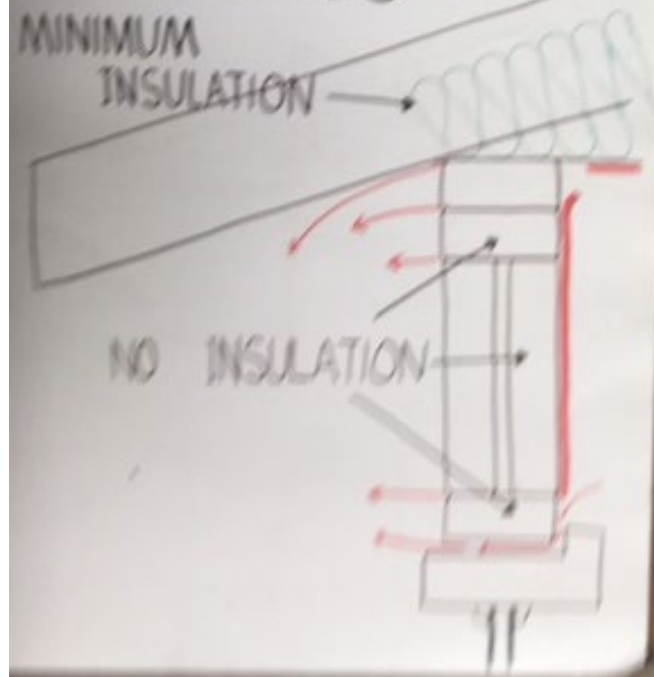
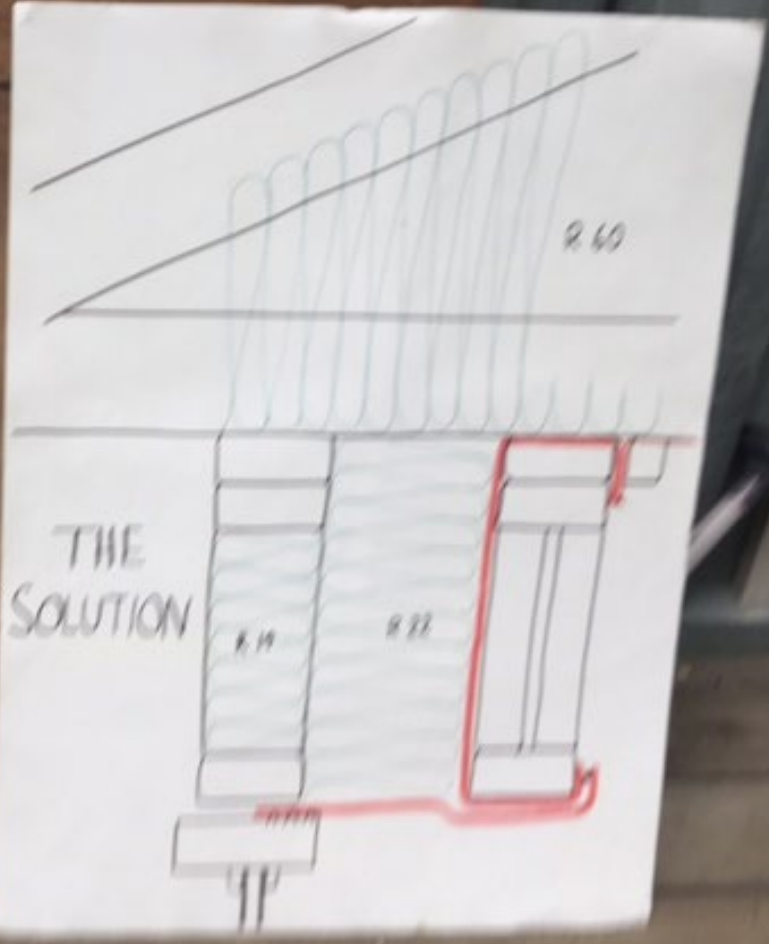


# PRESENT DAY STANDARDS



# THE SOLUTION



- Foundation heat loss occurs through the following mechanisms (see Figure 4.1):
- Heat transmission through above-grade sections of foundation walls.
  - Heat transmission below grade to the surrounding soil.
  - Air leakage heat losses both into and out of the basement.
  - Conductive heat losses to ground water.

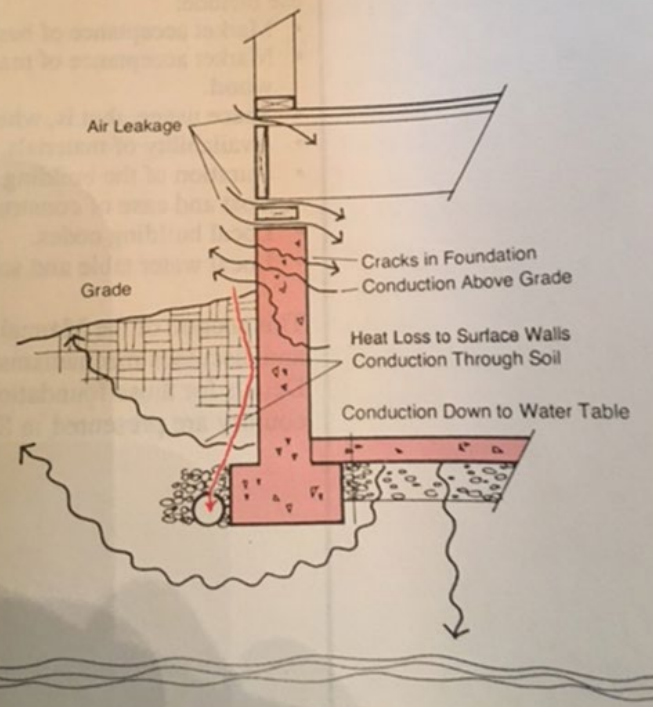
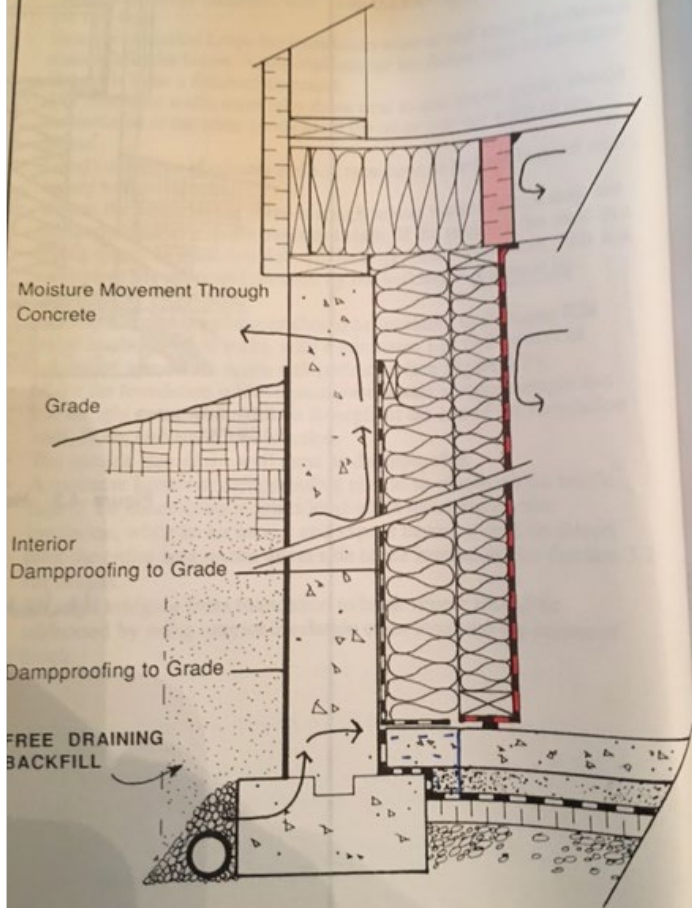


Figure 4.1 Mechanisms of Heat Loss Through

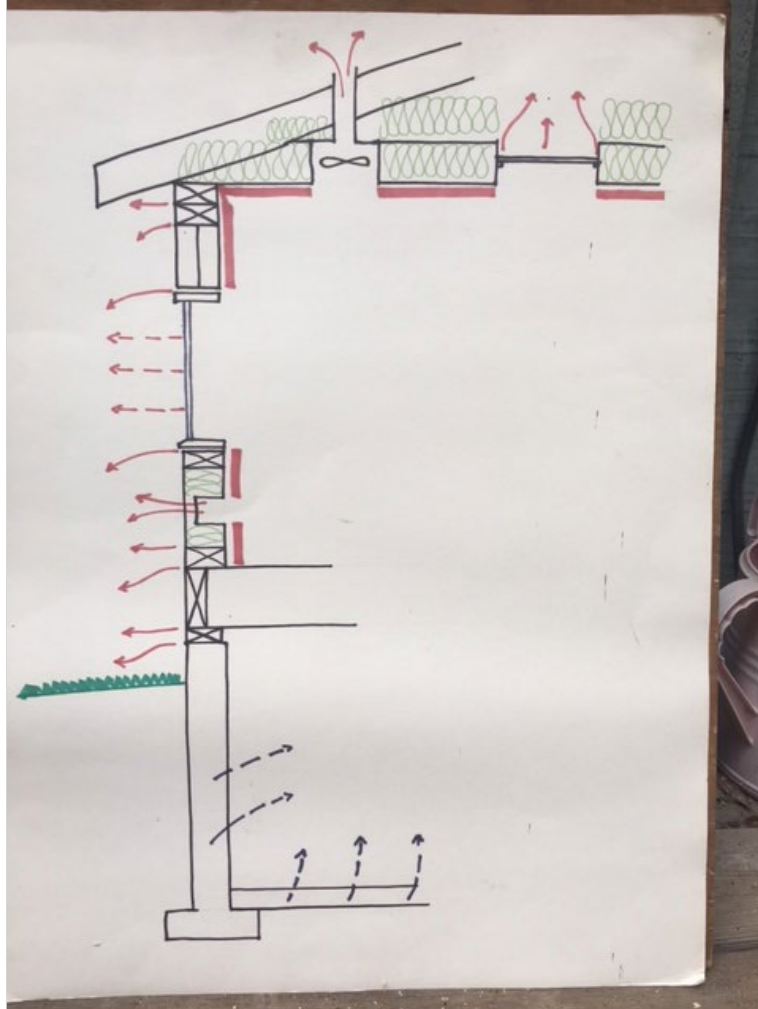
materials, dampproofing, and drainage systems, to minimize foundation moisture problems (see Figure 4.3).

4.3.2.1



4.3.2

4.3



Poured Concrete & Block

Through  
insulated  
walls

**Electrical Conduits, Wiring, Gas Lines, and Plumbing Lines**  
 These service penetrations must be sealed as they pass through the air barrier. This can be done by using a plywood backing board which is mounted on the inside stud wall. A piece of rubber sheeting is fastened to the back side of the plywood with staples. An "X" is cut in the rubber sheet forming the seal. The tight-fitting rubber sheet is pushed through, with the air barrier in place, it is sealed to the plywood backing board with caulking and staples. Where the conduit or duct passes through the plywood, caulking is used to seal gaps.

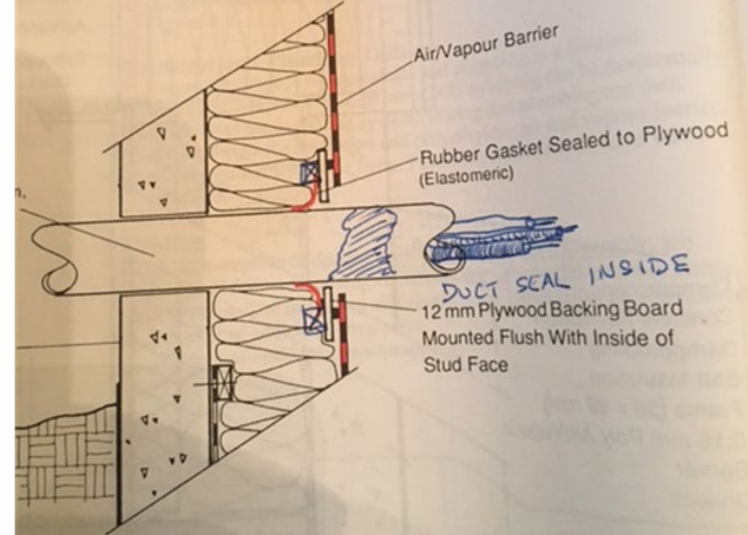


Figure 4.10 Service Penetration Through Interior Insulated Concrete Walls

Conduits, running to the main service box, can be sealed by passing them through a rubber gasket, mounted on a plywood backing board on which the main service box is mounted. Wiring passing through top plates and end studs can be sealed with caulking. Electrical boxes can be placed in site-built or prefabricated, airtight boxes (see Figure 5.14).

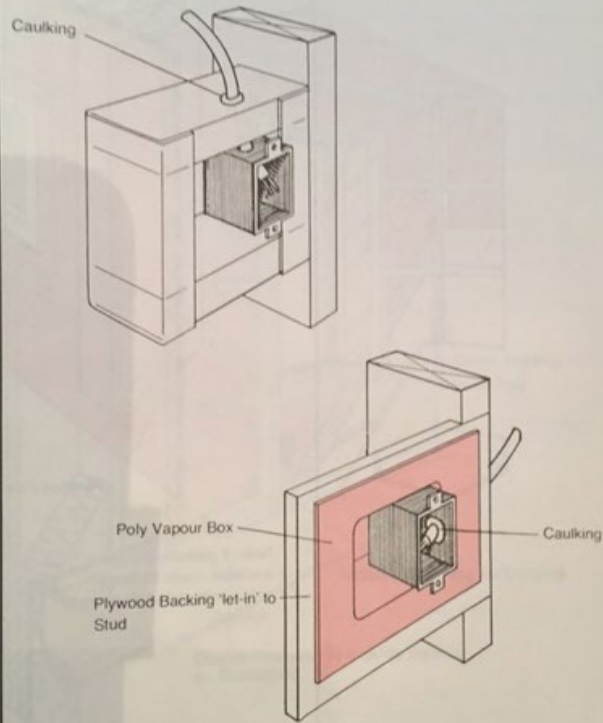


Figure 5.14 Electrical Penetrations

Code... water vapour in those spaces... accomplished by having a continuous soffit ventilation strip along with ridge ventilation. In colder regions of Canada, where fine blowing snow is a problem, local authorities may approve sealed attics with no ventilation.

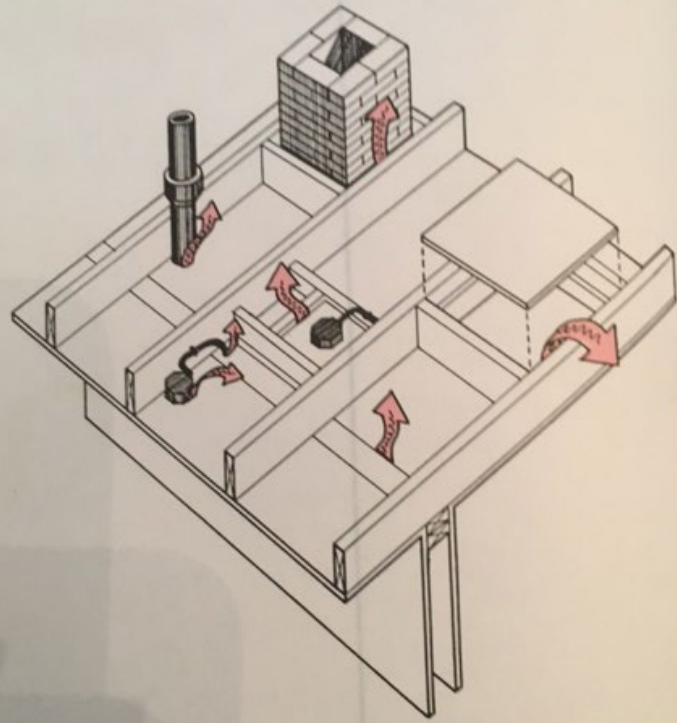


Figure 6.1 Air/Heat Leakage in Conventional Attics

burner, an electric resistance element or with a heating coil from a boiler or furnace. They are certainly the most commonly used. On the other hand, instantaneous heaters, which are usually installed at the point of use, eliminate both tank standby losses and line distribution losses, resulting in a 10 to 20 per cent reduction in energy requirements. The currently available tankless units suitable for R-2000 houses use electricity as an energy source (see Figure 9.10b). The disadvantages of these units are that they have a very high power draw when in use and/or deliver relatively low flow rates. The capital costs can also be high, particularly where more than one unit is required.

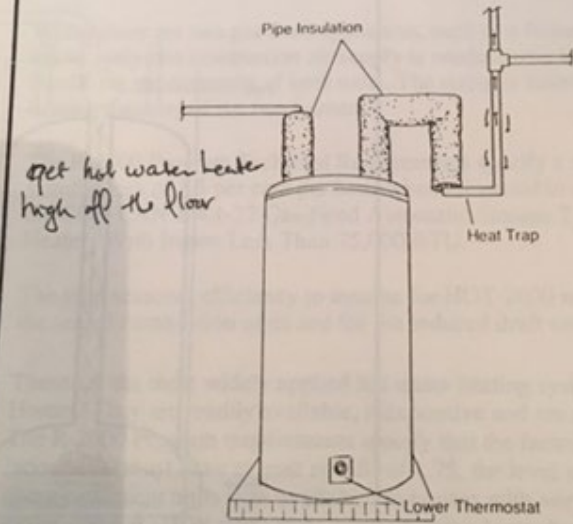


Figure 9.10a Domestic Hot Water Tanks