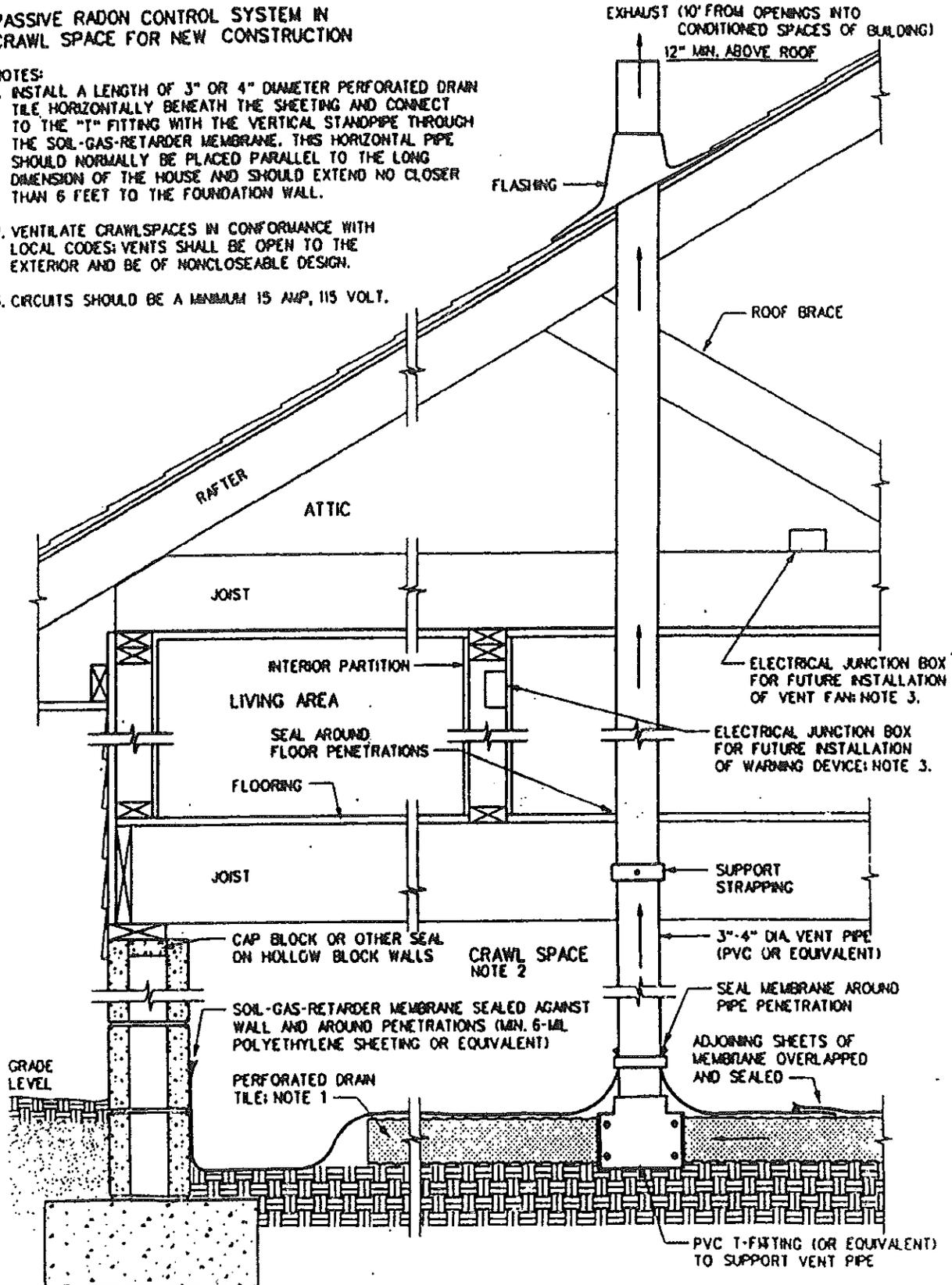


# Passive Radon Control System for New Construction for one and two -family dwellings

## PASSIVE RADON CONTROL SYSTEM IN CRAWL SPACE FOR NEW CONSTRUCTION

### NOTES:

1. INSTALL A LENGTH OF 3" OR 4" DIAMETER PERFORATED DRAIN TILE HORIZONTALLY BENEATH THE SHEETING AND CONNECT TO THE "T" FITTING WITH THE VERTICAL STANDPIPE THROUGH THE SOIL-GAS-RETARDER MEMBRANE. THIS HORIZONTAL PIPE SHOULD NORMALLY BE PLACED PARALLEL TO THE LONG DIMENSION OF THE HOUSE AND SHOULD EXTEND NO CLOSER THAN 6 FEET TO THE FOUNDATION WALL.
2. VENTILATE CRAWLSPACES IN CONFORMANCE WITH LOCAL CODES; VENTS SHALL BE OPEN TO THE EXTERIOR AND BE OF NONCLOSEABLE DESIGN.
3. CIRCUITS SHOULD BE A MINIMUM 15 AMP, 115 VOLT.



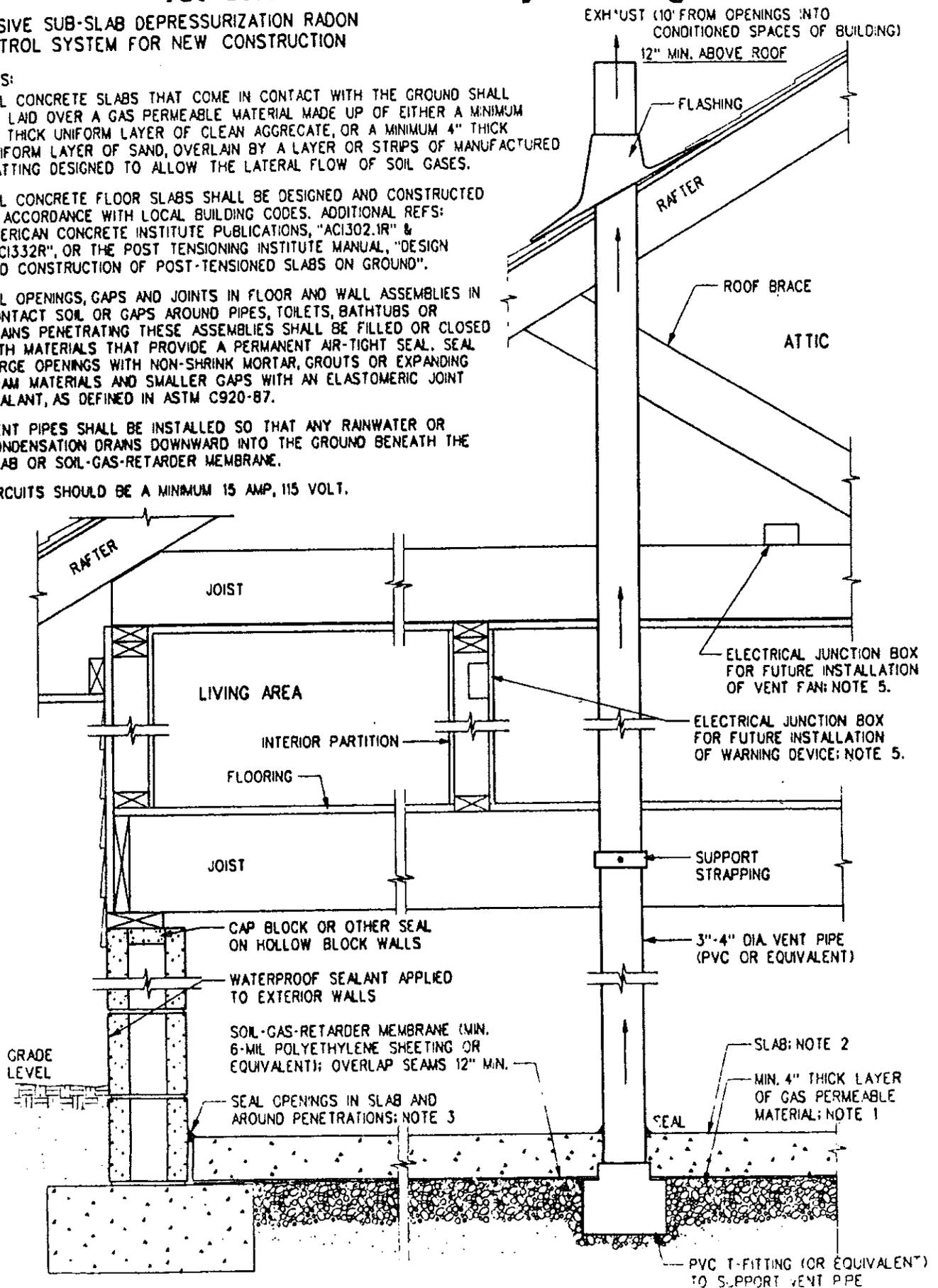
Passive Sub-Membrane Depressurization System  
Used for Crawlspace New Construction

# Passive Radon Control System for new Construction for one and two-family dwellings

## PASSIVE SUB-SLAB DEPRESSURIZATION RADON CONTROL SYSTEM FOR NEW CONSTRUCTION

### NOTES:

1. ALL CONCRETE SLABS THAT COME IN CONTACT WITH THE GROUND SHALL BE LAID OVER A GAS PERMEABLE MATERIAL MADE UP OF EITHER A MINIMUM 4" THICK UNIFORM LAYER OF CLEAN AGGREGATE, OR A MINIMUM 4" THICK UNIFORM LAYER OF SAND, OVERLAIN BY A LAYER OR STRIPS OF MANUFACTURED MATTING DESIGNED TO ALLOW THE LATERAL FLOW OF SOIL GASES.
2. ALL CONCRETE FLOOR SLABS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH LOCAL BUILDING CODES. ADDITIONAL REFS: AMERICAN CONCRETE INSTITUTE PUBLICATIONS, "ACI302.1R" & "ACI332R", OR THE POST TENSIONING INSTITUTE MANUAL, "DESIGN AND CONSTRUCTION OF POST-TENSIONED SLABS ON GROUND".
3. ALL OPENINGS, GAPS AND JOINTS IN FLOOR AND WALL ASSEMBLIES IN CONTACT SOIL OR GAPS AROUND PIPES, TOILETS, BATHTUBS OR DRAINS PENETRATING THESE ASSEMBLIES SHALL BE FILLED OR CLOSED WITH MATERIALS THAT PROVIDE A PERMANENT AIR-TIGHT SEAL. SEAL LARGE OPENINGS WITH NON-SHRINK MORTAR, GROUTS OR EXPANDING FOAM MATERIALS AND SMALLER GAPS WITH AN ELASTOMERIC JOINT SEALANT, AS DEFINED IN ASTM C920-87.
4. VENT PIPES SHALL BE INSTALLED SO THAT ANY RAINWATER OR CONDENSATION DRAINS DOWNWARD INTO THE GROUND BENEATH THE SLAB OR SOIL-GAS-RETARDER MEMBRANE.
5. CIRCUITS SHOULD BE A MINIMUM 15 AMP, 115 VOLT.



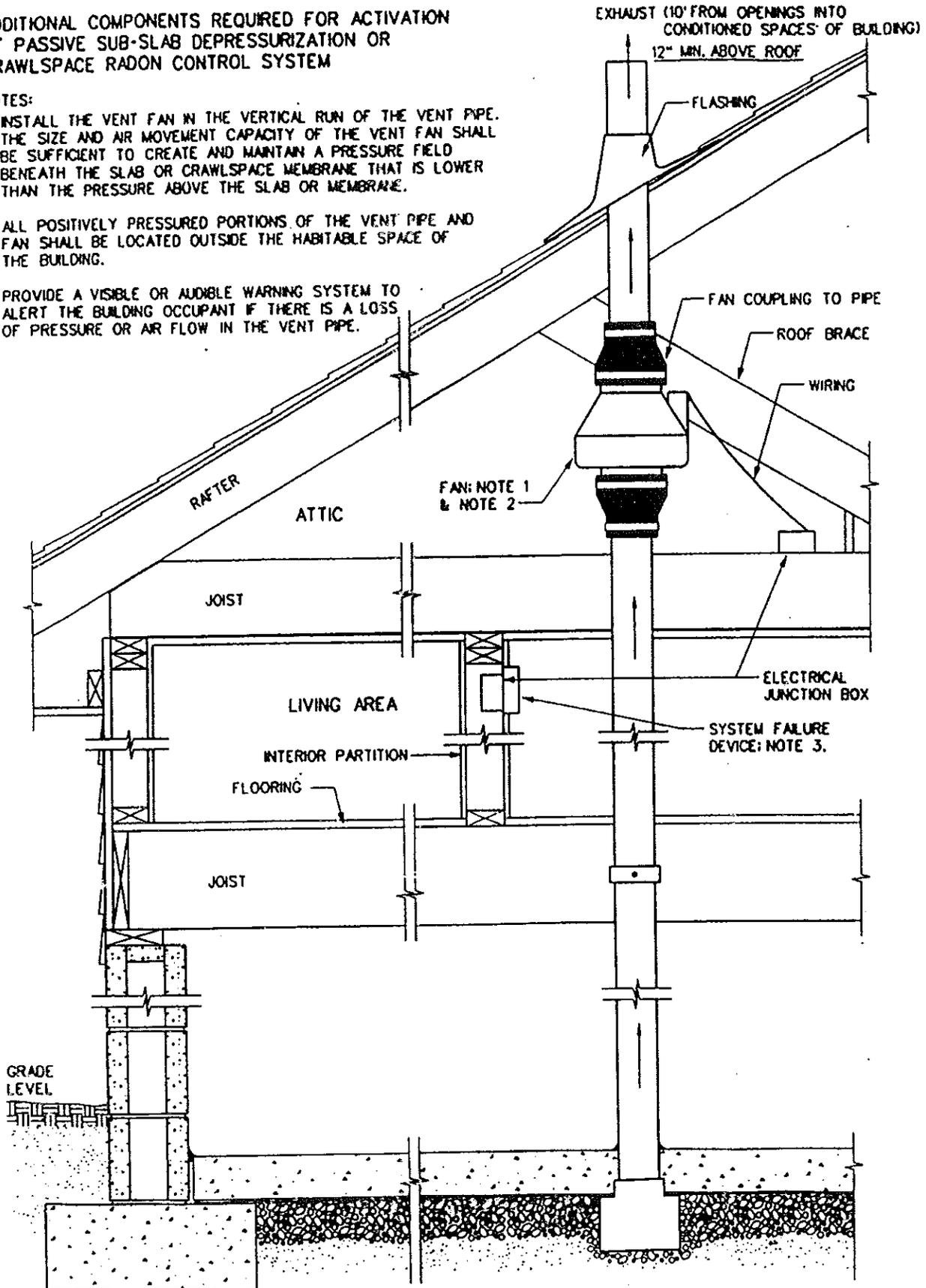
Passive Sub-Slab Depressurization System  
Used for Basement and Slab-on-grade New Construction

# Passive Radon Control System for New Construction for one and two-family dwellings

ADDITIONAL COMPONENTS REQUIRED FOR ACTIVATION  
OF PASSIVE SUB-SLAB DEPRESSURIZATION OR  
CRAWLSPACE RADON CONTROL SYSTEM

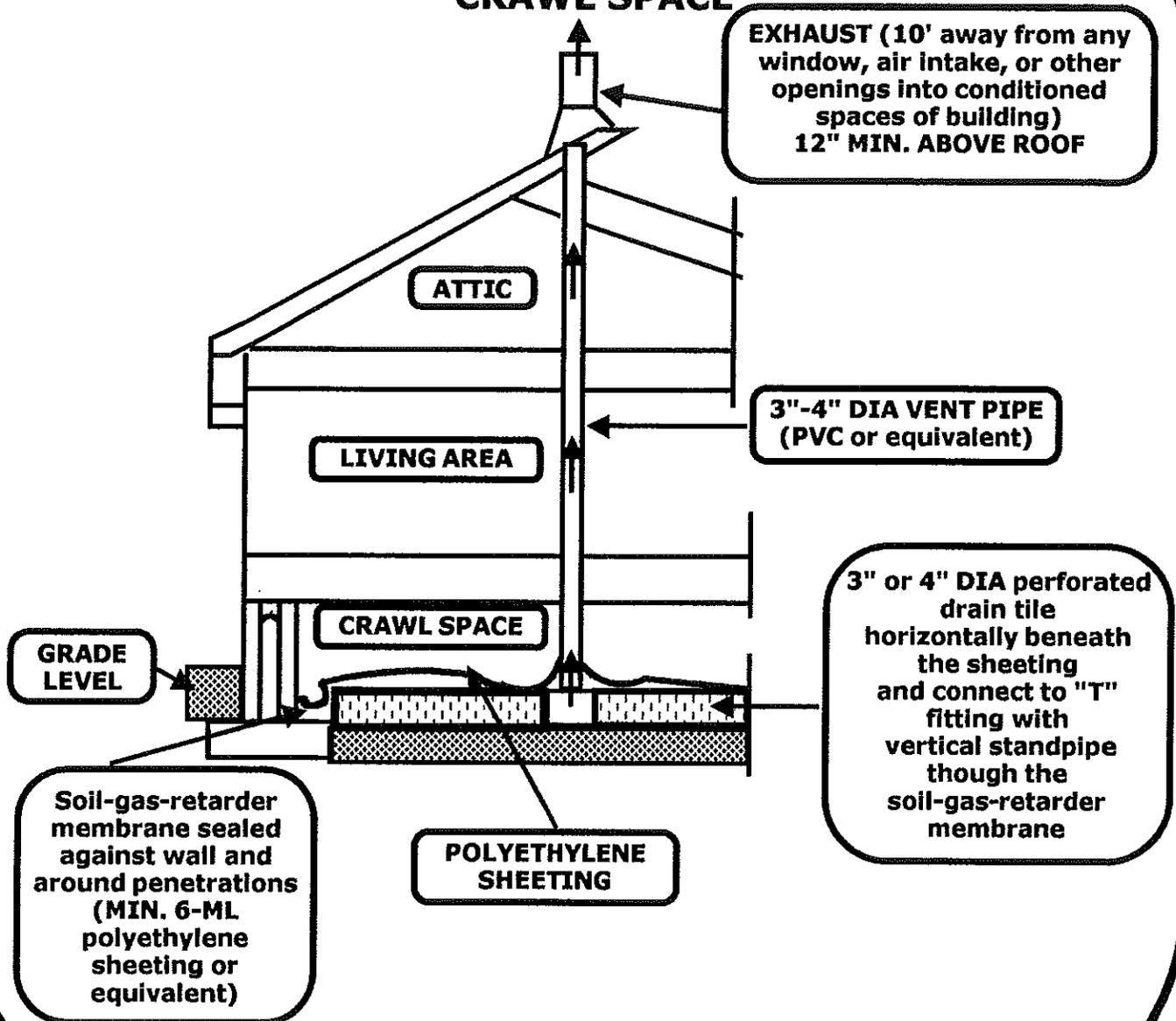
NOTES:

1. INSTALL THE VENT FAN IN THE VERTICAL RUN OF THE VENT PIPE. THE SIZE AND AIR MOVEMENT CAPACITY OF THE VENT FAN SHALL BE SUFFICIENT TO CREATE AND MAINTAIN A PRESSURE FIELD BENEATH THE SLAB OR CRAWLSPACE MEMBRANE THAT IS LOWER THAN THE PRESSURE ABOVE THE SLAB OR MEMBRANE.
2. ALL POSITIVELY PRESSURED PORTIONS OF THE VENT PIPE AND FAN SHALL BE LOCATED OUTSIDE THE HABITABLE SPACE OF THE BUILDING.
3. PROVIDE A VISIBLE OR AUDIBLE WARNING SYSTEM TO ALERT THE BUILDING OCCUPANT IF THERE IS A LOSS OF PRESSURE OR AIR FLOW IN THE VENT PIPE.



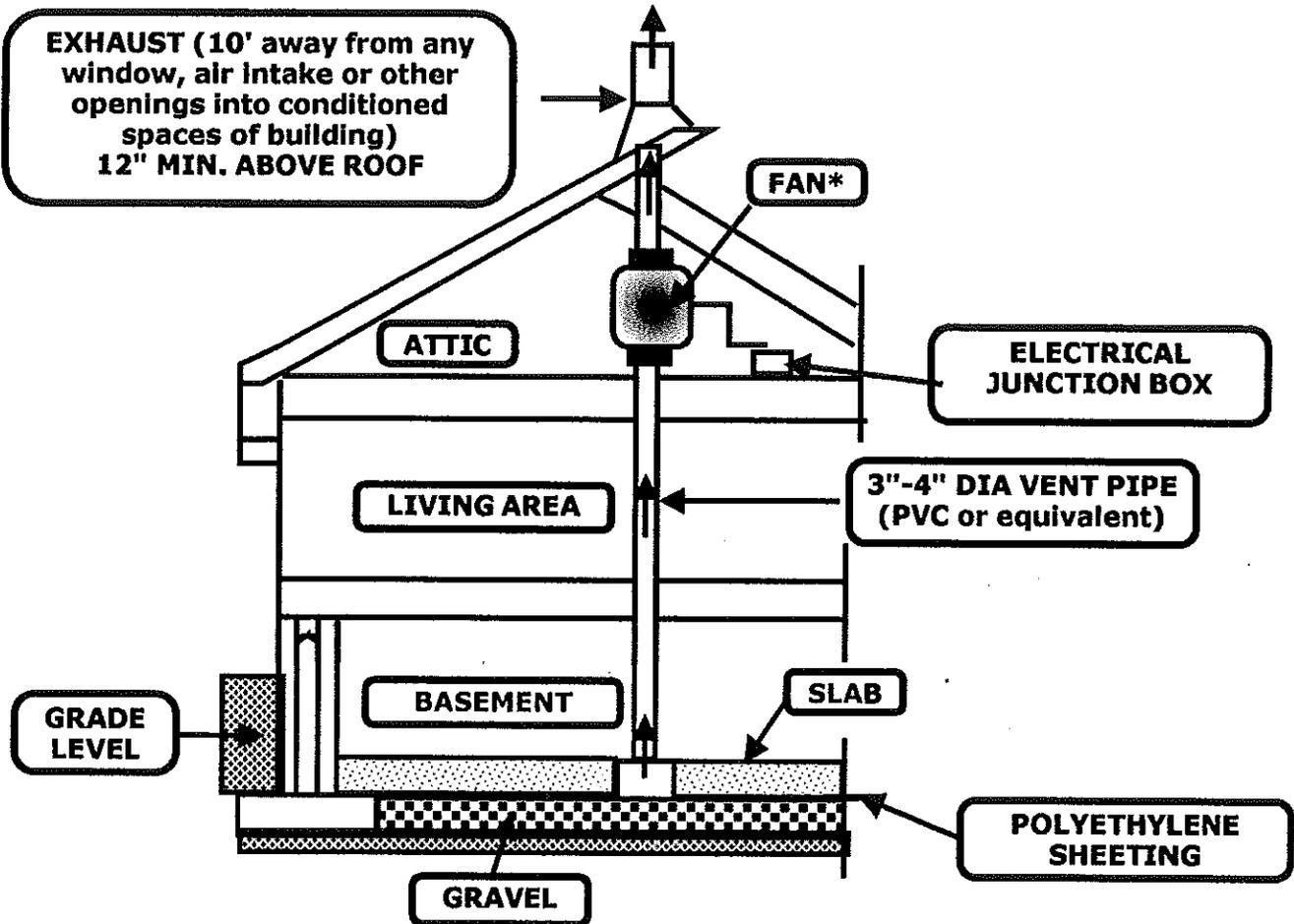
**Active Sub-Slab Depressurization System**  
Uses fan to mechanically draw air from beneath the slab  
through the vent pipe

## TYPICAL PASSIVE SYSTEM IN CRAWL SPACE



## RADON-REDUCTION SYSTEM

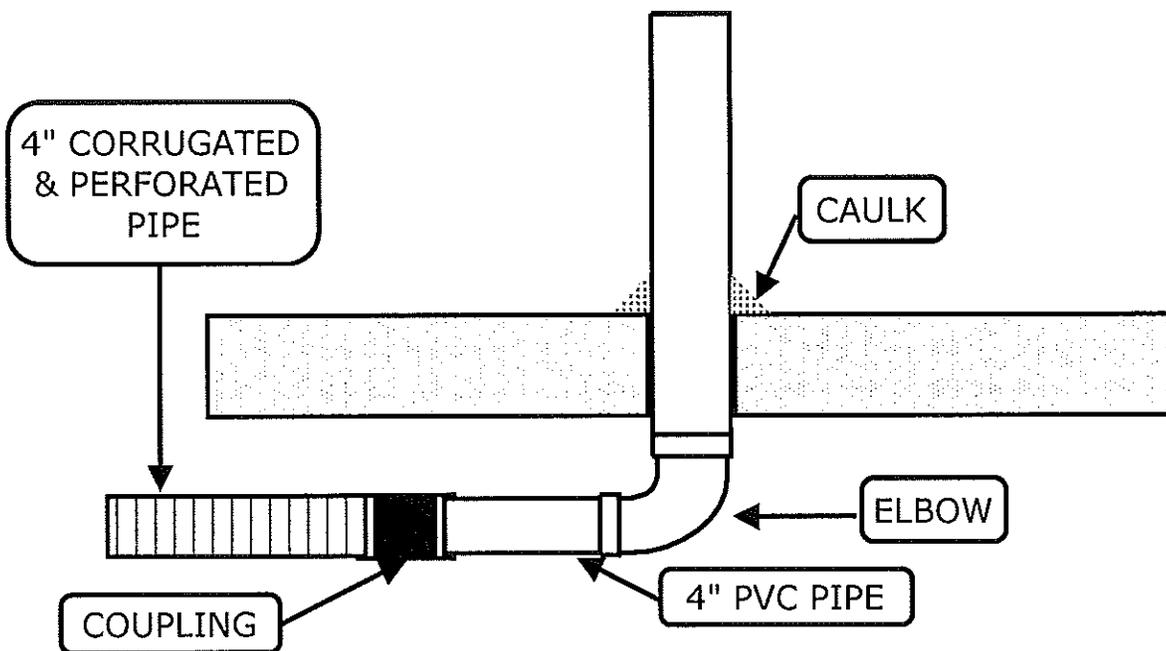
## TYPICAL ACTIVE SYSTEM IN BASEMENT OR WITH SLAB-ON-GRADE



### RADON-REDUCTION SYSTEM

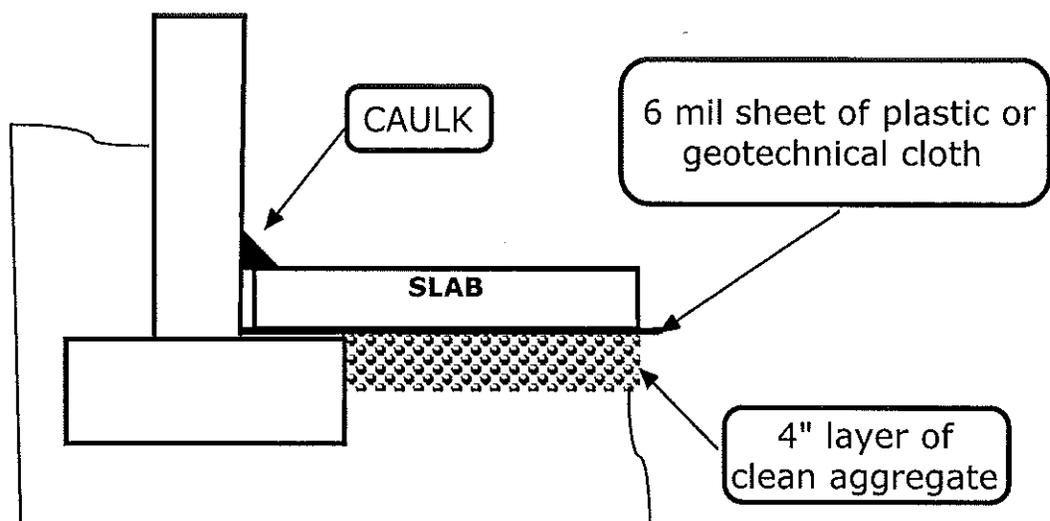
**\*FAN:** Install the vent fan in the vertical run of the vent pipe. The size and air movement capacity of vent fan shall be sufficient to create and maintain a pressure field beneath the slab or crawlspace membrane that is lower than the pressure above the slab or membrane.

**PASSIVE RADON REDUCTION SYSTEM  
TREATING SLAB-ON-GRADE AND BASEMENT SLAB  
CONNECTING VENT PIPE TO GRAVEL**



NOTE: A length of 4-inch perforated and corrugated ADS pipe (minimum 10 feet long) should be laid in the gravel (be sure concrete does not plug this off when poured) and connected to the radon vent riser.

**PASSIVE RADON REDUCTION SYSTEM  
TREATING SLAB-ON-GRADE AND BASEMENT SLAB  
GRAVEL BENEATH SLABS**



NOTE: When using gravel it is important that wet concrete not be allowed to flow down into the gravel and restrict the air flow. This can be accomplished by laying a sheet of 6 mil plastic or geotechnical cloth on top of gravel to prevent the mud from percolating down. If plastic is used, be sure that the concrete can de-water as it cures from the bottom side on the slab, otherwise the slab may crack. Concrete workers will typically poke de-watering holes in plastic and ensure that the plastic is not sealed to the foundation walls. The seal that isolates the sub-grade area from the interior of the home is put in place by applying caulk to the floor-to-wall and control joints, after the slab has cures.