Vermiculite

Lightweight, fireproof insulation without irritation

USES & APPLICATIONS

- **Backfill for firebacks and boilers**
- **Chimney lining**
- **Pipe Insulation**
- **Lightweight Concrete**
- **Roof & Floor insulation**
- **Packaging**
- **Thermal & Acoustic Insulation**
- **Loose-pour aggregate**
- **High temperature insulation**
- **Horticultural Applications**

Vermiculite is suitable for insulating chimney liners, backfill for firebacks and boilers, pipe insulation, roof and floor insulation, thermal & acoustic insulation and much more.

Exfoliated vermiculite complies with airfreight regulations for packaging materials. It is an inert, sterile, free-flowing material which can be poured easily around irregularly shaped products to form a baffle against impact shock as well as giving thermal protection.

Vermiculite is also completely fireproof and highly absorbent; it will retain liquids within its structure as well as between the particles themselves before drainage occurs, so making it an ideal media for transporting acids, chemicals, oils, liquids and hazardous waste materials.

Vermiculite, as an ultra-lightweight loose-pour aggregate, is an ideal material for the reduction in airborne sound. Traditionally it has been the practice to incorporate heavy materials into a building to absorb the sound. However, in many cases this is not practical especially in existing buildings. Therefore vermiculite has become an ideal alternative acoustic damping material which, when used at a minimum of a 100mm depth, meets with class "A" as shown from tests undertaken by ARRO (report No. L/2840).

Insulating Concrete Roof and Floor Screeds using Vermiculite

Lightweight concretes and screed made with exfoliated vermiculite ultra-lightweight aggregate can by used to reduce loss of heat through floors. Typically ground floors are constructed with dense concrete covered with dense screed; second storey floors over garages and car parks are also usually built with dense concrete and screed giving little thermal insulation. A screed containing vermiculite can reduce thermal conductivity from 1.04 to 0.9 w/m ^{o}C

Benefits

Standard concretes and screed have densities between 2000 and 2200 kg/m^3. The density of vermiculite concretes and screed is from 400 to 900 kg/m^3 which improves the thermal efficiency and also reduces the weight of the final structure. It should be noted, however, that lightweight concretes and screeds are susceptible to wear and should therefore be protected with an adequate topping to prevent indentation and dusting

Applications

Vermiculite concrete and screeds are ideal for:

- Roofs decks over metal profile decking.
- Over dense concrete roof and floor slabs.
- Sandwich construction.
- Swimming pool bases.
- Pig pens and farrowing pens.
- Any other installation that required lightweight concrete with a compressive strength not exceeding 8 n/mm^2 for concrete and 13 n/mm^2 for screed

Performance

Typical properties of lightweight concretes and screeds:

Mix volume proportions (cement:vermiculite)	1:4	1:6	1:8
Bulk density as placed (kg/m^3)	900	750	650
Air-dried density of set screed/concrete	570	480	400
Thermal conductivity (air-dried) w/m ^{o}C or w/mk 10^{o}C mean	0.16	0.12	0.09
28 day compression strength (n/mm^2)	1.23	0.95	0.70

Note: if mixing dry, do not mix longer than 1 minute dry and 1 minute wet

How To Mix Vermiculite Concrete

Materials needed:

1 No. 100 litre bag of Vermiculite (approx. 6 parts by volume)
25kg of Portland cement or Cement Fondu© (approx. 1 part by volume)
23 litres (5 gallons) of water

This mix (6:1) will make about 0.1m³ of lightweight concrete
For 8:1, use 18.75 kgs of Cement

Pour vermiculite from the bag into mixer, add the correct proportion of Portland cement, mix together and add the water - do not make or use a sloppy mix
The vermiculite concrete can then be placed and lightly tamped into position Do not compact heavily