

(2) **Deep shear failure.** This type of slope failure occurs along a cylindrical surface ABC (Fig. 20.10), when there is a weak layer of soil underneath the wall a depth of about 1.5 times the height of the wall. The critical failure surface is determined by trial and error procedure.

For the backfills having slope i less than 10° , it has been found that the critical failure surface DEF passes through the edge of the heel slab. The minimum factor of safety is found by trial and error, taking different circles, and determining the resisting forces and the driving forces along the failure surface (See Teng, 1962).

When a weak soil layer is located at a shallow depth below the retaining wall, the possibility of deep shear failure should be investigated. The possibility of excessive settlement should also be looked into. Sometimes, piles are used to transmit the foundation load to a firm layer below the weak layer. However, care shall be taken in the design of piles so that the thrust of the sliding wedge of soil does not cause bending of the piles.