RADON HANDOUT

CITY OF ANDOVER
BUILDING DEPARTMENT
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This handout is intended only as a guide and is based in part on the 2007 Minnesota State Building Code, Andover City codes and good building practice. While every attempt has been made to insure the correctness of this handout, no guarantees are made to its accuracy or completeness. Responsibility for compliance with applicable codes and ordinances falls on the owner or contractor. For specific questions regarding code requirements, refer to the applicable codes or contact your local Building Department.

REQUIRED. Effective June 1, 2009, a passive sub-slab depressurization system must be provided in all new single-family dwellings, two-family dwellings, and townhouses or additions to the living areas of these uses. This applies to buildings with basements, conditioned or unconditioned crawl spaces, and slab-on-grade buildings.

SUMMARY OF SELECTED PORTIONS

1) **Subfloor.** A 4-inch layer of one of the following must be placed under any basement or crawl space floor slab or assembly:
   a) A layer of clean aggregate consisting of material that will pass through a 2-inch sieve and be retained by a 1/4-inch sieve or
   b) A layer of sand ***overlain by a layer or strips of geotextile drainage matting***.
2) **Soil-gas-retarder.** A minimum 6-mil or 3-mil cross-laminated polyethylene sheeting shall be placed on top of the sand or aggregate base or the soil in the case of a crawl space. The sheeting must:
   a) cover the entire floor area with separate sections lapped at least 12 inches,
   b) fit closely around any pipe, wire, or penetration of the material, and
   c) have any punctures or tears sealed.

   The sheeting is **not** required to be sealed at laps or where placed on footings.
3) **Floor openings.** Openings around bathtubs, showers, water closets, pipes, wires or other objects that penetrate concrete slabs or other floor assemblies shall be filled with a polyurethane caulk or equivalent sealant.
4) **Joints.** All control joints, isolation joints, construction joints, and any other joints in concrete slabs or between slabs and foundation walls must be sealed with a polyurethane caulk or other elastomeric sealant.
5) **Sumps.** Sumps open to soil or serving ***interior*** drain tile loops must have a gasketed or sealed lid.
6) **Masonry foundation walls.** A continuous course of solid masonry, one course of solid grouted masonry, or a solid concrete beam shall be provided at or above finished ground level. Brick ledges shall be sealed.
7) **Waterproofing/dampproofing.** Exterior surfaces of foundation walls must be waterproofed/dampproofed in accordance with IRC Section R406.
8) **Ducts.** Ducts passing through or beneath a slab shall be seamless. Ductwork in crawl spaces shall have seams and joints sealed.

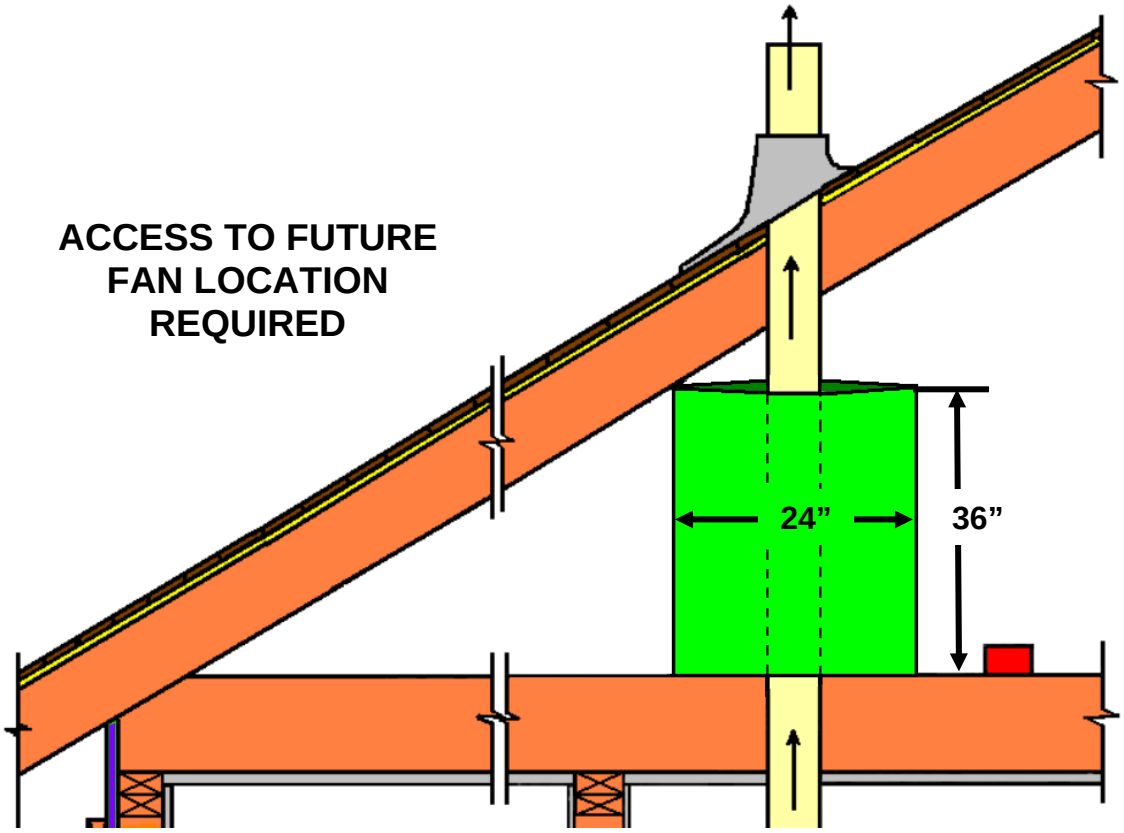
9) **Vent pipe.** A 3- or 4- inch tee shall be inserted beneath the soil-gas-retarder. Ten feet of 3- or 4-inch diameter perforated pipe must be connected to **each** side of the tee. The horizontal pipe must be embedded in the sub-slab permeable material when a slab or floor assembly exists. Instead of a tee, the pipe may be inserted directly into an interior perimeter drain tile loop or through a sealed sump cover where the sump is exposed to the sub-slab aggregate or connected to it through a drainage system. A 3- or 4-inch vertical pipe shall extend from the tee, the drain tile loop, or the sump through the building terminating at least 12 inches above the roof at least 10 feet from any window or other opening into conditioned spaces that is less than 2 feet below the exhaust point and at least 10 feet from any window or opening into an adjoining or adjacent building.
10) **Active systems.** If an active system is installed, the vent pipe may be routed through unconditioned space ***within the building or garage, provided the vent pipe is insulated to a minimum of R-4***.
11) **Monitoring system.** A monitoring system is required on all **active** systems.
12) **Divided basements.** When sub-slab aggregate is separated by footings or other barriers, each area must have an individual vent pipe. Individual vents may be connected into a single terminal vent.
13) **Multi-level basements/crawl spaces.** When multilevel basements or combination basement/crawl spaces occur, each type of foundation must have a separate vent pipe.
14) **Vent drainage.** All vents must be pitched to provide positive drainage.
15) **Access.** Where vent pipes pass through attics, a working space not less than 24 inches in diameter and 36 inches high must be provided.
16) **Identification.** Each vent pipe must be identified with a label reading “Radon Reduction System” on each floor and in attics even if located in a concealed space.
17) **Power source.** An electrical circuit terminated in an approved box must be installed in the attic adjacent the vent pipe.

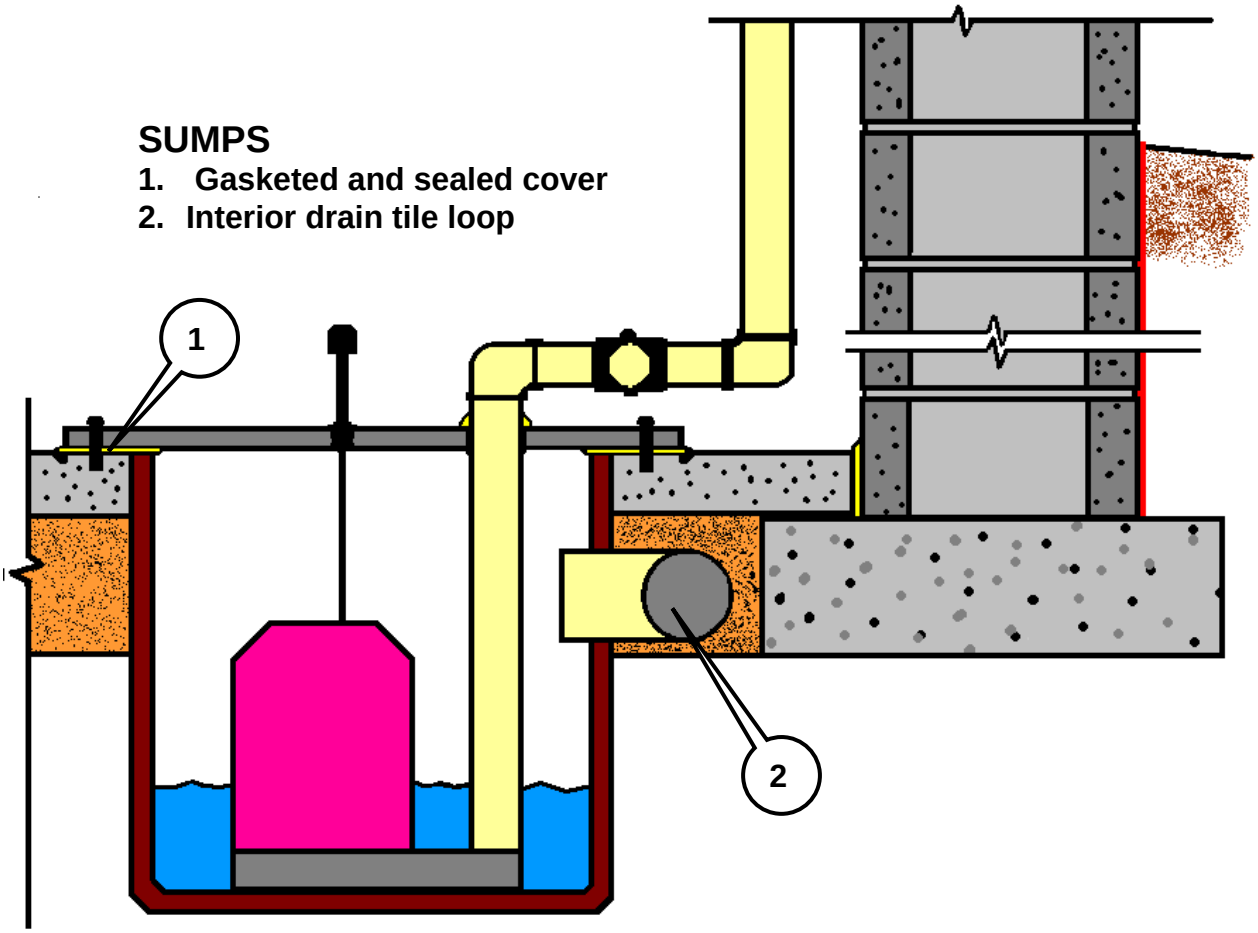
The following illustrations provide a summary of the radon regulations. For the full text of the rules, see the Minnesota Energy Code.

IDENTIFICATION LABELS

MONITORING SYSTEMS

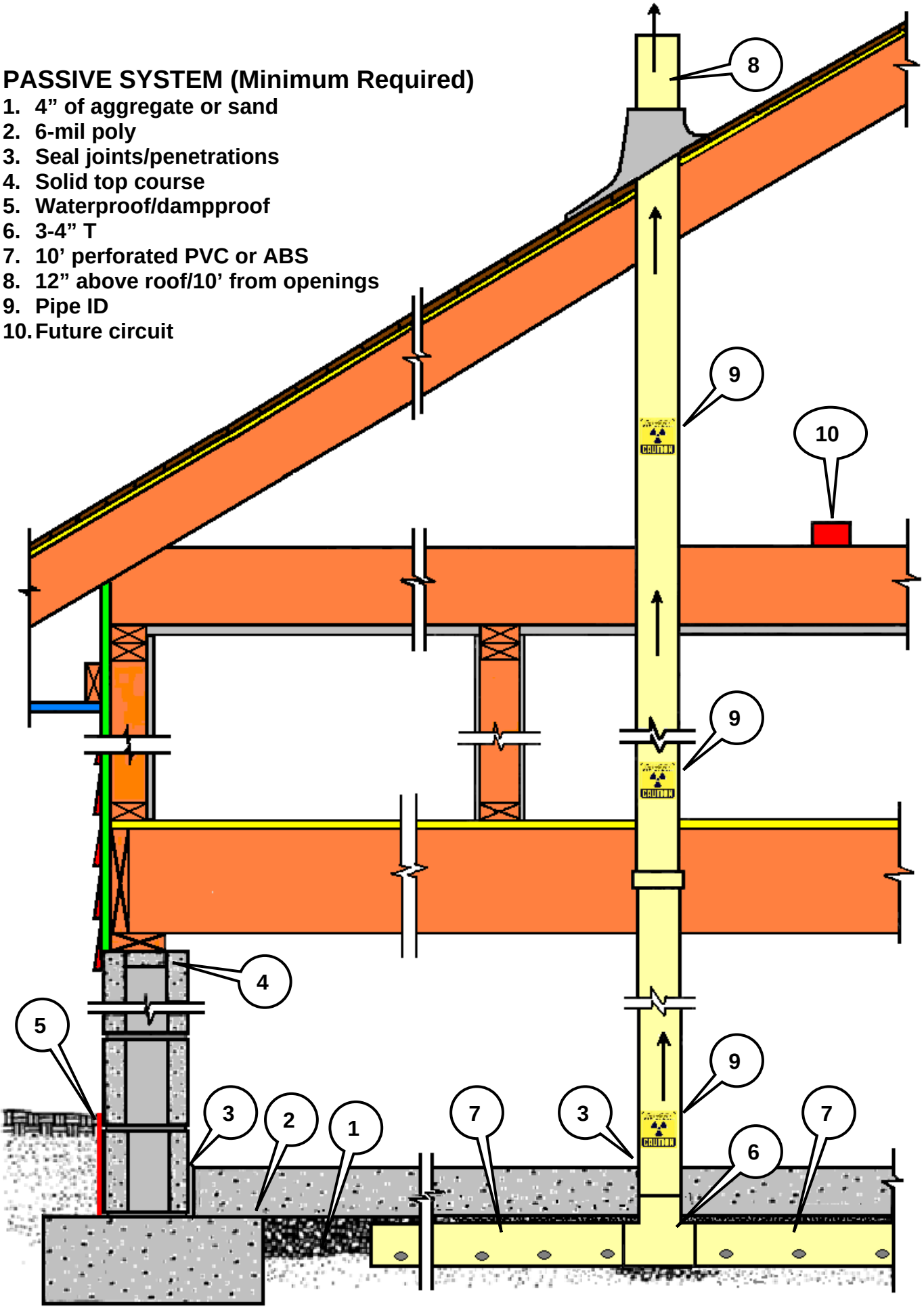
Radon Supplies
Radon Supplies
CAUTION


ACCESS TO FUTURE
FAN LOCATION
REQUIRED
24”
36”


SUMPS
1. Gasketed and sealed cover
2. Interior drain tile loop
1
2

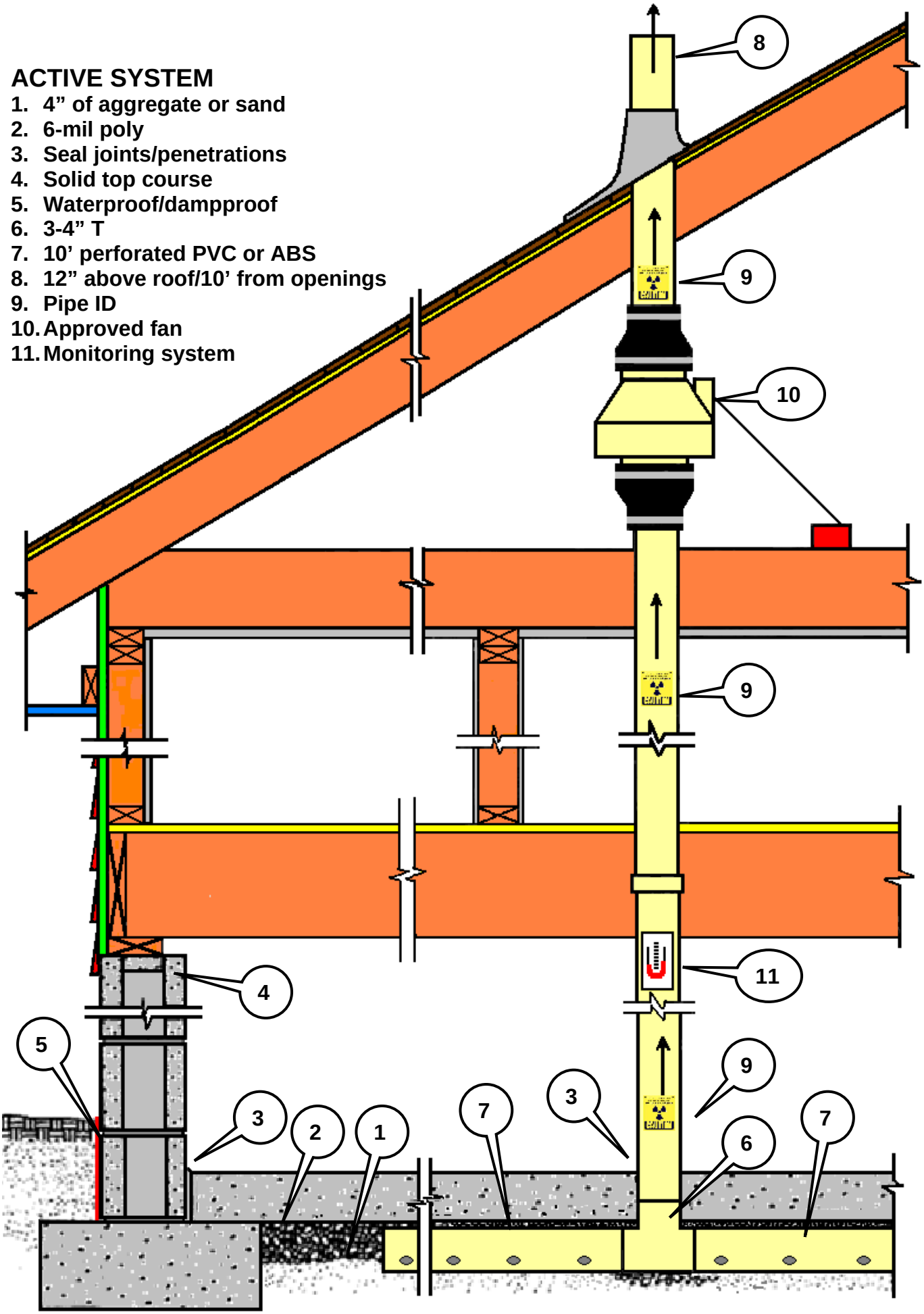
PASSIVE SYSTEM (Minimum Required)

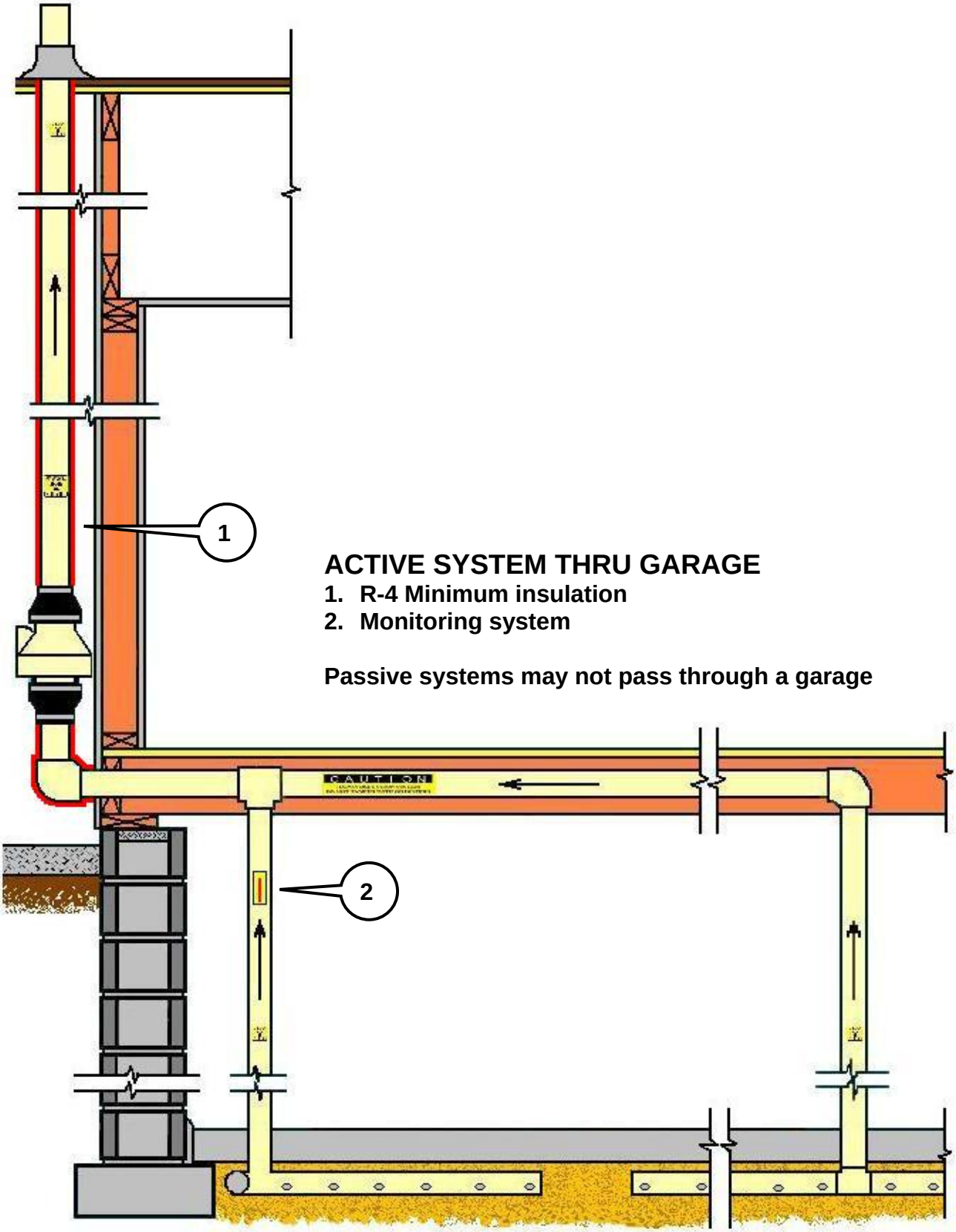
1. 4” of aggregate or sand
2. 6-mil poly
3. Seal joints/penetrations
4. Solid top course
5. Waterproof/dampproof
6. 3-4” T
7. 10’ perforated PVC or ABS
8. 12” above roof/10’ from openings
9. Pipe ID
10. Future circuit



ACTIVE SYSTEM

1. 4” of aggregate or sand
2. 6-mil poly
3. Seal joints/penetrations
4. Solid top course
5. Waterproof/dampproof
6. 3-4” T
7. 10’ perforated PVC or ABS
8. 12” above roof/10’ from openings
9. Pipe ID
10. Approved fan
11. Monitoring system

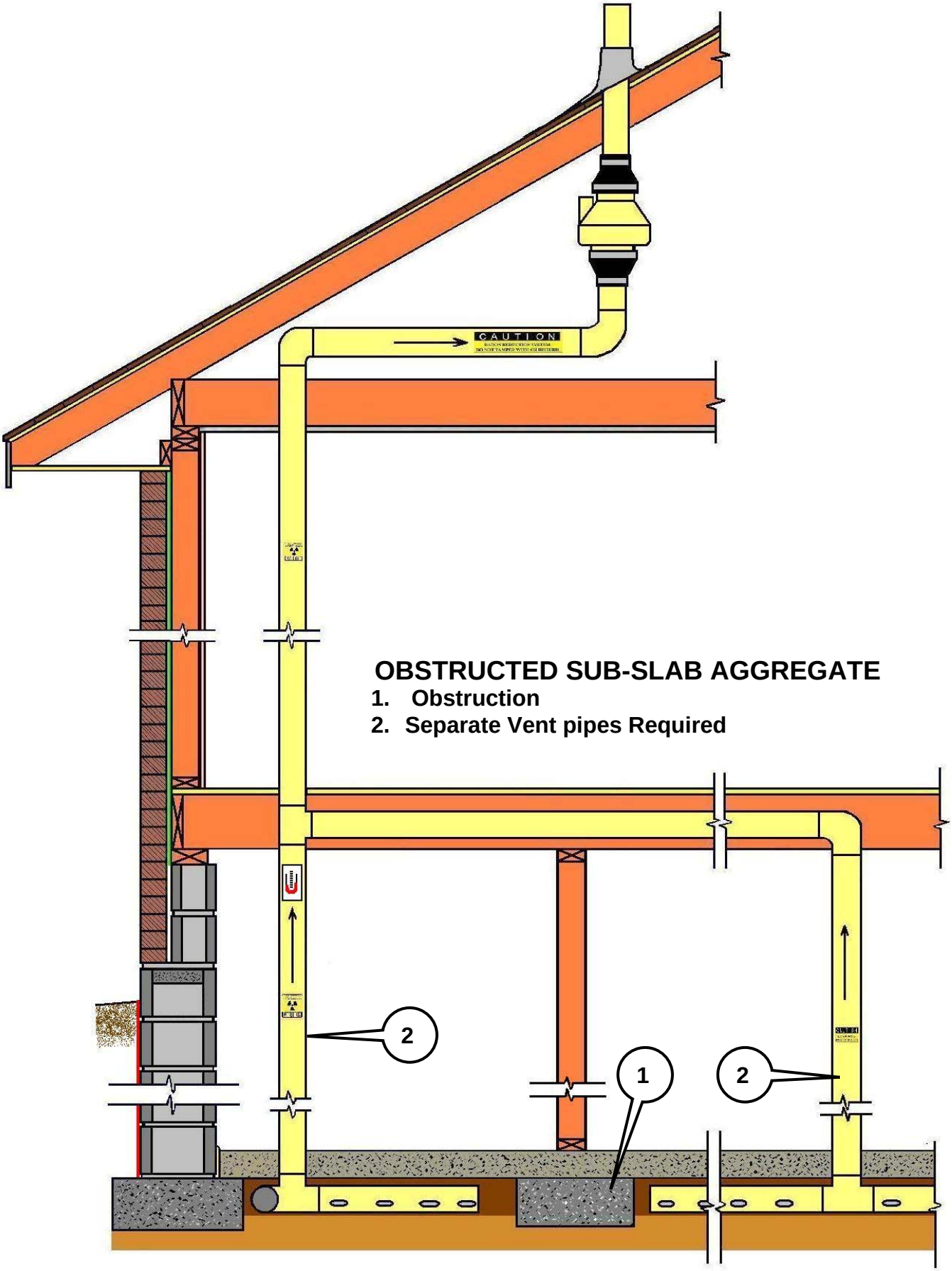




ACTIVE SYSTEM THRU GARAGE

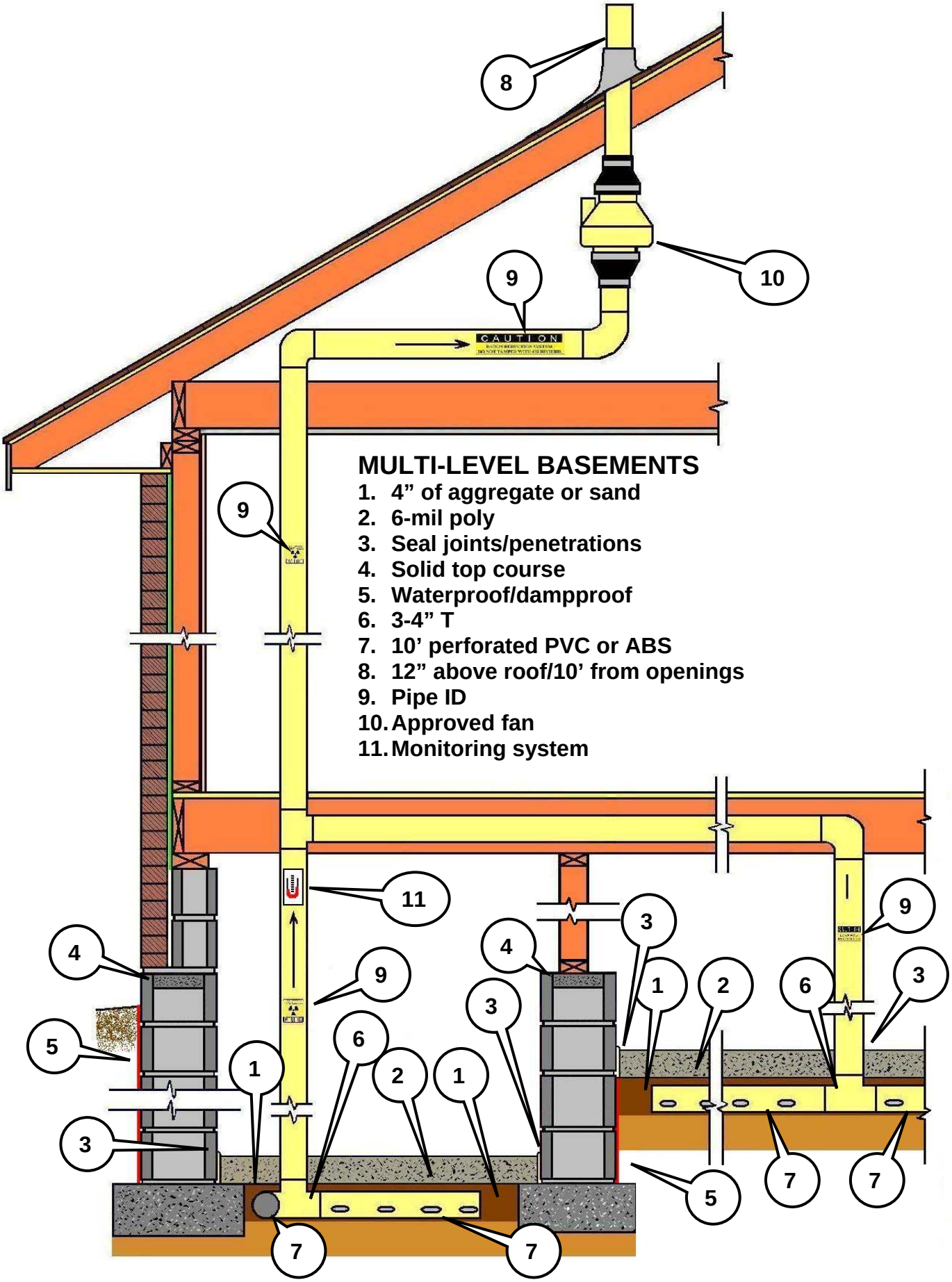
1. **R-4 Minimum insulation**
2. **Monitoring system**

Passive systems may not pass through a garage



OBSTRUCTED SUB-SLAB AGGREGATE

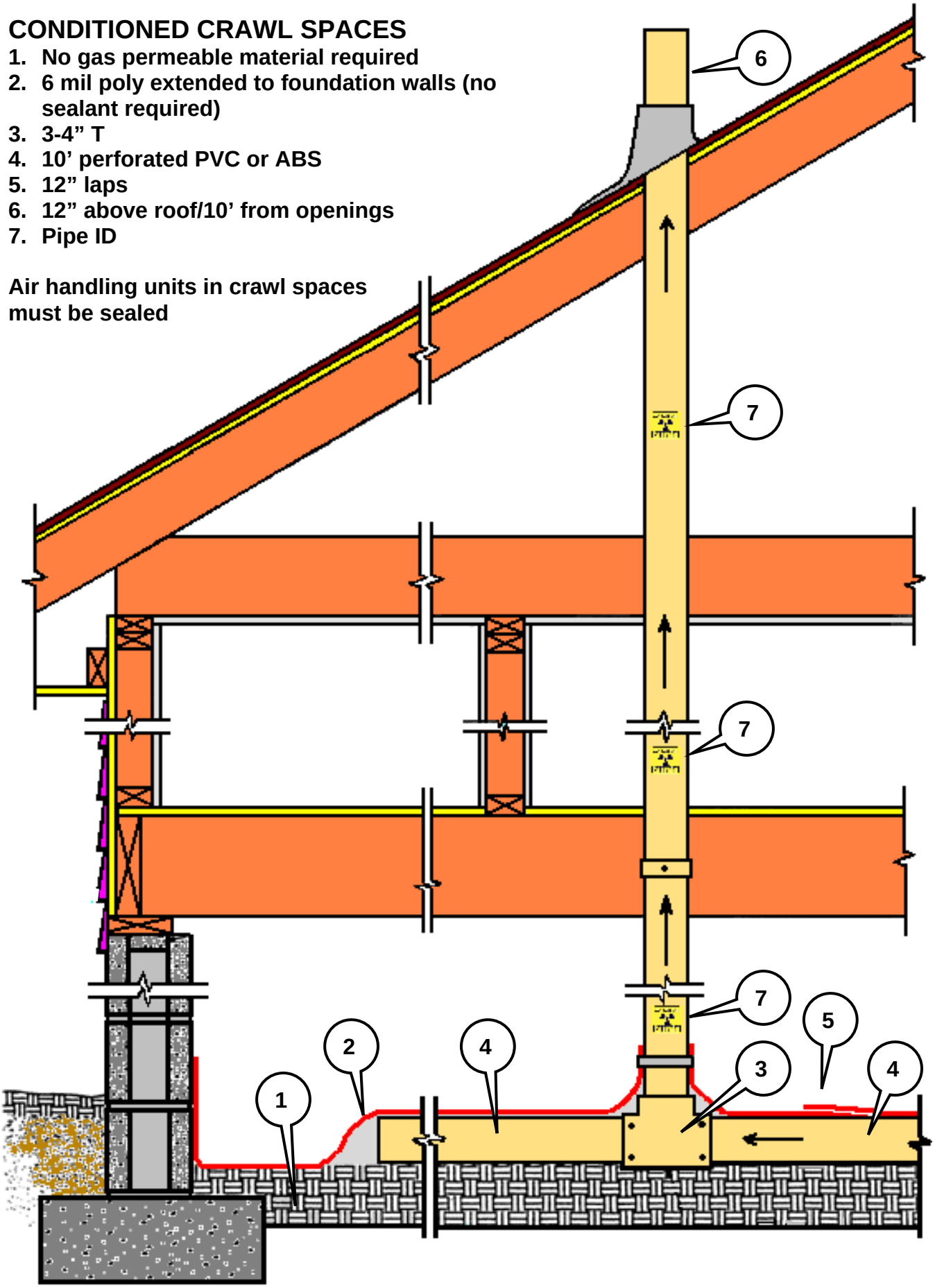
1. **Obstruction**
2. **Separate Vent pipes Required**



MULTI-LEVEL BASEMENTS

1. 4” of aggregate or sand
2. 6-mil poly
3. Seal joints/penetrations
4. Solid top course
5. Waterproof/dampproof
6. 3-4” T
7. 10’ perforated PVC or ABS
8. 12” above roof/10’ from openings
9. Pipe ID
10. Approved fan
11. Monitoring system

CONDITIONED CRAWL SPACES

1. No gas permeable material required
2. 6 mil poly extended to foundation walls (no sealant required)
3. 3-4” T
4. 10’ perforated PVC or ABS
5. 12” laps
6. 12” above roof/10’ from openings
7. Pipe ID

Air handling units in crawl spaces must be sealed