EXPANDED CLAY AGGREGATE (ECA)
AND ITS APPLICATION FOR
THERMAL INSULATION PURPOSE
Expanded Clay Aggregate (ECA)

Thermal Insulation Purpose in Lightweight Filling

Application

- Filling and leveling with Expanded Clay Aggregate (ECA)
- Prepare a cement run-off by adding 25 litres of water to 40 kg of cement. This should be enough for full watering.
- Water the surface with the prepared cement run-off
- After couple of hours (24 hours), the ground is ready.

Advantages

- Due to its lightness, Expanded Clay Aggregate (ECA) substantially reduces weight on the structure
- It gives thermal and acoustical improvement
- Expanded Clay Aggregate (ECA) ensures quick drying
- It is easy to apply
Expanded Clay Aggregate (ECA)

Thermal Insulation Purpose in the Construction Of Top Slab

**Application**

- Apply **Expanded Clay Aggregate (ECA)** evenly over the surface (Loose Application)
- For Bags application; the whole surface should be covered with bags of **Expanded Clay Aggregate (ECA)** and they must be closely packed next to each other. In case, we have empty space, fill in with loose Expanded Clay Aggregate (ECA).
- You may put a support or plank directly over the **Expanded Clay Aggregate (ECA)**, if circulated feely on the surface.

**Advantages**

- **Expanded Clay Aggregate (ECA)** is very easy to apply and low cost
- Good thermal insulation of the garret
- **Expanded Clay Aggregate (ECA)** is not carcinogenic and not toxic
- **Expanded Clay Aggregate (ECA)** cannot be attacked by insects or rodents
- **Expanded Clay Aggregate (ECA)** does not age.
Expanded Clay Aggregate (ECA) Thermal Insulation Purpose in Floor Applications

Application

- To achieve a full lightness and insulating characteristics of Expanded Clay Aggregate (ECA) in floor applications.
- Expanded Clay Aggregate (ECA) should be applied loose and leveled to a desired thickness.
- In a situation whereby the top surface is not workable, it can be covered with a panel, non-structural slab or plant growth soil for easy accessibility.

Advantages

- Expanded Clay Aggregate (ECA) mixes easy with other binders (cement, hydraulic lime and resin)
- Due to its porosity, Expanded Clay Aggregate (ECA) gives good thermal installation
- It gives the floor a good life-span.
Expanded Clay Aggregate (ECA) Thermal Insulation Purpose in Roofing

**Application**

- Because of its lightweight, **Expanded Clay Aggregate (ECA)** can be applied to a desirable thickness without loading the structure excessively.

- **Expanded Clay Aggregate (ECA)** can be mixed with cement and this can be used as an insulation layer. It can also be incorporated on the roof pitches.

- To make the roof void accessible, **Expanded Clay Aggregate (ECA)** should be applied in a loose form or in bags laid directly on the surface. The surface can also be covered with cement slabs or slur to make it walkable.

**Advantages**

- **Expanded Clay Aggregate (ECA)** is durable.

- It increases the thermal inertia of a roof.

- **Expanded Clay Aggregate (ECA)** has good thermal and acoustic insulation properties.

- It is easy and quick to install.
Expanded Clay Aggregate (ECA)

Thermal Insulation Purpose in Foundations and Earth Retaining Walls

**Application**
- To reduce or avoid heat loss into the ground, the underground layers of a building must be properly insulated.
- **Expanded Clay Aggregate (ECA)** can be used for this special purpose in industrial, zoo technical and civil buildings.
- **Expanded Clay Aggregate (ECA)** can serve as an insulating material for most floors such as refrigerated cold stores, industrial floors or floors that have heating pipework.
- Hydrophobic **Expanded Clay Aggregate (ECA)** is recommended for these types of applications, it is very effective as an insulator, and also serves drainage against rising damp behind earth-retaining walls or structures.

**Advantages**
- **Expanded Clay Aggregate (ECA)** has an excellent drainage property
- It doesn’t age
- **Expanded Clay Aggregate (ECA)** decreases soil pressure on structures.
- **Expanded Clay Aggregate (ECA)** is an excellent thermal insulator
Expanded Clay Aggregate (ECA) can be used as insulating backfill between joists and rafters in timber constructed floors and this is to improve acoustic and thermal performance.

Expanded Clay Aggregate (ECA) can also be used as an insulating backfill on top of vaulted buildings, and its high strength makes it ideal to support weight of a finishing structures.

Expanded Clay Aggregate (ECA) is also used as an insulation material in industrial or civil building as fire protection, for laying underground pipelines.
During summer, solar plants collect and store heat for use in winter. In order to save the heat for winter, an insulating material consisting of **Expanded Clay Aggregate (ECA)** is used.

**Expanded Clay Aggregate (ECA)** can as well serve as great heat-insulator; it’s flexible and easy to use.

**Expanded Clay Aggregate (ECA)** can be applied by blowing, using a blowing hose of about 90m to the exact place of application.
Expanded Clay Aggregate (ECA) Thermal Insulation Purpose in Underground Pipelines And Structures

- Expanded Clay Aggregate (ECA) can be used as bedding and insulator for underground pipelines and structures. It brings practical and technical advantages:
  - Provides a thermal resistance between the pipeline and the ground level
  - Makes pipeline easy to lay without the risk of damage and without any need for compaction
  - In case of any maintenance, Expanded Clay Aggregate (ECA) is very easy to remove and leakage in any pipe is easy to identify.
  - Protects pipeline from thrust caused by landslide, seismic event and any sort of vibration.
  - Also protects pipelines from significant loading.
  - Helps in elimination and drainage of stagnant water.
Expanded Clay Aggregate (ECA-Tile) Roof Top Thermal Insulation Tile

Technical Parameters:
- Expanded Clay Aggregate (ECA) Tile Unit Weight = 3.5kg
- Expanded Clay Aggregate (ECA) Tile Dimension = 300 x 300 x 40mm
- Tile Thermal Conductivity = 0.367W/m.K
- Surface Texture and Color = Plain white
- High Resistance to Water Absorption

Laying
Expanded Clay Aggregate (ECA) tile laying technique is between 4 – 5 mm groove between tiles, and this is the same as conventional ceramic tile laying.

Groove Fill
After laying the tile, fill the joint by mixture of very fine sand with normal cement mortar, or with any other cementitious material (resin, lime, etc.)

Advantages
- Expanded Clay Aggregate (ECA) improves thermal activity of building and as well saves electricity consumption.
- Expanded Clay Aggregate (ECA) has high thermal insulation ability, and this does not change with time.
- Expanded Clay Aggregate (ECA) is light in weight and strong.
- Expanded Clay Aggregate (ECA) is easy to maintain and install.
Expanded Clay Aggregate (ECA) Insulation Mortar

Expanded Clay Aggregate (ECA) insulation mortar is widely used in roof and floor screeds, giving effective way of improving thermal insulation, reducing weight, and sound insulation for new build usage.

Mixing Methodology
- ECA 2-15 mm (300 liters)
- Mix ECA with 20 liters of water for 1 minute
- Add cement to the mixture for 1 minute. Again add 10 liters of water for 1 minute
- Using a cement miller for thorough mixing for some minutes
- Finally Expanded Clay Aggregate (ECA) mortar is ready to use.

Application
- Expanded Clay Aggregate (ECA) mixed mortar is poured on the floor and leveled depending on our desired thickness. To prevent immediate drying of the mortar, it can be covered with plastic material for at least 1 day (24 hours). After this, spray it with water regularly.

Advantages
- Expanded Clay Aggregate (ECA) increase sound insulation properties
- Expanded Clay Aggregate (ECA) maintenance and installation
- Expanded Clay Aggregate (ECA) insulation mortar improves insulation capability of creed system and save the use of electricity
- Expanded Clay Aggregate (ECA) is strong and light in weight
- Expanded Clay Aggregate (ECA) increases building life by protecting the building from thermal cyclic effect.
Expanded Clay Aggregate (ECA) Insulation Mortar for Roof Top Thermal Insulation

Expanded Clay Aggregate (ECA) mixed mortar is poured on the floor and leveled (As per desired thickness and slope correction in the range of 50 mm to 100 mm). For prevention of immediate drying and to allow curing, the mounted layer needs to be covered with plastic material for at least 24 hrs. Post this process, we need to cure with regular spraying of water. Lay any tiles or China Mosaic on the top of the laid Expanded Clay Aggregate (ECA) INSULATION MORTAR.

**Mixing Methodology**

MIXING METHODOLOGY Expanded Clay Aggregate (ECA) with 2-15 mm pellet size in the quantity of 300 liters batch (50 liters Bag X 6 Nos) mixed with 20 liters of water. This mix is kept for 1 minute. Then 50 kgs cement is mixed in the above mixture for 1 minute and then 10 liters of water is added and blended for 1 minute.

**Application**

- APPLICATION METHODOLOGY P.S. Prior to the application of Expanded Clay Aggregate (ECA) Insulation Mortar
- Expanded Clay Aggregate (ECA) INSULATION MORTAR is made from Expanded Clay Aggregate (ECA) and cement with proper mixing of water. The mixture is surface mounted thoroughly.

**Advantages**

- Light in Weight and Strong.
- Application of the above mortar dramatically improves the thermal and acoustic insulation.
- Protects from the thermal cycling effects and enhances the building life.
- Saves electricity.
- Easy application and maintenance free.