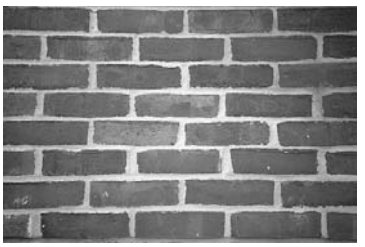
Brick Grades for Durability

Grade SW	brick for use where high and uniform resistance to damage caused by cyclic freezing is desired, and where brick may be frozen when saturated with water
Grade MW	brick for use where moderate resistance to damage caused by cyclic freezing is permissible, or where brick may be damp but not saturated with water when freezing occurs
Grade NW	brick with little resistance to damage caused by cyclic freezing, but which is acceptable for applications protected from water absorption and freezing

Brick Types for Appearance

Type FBS and HBS	brick for general use in masonry (traditional or contemporary styles of architecture)
Type FBX and HBX	brick for general use in masonry where a higher degree of precision and lower permissible variation in size than permitted for Type FBS is required (crisp, linear, contemporary styles of architecture or stack bond patterns)
Type FBA and HBA	brick for general use in masonry, selected to produce characteristic architectural effects resulting from non-uniformity in size and texture of the individual units (rustic styles of architecture)

Type FBS Brick



Type FBA Brick

Type FBX Brick

Brick	Grade	Type
ASTM C62 Building Brick	SW, MW, NW	N/A
ASTM C216 Face Brick	SW, MW	FBS, FBX,FBA
ASTM C652 Hollow Brick	SW, MW	HBS, HBX, HBA

Figure 3-2 Brick weathering *Grade* and appearance *Type*.

occur in units exposed in parapet walls, retaining walls, and horizontal surfaces, but is unlikely for ordinary exterior wall exposures if the brick is suitably protected at the top by copings, metal flashings, or overhanging eaves. Under most circumstances, permeation of the brick in building walls would result only from defective workmanship or faulty drainage.

Face brick is used for exposed areas where appearance is an important design criteria. These units are typically selected for specific aesthetic criteria such as color, dimensional tolerances, uniformity, surface texture, and limits on the amount of cracks and defects. ASTM C216, *Standard Specification for Facing Brick,* covers Grades SW and MW, which correspond to the same physical and environmental requirements as those for building brick. Within each of these grades, face brick may be produced in three specific appearance types. Type FBS (Standard) is for general use. Type FBX (Select) is for use in exposed applications such as stack bond patterns where a high degree of mechanical perfection and minimum size variation are required. Type FBA (Architectural) is manufactured with characteristic architectural effects, such as distinctive irregularity in size and texture of the individual units to simulate historic brick (*see Fig. 3-3*). Extruded, stiff-mud brick may be produced in any of the three types by progressively increasing the amount of texturing and roughening the units receive after leaving the die. Dry-press brick normally falls well within the strict tolerances required for Type FBX, but is not widely used because of higher production costs and the higher labor costs associated with laying up such precision units. Soft-mud brick, including hand-molded units, is rustic in appearance and meets the specifications only for Type FBA. Both labor economy and distinctive appearance make FBA brick very popular in residential and light commercial construction. All three types meet the same requirements for strength and durability.

ASTM C216 formerly made reference to color range in describing brick types, but the reference has been dropped in recent editions. Color range used to be associated with size variation when the older kiln types were used. Dark colors indicated hard-burned brick that experienced greater shrinkage during firing than lighter-colored, soft-burned brick. Brick Types FBS, FBX, and FBA differ only in appearance as related to degree of precision and uniformity in size tolerance. Types FBS, FBX, and FBA are all available in a wide range of colors as well as in both weathering Grades SW and MW.

The allowable size tolerances for brick Types FBS and FBX have also been modified in recent editions of ASTM C216, to tighten the allowable size variation within a job lot. The changes are meant to reflect the actual variations in the majority of brick manufactured in the United States, and are based on a survey conducted by the Brick Industry Association.

Used brick is sometimes specified by architects because of its weathered appearance and broad color range. In many instances, these specimens are not totally in compliance with accepted standards of durability for exposed usage. Sources for salvaged masonry are generally buildings at least 30 to 40 years old, constructed of solid masonry walls with hard-burned brick on the exterior and inferior “salmon” brick as backup. Since the color differences used in originally sorting and selecting the brick become obscured with exposure and contact with mortar, salmon brick may inadvertently be used for an exterior exposure, where it can undergo rapid and excessive deterioration. Building code requirements may vary regarding the use of salvaged brick, and should be consulted prior to its selection and specification.

Imported Mexican brick gives a distinctive, handcrafted quality to masonry. It also lacks uniformity in conformance with U.S. durability standards. Officials at the Brick Institute of Texas estimate that as much as 85%