

GROUT CONSOLIDATION AND RECONSOLIDATION

Grout must be consolidated by vibration to minimize voids that are left when water from the grout mix is absorbed by the masonry. Grout consolidation can be accomplished by puddling with a piece of reinforcing bar if the lifts do not exceed 12 in., but for higher lifts, a mechanical vibrator with a 3/4- to 1-in. diameter head must be used. Five to ten minutes after the grout is placed, the vibrator should be inserted into the grout cavity or cores for a few seconds in each location. Within 30 minutes of consolidation, the grout must be reconsolidated to assure proper bond to the units and reinforcement. Reconsolidation prevents separations from developing between the grout and the masonry after shrinkage, settlement, and absorption have occurred.

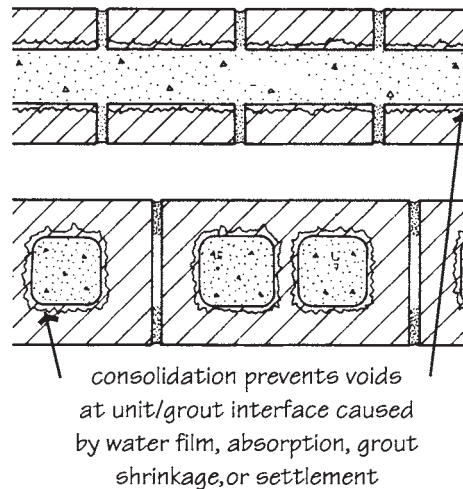


Figure 15-53 Grout must be consolidated and reconsolidated to prevent voids at the masonry interface. (Drawing from *Informational Guide to Grouting Masonry*, Masonry Institute of America, 1992.)

Masonry walls should be covered at the end of each day and when work is not in progress. Excess moisture entering the wall during construction can cause saturation of units, which may take weeks or months to dry out. Such prolonged wetting will take even slightly soluble salts into solution and may result in efflorescence. Prolonged wetting will also prolong cement hydration, producing large amounts of calcium hydroxide, which may also be taken into solution and leached to the surface to cause calcium carbonate stains.

Covers such as water-repellent tarps or heavy plastic sheets should extend a minimum of 2 ft down each side of the wall and be held securely in place. During construction, scaffold planks should also be turned on edge at the end of each day so that rain will not splash mortar droppings or dirt onto the face of the masonry (see Fig. 15-58).

High-lift grouting is more efficient for large projects than low-lift grouting. The full height of the pour must be accomplished in a single day, working in lifts that are a maximum of 5 ft. high. A 30 to 60 minute delay between lifts allows time for consolidation and reconsolidation after initial water loss and settlement have occurred. Each lift should be consolidated by mechanical vibration, with the vibrator head inserted completely through the new lift and extending 12 to 24 in. into the previous lift. This will bond the two lifts together without cold joints. Double-wythe walls should cure for 3 days in warm weather or 5 days in cold weather before high-lift grouting. Single-wythe walls should cure 12 to 18 hours.

Grout fluidity is critical in high-lift grouting to assure complete filling of unit cores or wall cavities, and mortar protrusions into the grout space should be limited to a maximum of 1/2 in. Cleanouts at the base of the wall facilitate removal of debris and inspection prior to grouting operations.

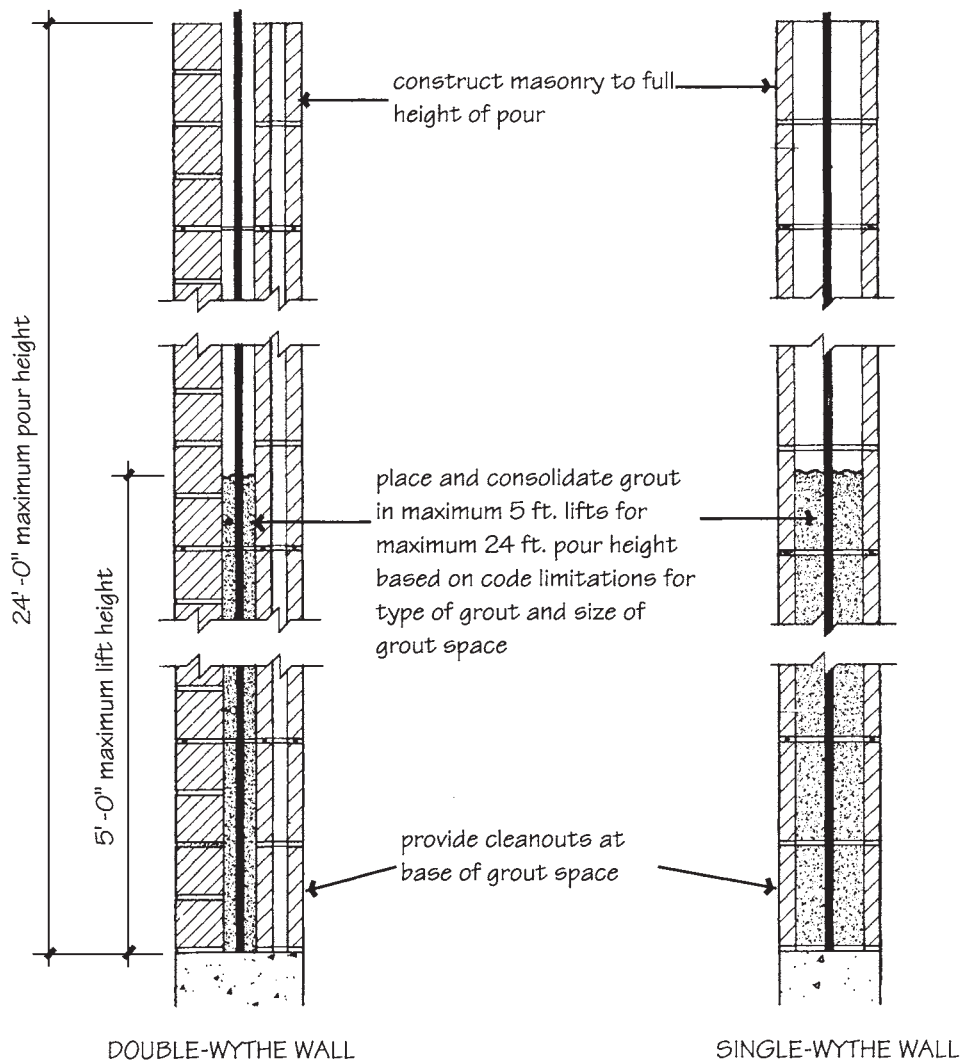


Figure 15-54 High-lift masonry grouting. (From *Grouting Masonry, Masonry Construction Guides Section 7-11, International Masonry Institute, 1997.*)