

Density

All materials have density, A denser object will have less volume than an equal mass of some less dense substance.

Material's of the same size can have different weights this in because of the density on the material they are manufactured from.

Take sand for example. If you gently fill a container with sand, and divide the mass of sand by the container volume you get a value termed loose bulk density. If you took this same container and tapped on it repeatedly, allowing the sand to settle and pack together, and then calculate the results, you get a value termed tapped or packed bulk density.

Tapped bulk density is always greater than or equal to loose bulk density. In both types of bulk density, some of the volume is taken up by the spaces between the grains of sand. The weight remains the same.

Entrained air building blocks such as Thermalite have different density's and weight's but remain the same size.

Block #1

Strength 2.8N/mm²

Thermal conductivity 0.11 W/mK

Density 470 kg/m³

Block weights are calculated using specified dry density, with a moisture content of 3% by weight added to provide the equilibrium value.

Block#2

Strength 8.4 N/mm² (10N/mm² equivalent)

Thermal conductivity 0.20 W/mK

Density 770 kg/m³

Thermalite Hi-Strength 10 block has been specifically developed to meet the requirements of the architect, structural engineer and builder confronted with situations where loading conditions require a 10 N/mm² building block.

Q.1 If density increases does strength increase or decrease?

Q.2 Will dense materials absorb more or less water?

Q.3 Material density and manual handling are linked why?

Q.4 Which block offers better insulation and why?

Q.5 Why would you want to use a dense product in a retaining wall?

Q.6 How and why does water affect the density of concrete?