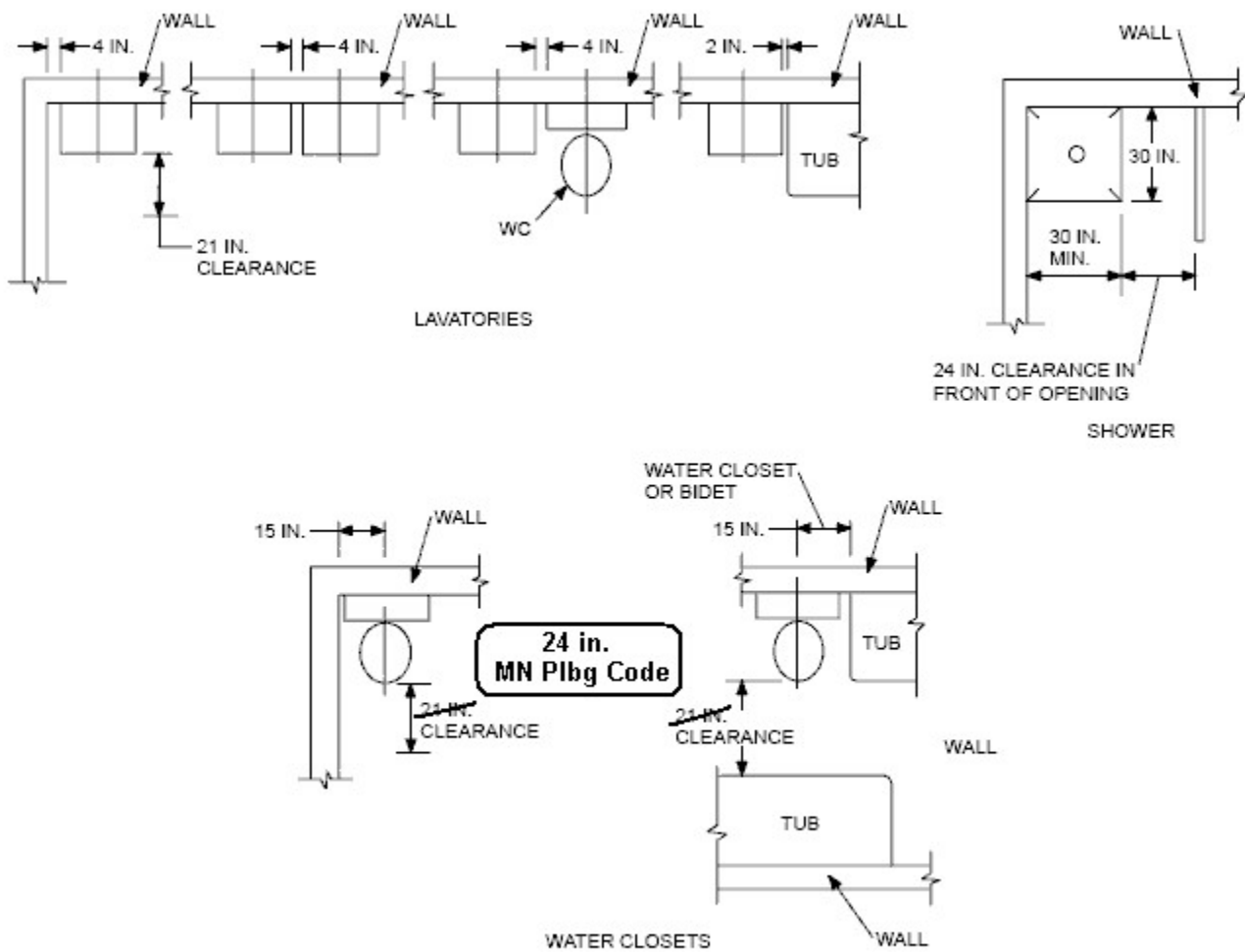


FIGURE R307.2  
MINIMUM FIXTURE CLEARANCES

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22. Minnesota Energy Code (MEC) part 7672.1200.
- A. If converting from a different occupancy and energy use is not greater than the prior occupancy, there are no requirement changes. If energy use is greater, then compliance with MEC Chapter 7672 is required and may be demonstrated in one of three ways:
    - 1. The addition alone.
    - 2. The addition together with the entire existing building.
    - 3. The addition together with energy improvements or remodeling other components of the building as part of the same permit.
  - B. MEC 7672.1000 requires a residential ventilation system.
  - C. If the alteration reduces air leakage, then combustion air is required in the altered area per the Minnesota Mechanical Code.
  - D. Storm windows may be installed over existing glazing without meeting the requirements of MEC Chapter 7672.
  - E. Re-glazing and repairs to existing windows are not required to meet MEC Chapter 7672.
  - F. Interior wall finish may not be replaced unless wall cavities have been insulated to full depth. This item shall apply whenever plaster is removed, even though lath may not have been removed. Exception: Walls that are back-plastered, walls that are more than 50 percent filled with insulation and walls without framing cavities. Small openings for purposes of installing, altering or repairing plumbing, electrical and mechanical systems are also accepted.
  - G. A vapor retarder is not required if the interior wall finish is not removed.
  - H. New HVAC equipment must meet federal minimum efficiency requirements.
  - I. Provision must be made to limit excessive depressurization in buildings with fuel burning appliances according to MEC 7672.900 subpart 8.



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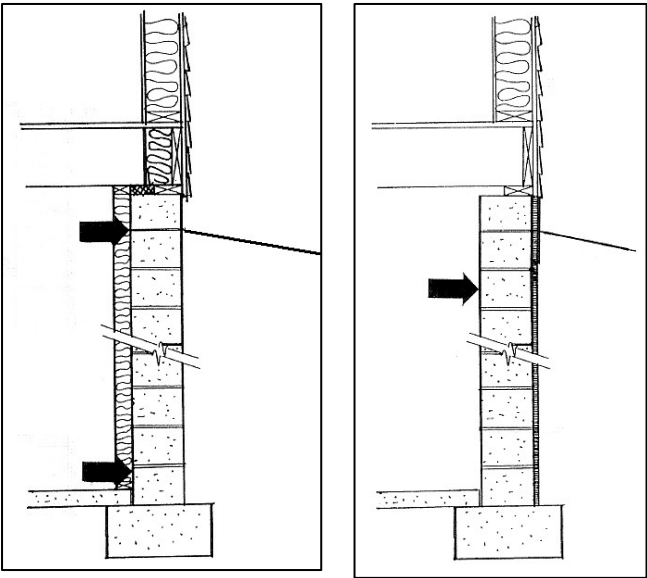
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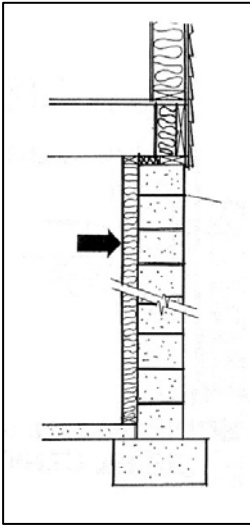
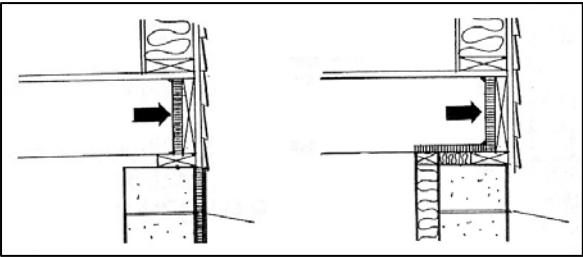
**THE FOLLOWING PROVISIONS OF THE MINNESOTA ENERGY CODE (MEC), CHAPTER 7672 MUST BE MET IF THE HOUSE WAS BUILT AFTER APRIL 15, 2000.**

The following may also serve as a reference point for constructing energy walls in older homes.

1. A **moisture barrier** is required on the foundation wall from basement floor to exterior grade level. The application of the moisture barrier at the foundation wall above grade is optional. *Interior* foundation wall insulation must not be less than R-5 from the top of the wall down to the top the *floor*.
2. A **moisture barrier** is not required on the interior face of the foundation wall if the insulation is on the exterior face of the foundation wall. *Exterior* foundation wall insulation must not be less than R-5 from the top of the wall down to the top the *footing*.

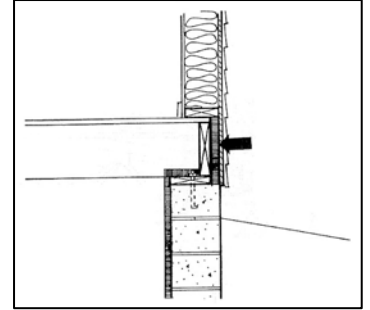


3. A **vapor retarder** must be installed on the warm side of the foundation insulation. It is not required to be sealed at the top, sides, bottom or penetrations. An interior air barrier is not required at this location.
4. A **vapor retarder** must be installed on the warm side of the floor rim joint insulation. It is not required to be sealed unless it also serves as the interior air barrier, which is required to be sealed.

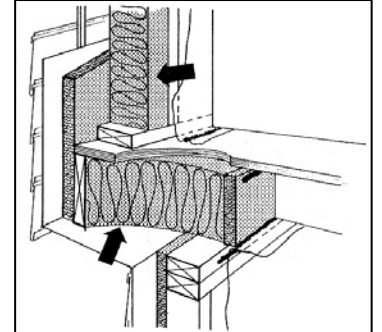


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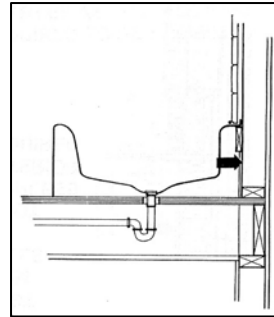
5. **Rim joist insulation** need only be applied between the floor joists or trusses.



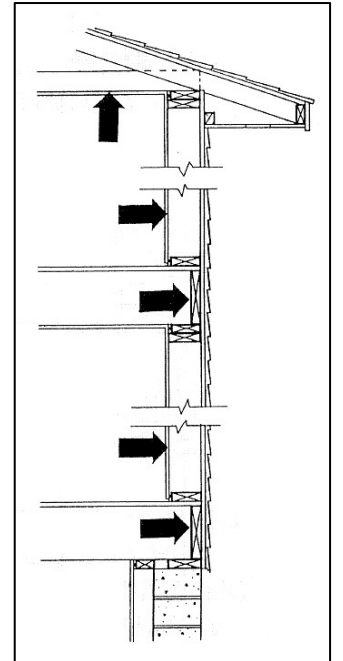
6. Special care must be taken to ensure that **floor cantilevers** have a continuous warm-side vapor retarder and air barrier as well as adequate insulation.



7. Prior to installing a tub, shower or spa located at an exterior wall, a **vapor retarder** must be installed. It must be covered to protect against physical abuse.



8. A sealed, continuous interior **air barrier** must be installed on the warm side of the building envelope. “Seal” means to secure at all edges, joints, openings and penetrations of barrier materials in a permanent manner to resist the passage of air and airborne moisture into the building envelope. Sealants must be compatible with substrate and other materials being sealed.



9. Exterior wall intersections of wood, masonry and other dissimilar materials must be sealed to maintain continuity of interior **air barrier**.

10. All **penetrations** installed through the interior air barrier must be sealed prior to the framing inspection. This would include pipes, ducts, wires, equipment, flues and chimneys.

