Engineering Information

Loads-2

Where p = the pressure in kg/m³
       w = the unit weight of earth kg/m³
       h = the height of fill in Metre.
       Ø = the angle of repose of the fill in degrees.

The unit weight of earth and the angle of repose, will of course vary depending upon the degree of saturation of the retained material.

The Pressures exerted on inclined surface and due to the effect of sloping files are also derived from the normal formulate, for which reference may be made to text book on the subject.

Seismic Effects

The forces exerted as a result of seimic effects can be calculated directly from the fomulate given in clause 7 of the I.S. Code of Practice No. 875 = 1957.

Table No. 1

DEAD WEIGHT OF MATERIALS

Item	Weight
Bituminous substance	
Anthracite coal	1550 kg/m³
Pear	750 kg/m³
Heavy charcoal	530 kg/m³
Coke	1200 kg/m³
Graphite	500 kg/m³
Crude oil	880 kg/m³
Pitch	1100 kg/m³
Coaltar	1200 kg/m³
Excavated Material	
Clay (dry)	1600 kg/m³
Clay (damp, plastic)	1760 kg/m³
Earth (dry, loose)	1200 kg/m³
Earth (Packed)	1520 kg/m³
Sand (dry, loose)	1440-1700 kg/m³
Sand (dry, packed)	1600-1900 kg/m³

DEAD WEIGHT OF MATERIALS

Item	Weight
Liquids	
Alcohol	780 kg/m³
Gasoline	670 kg/m³
Ice	913 kg/m³
Nitric acid	1500 kg/m³
Sulphuric acid	1800 kg/m³
Vegetable Oil	930 kg/m³
Water	1000 kg/m³
Building Materials	
Bricks	1600 kg/m³
Cement	1400 kg/m³
Chalk	2200 kg/m³
Glass	2560 kg/m³
Limestone	2650 kg/m³
Sandstone	2800 kg/m³
Steel	7800 kg/m³
Timber	570-720 kg/m²
Structural Items, Ceilings, Finishes, etc.	
A. C. Sheets	17 kg/m²
Brick masonry	1920 kg/m²
Brick wall, 6 in. thick	295 kg/m²
Brick wall, 9 in. thick	440 kg/m²
Cement Plaster, 2.5 cm. thick	44 kg/m²
Concrete	2306 kg/m²
G.I. sheet, 24 gauge	5 kg/m²
G.I. sheet, 16 guage	10 kg/m²
Mangalore tiles with battons	69 kg/m²
Rubble masonry	2100 kg/m²