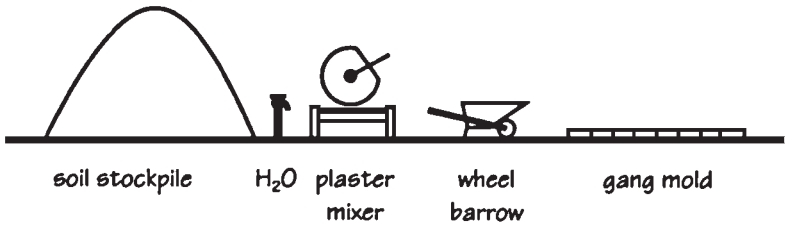
bricks are cast at 4 in. high × 10 × 14 in. and weigh about 30 lb each. The maximum practical weight for handling by a single person is about 40 lb.

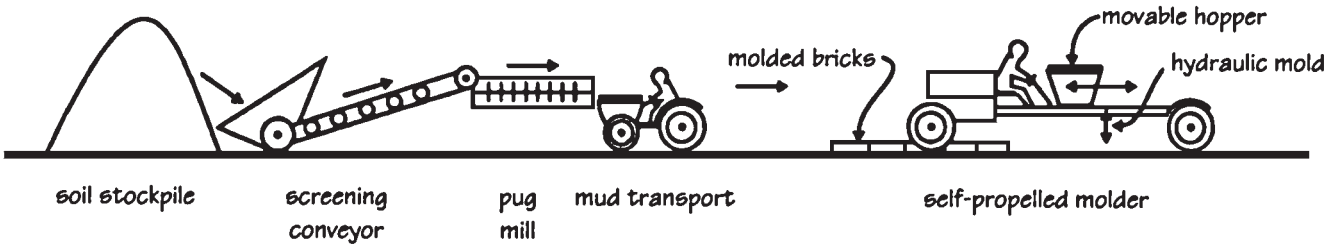
Adobe manufacturing can range from small, on-site operations to fully or partially mechanized commercial operations (*see Fig. 3-32*). A two-person crew can turn out 300 to 400 bricks per day by hand. A fully mechanized operation may produce as many as 20,000 bricks per day using a pug mill for mixing, self-propelled molding and screeding machines, and permanent steel molds.

Molds are most commonly made of wood, but can also be of metal. Wood molds must be oiled or wetted to prevent sticking. All molds must be cleaned frequently to remove dried mud. The molds are laid on flat or leveled ground, which can be covered with sand to prevent the bricks from sticking to the ground. The consistency of the mud mix may be either damp or liquid, depending on the method of mixing and the number of molds available. Liquid mixes generally produce stronger and more dense bricks, but since initial set takes longer, it will be necessary to use large gang molds in order to produce in sufficient quantities (*see Fig. 3-33*). Molds can be removed from damp, stiff mixes more quickly and reused right away. After the mold is filled, the top is leveled and screeded. Stiff mixes may require tamping to assure complete filling of the mold corners.

After the molds have been removed, the bricks must remain flat until they are dry enough to handle. This initial drying may take anywhere from 2 to 3 days in the summer or several weeks in the winter, depending on the moisture content of the mix. During this period, the units should be protected from rain by covering as necessary with tarps or plastic sheeting. The covers will retard the drying and curing process, though, so they should be removed as soon as possible. When the bricks are dry enough to be handled without breaking, they are set on edge to expose both large surfaces for better drying.



SEMI-MECHANIZED ADOBE PRODUCTION



FULLY MECHANIZED ADOBE PRODUCTION

Figure 3-32 Adobe production. (*From Paul Graham McHenry, Jr.,* Adobe and Rammed Earth Buildings, *1984.*)

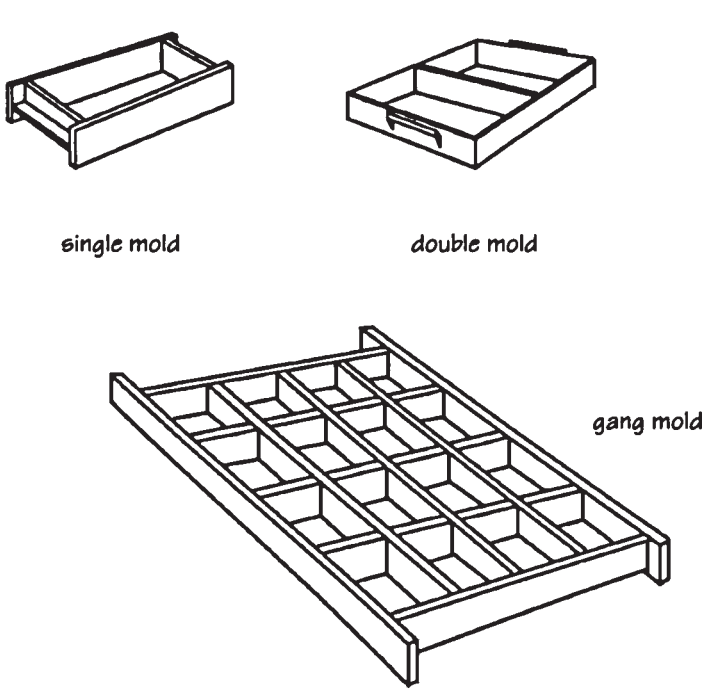


Figure 3-33 Adobe molds. (*From Paul Graham McHenry, Jr.,* Adobe and Rammed Earth Buildings, *1984.*)

At this stage, any cleaning or trimming that is necessary can be performed. The length of the drying and curing period will vary, depending on the size and thickness of the unit and the weather conditions. Freezing temperatures during the drying period can destroy the units, and many U.S. companies suspend production during the winter months. After the bricks have dried for at least 7 days, they are stacked on edge two units deep and three or four courses high. The top of the stack should be protected from rain, but the sides left open. With such protection, the units can remain in storage in this manner for extended periods of time.

3.5.2 Physical Properties and Characteristics

Finished bricks can be simply tested in a couple of different ways. The point of a knife blade should not penetrate the surface of a fully dried brick more than about ⅛ in. If the unit appears dry on the surface but is still damp on the inside, the knife blade will penetrate deeply. A finished brick can also be dropped on its corner from a height of about 3 ft. A thoroughly dried and cured brick of good quality will suffer little or no damage other than minor chipping at the corner. If the unit is not totally dry, it will shatter. If the soil was not properly and thoroughly mixed to homogeneity, it will split along the planes of weakness.

UBC Standard 21-1, *Building Brick, Facing Brick and Hollow Brick (Made From Clay or Shale),* requires that finished adobe bricks have the minimum physical properties indicated in *Fig. 3-34.*