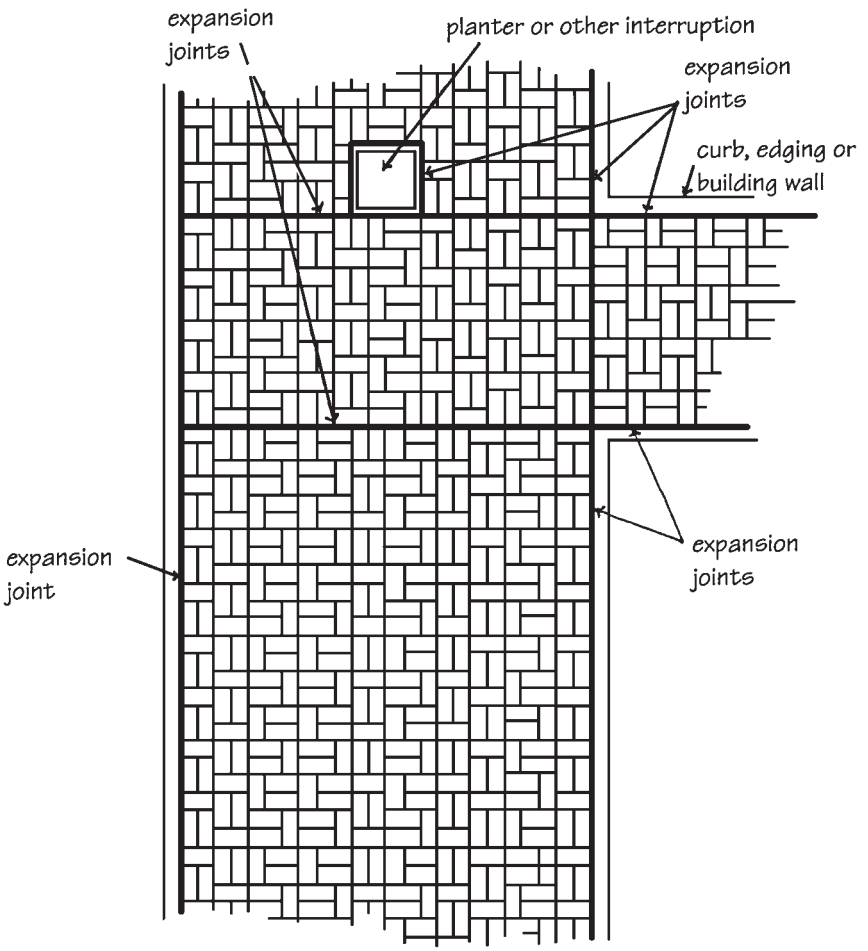

Figure 14-6 Expansion joint locations in rigid brick paving. (*From Beall,* Masonry and Concrete for Residential Construction, *McGraw-Hill Complete Construction Series, 2001.*)

rated. The installation should then be maintained in a damp condition for 2 or 3 days to facilitate proper curing.

Mortarless masonry paving may be swept with plain dry sand to fill between units, or with a portland cement–sand mixture equivalent to the proportions for Type M mortar. Pavers are generally butted together with only the minimal spacing between adjacent units caused by irregularities of size and shape.

Expansion joints must be provided in rigid masonry paving to accommodate thermal and moisture movements. Joints should generally be located parallel to curbs and edges, at 90° turns and angles, and around interruptions in the paving surface (*see Fig. 14-6*). Fillers for these joints must be compressible and made of materials not subject to rot or vermin attack. Solid or preformed materials of polyvinyl chloride, butyl rubber, neoprene, and other elastic compounds are suitable (*see Fig. 14-7*). Even though mortarless masonry paving is flexible and has the ability to move slightly to accommodate expansion and contraction, it is recommended that expansion joints be placed adjacent to fixed objects such as curbs and walls.

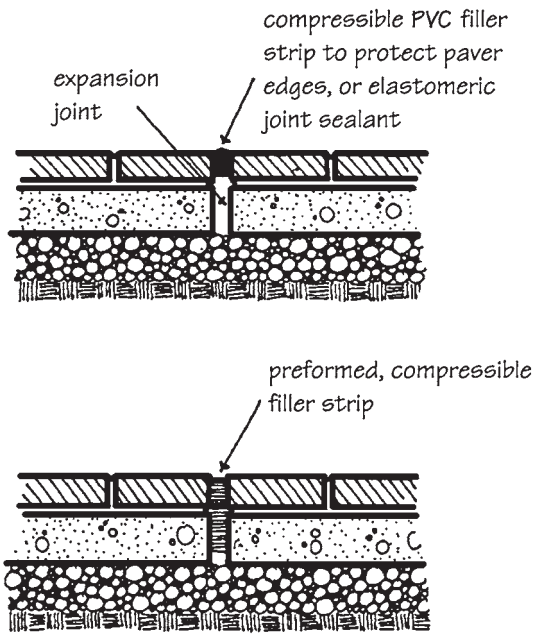

Figure 14-7 Expansion joints for rigid brick paving. (*From BIA* Technical Note 14A.)

14.1.5 Membrane Materials

Membranes of sheet or liquid materials are installed in some paving applications to reduce or control the passage of moisture, to discourage weed growth, or to form a separating layer or bond break to accommodate differential movement. Roofing felt, polyethylene film, vinyl, neoprene, rubber, asphaltic liquids, modified urethane, or polyurethane bitumens are all suitable since they are moisture- and rot-resistant. Liquid types, if installed properly, have some advantages over sheet materials because they are seamless and will conform to irregular surfaces. Precautions should be taken during construction to avoid membrane damage, particularly for roof deck installations, where resistance to moisture penetration is critical.

14.1.6 Masonry Units

The materials available for masonry paving systems have a wide range of structural and aesthetic capabilities. Solid concrete pavers are manufactured in a variety of shapes and sizes. ASTM C936, *Standard Specification for Solid Concrete Interlocking Paving Units,* requires that minimum compressive strength be 8000 psi. Lightweight and normal weight aggregates may be used. Dense compaction assures a minimum of voids, and absorption must be less than 5%. The interlocking patterns transfer loads and stresses laterally by an arching or bridging action. Distribution of loads over a larger area in this manner reduces point loads, allowing heavier traffic over sub-bases that would normally require greater strength. Some pavers are manufactured with chamfered edges at the top to reduce stress concentrations and chippage. Chamfers should not, however, reduce the area of the bearing surface by more than 30%.