

Minimum Width (W) of Concrete Footings (in.) <sup>s</sup>				
Load Bearing Value of Soil (psf) →	1,500	2,000	3,000	≥4,000
4-in Brick Veneer Over Light Frame or 8-in. Hollow Concrete Masonry				
1 story	12	12	12	12
2 story	21	16	12	12
3 story	31	24	16	12
8-in. Solid or Fully Grouted Masonry				
1 story	16	12	12	12
2 story	29	21	14	12
3 story	42	32	21	16

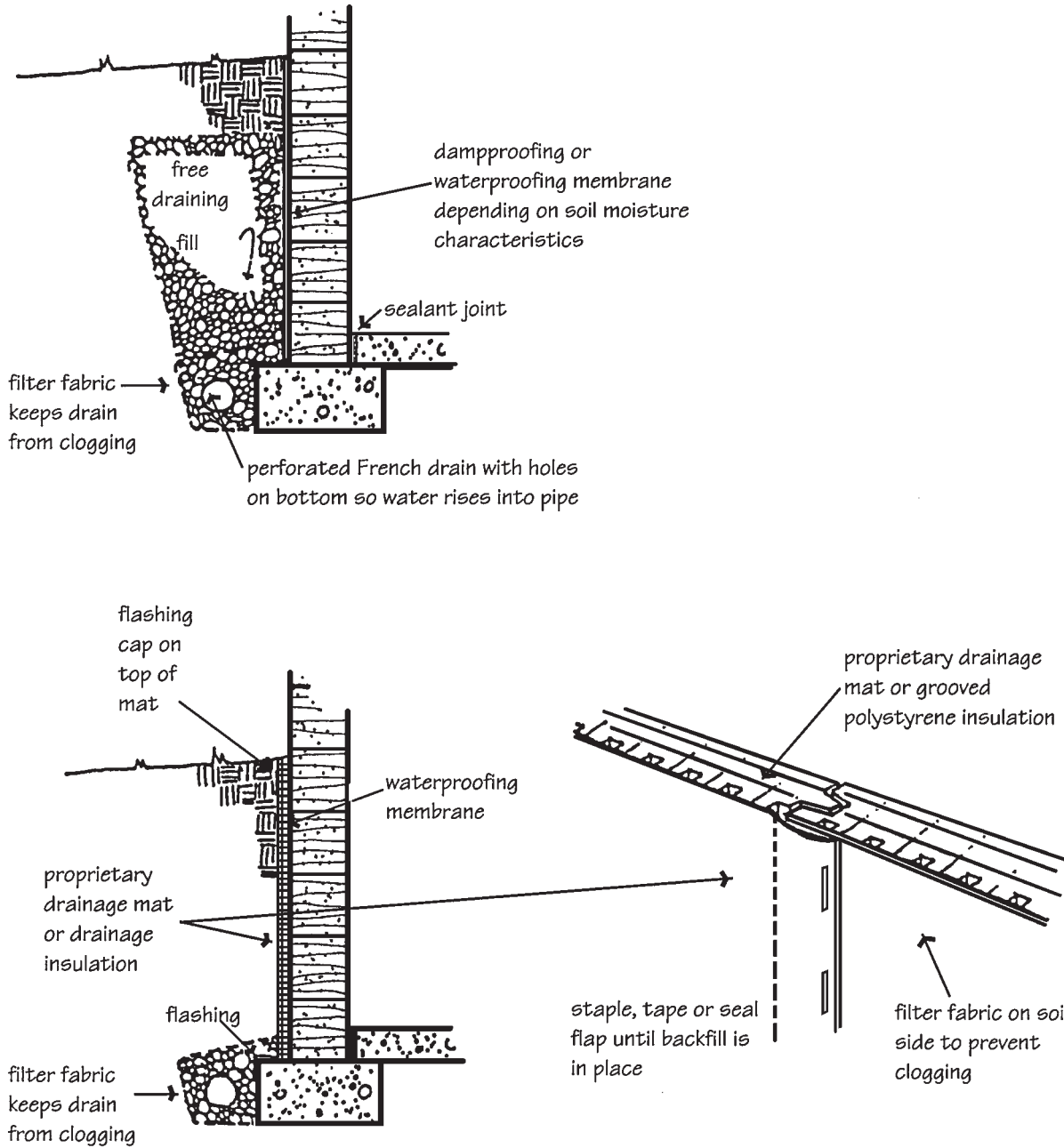
<sup>s</sup> Where minimum footing width is 12 in., a single wythe of solid or fully grouted 12-in. nominal concrete masonry units is permitted in lieu of concrete footing.

(From International Residential Code for One- and Two-Family Dwellings, 2003.)

**Figure 13-12** Rule-of-thumb and code-required minimum concrete footing dimensions.

conditions exist, prolonged seepage through weep holes can cause the soil in front of the wall and under the toe of the footing to become saturated and lose some of its bearing capacity. In these instances, a continuous longitudinal drain of perforated pipe should be placed near the base with discharge areas located beyond the ends of the wall (see Fig. 13-20).

BIA recommends that backfill against brick retaining walls from the top of the footing to within 12 in. of finished grade should be coarse gravel, 2 ft wide, and run the entire length of the wall. To prevent the infiltration of



**Figure 13-13** Basic waterproofing for masonry basement walls.

fine fill material or top soil, a layer of 50-lb filter fabric is laid along the top of this course. Weep holes or drain lines at the bottom of the wall to relieve moisture buildup in the gravel fill should extend the full length of the wall.

Waterproofing requirements for the back face of a retaining wall will depend on the climate, soil conditions, and type of masonry units used. Seepage through a brick wall can cause efflorescence if soluble salts are present, but a waterproof membrane will prevent this water movement. Walls of porous concrete units should always receive waterproof backing because of the excessive expansion and contraction that accompanies variable moisture