USE OF EXPANDED CLAY AGGREGATE (ECA) IN PRECAST CONCRETE SEGMENTS
Use Of Expanded Clay Aggregate (ECA) In Precast Concrete Segments:

Past years, using Expanded Clay Aggregate (ECA) in a precast concrete seemed to have greatly displaced in-situ concrete and it’s now the most commonly used in construction, by providing better quality, reduced labor and faster construction.

Expanded Clay Aggregate (ECA) precast concrete has made an incredible impact in construction works and this has been ascertain by numerous researches that have been conducted.
Use Of Expanded Clay Aggregate (ECA) In Precast Concrete Segments:

This research is centered on mechanical and physical properties of light-weight structural high-strength concrete using Expanded Clay Aggregate (ECA) in precast concrete segments, i.e. partition walls and floors.

One of the major prides of structural engineers is making use of light weight structural concrete in their constructions.

Expanded Clay Aggregate (ECA) precast concrete reduce reinforced concrete buildings dead load, without losing the on-demand compressive strength of the material.
Use Of Expanded Clay Aggregate (ECA) In Precast Concrete Segments:

Using Expanded Clay Aggregate (ECA) structural concrete results in higher safety against earthquake and other seismic hazards.

Using Expanded Clay Aggregate (ECA) facilitates the carrying and installment of precast concrete elements.

Expanded Clay Aggregate (ECA) precast concrete decreasing density and weight produces great changes which enhance many properties of concrete, both in placement and application.
Why Expanded Clay Aggregate (ECA) Is Preffered To Other Aggregates?:

The insulating, fire resistance and lightness of Expanded Clay Aggregate (ECA) makes it the most significant material for constructing and fabricating a wide range of precast components and elements.

This includes the sound absorbing and refractory products such as precast panels, blocks for constructions fireplaces and chimneys.
Why Expanded Clay Aggregate (ECA) Is Prefered To Other Aggregates?:

A study was carried out in determining the shrinkage of concrete when using Expanded Clay Aggregate (ECA) and Normal Aggregate.

The results of the study on the shrinkage for a year of high-strength Expanded Clay Aggregate (ECA) concrete exposed to a dry environment compared with that of the Normal Weight concrete have shown that the shrinkage of Normal Weight concrete with granite aggregate was higher than that of the corresponding Expanded Clay Aggregate (ECA) concretes with the same mixture proportioning in the first 6 months.

After 12 months the shrinkage of the Expanded Clay Aggregate concretes was to an extent higher than that of the Normal Weight concrete.
Characteristics of Expanded Clay Aggregate (ECA) in Precast Segments:

- Lightweight, Insulating and Strong
- Non-combustible and fire-resistant
- Extremely durable and stable
- Versatility
- High drainage capacity
- Expanded Clay Aggregate (ECA) is the perfect material for sustainable construction
Precast concrete products using Expanded Clay Aggregate (ECA) can withstand the most harsh weather conditions and will hold up for many decades of constant usage.

Products which include the following; cattle feed bunks, bunker silos, cattle grid, H-bunks, agricultural fencing, J-bunks, livestock slats, watering trough, feed troughs, concrete panels, and more.

Pre-stressed concrete panels are widely used in the UK for a various type of applications and this include grain stores, agricultural buildings, slurry stores, silage clamps, livestock walling, and general retaining walls.

Panels can be cast into a concrete foundation and used as a cantilever retaining wall.
Precast Concrete Products Using Expanded Clay Aggregate (ECA):

- Precast concrete building segments and site amenities using Expanded Clay Aggregate (ECA) are used architecturally in the construction of curtain walls, trim products, cladding, fireplace mantel and accessories.

- Structural applications of precast concrete using Expanded Clay Aggregate (ECA) include floors, beam, walls, foundations, and other structural segments.
Precast Concrete Products Using Expanded Clay Aggregate (ECA):

Expanded Clay Aggregate (ECA) precast concrete provides the builders with the ability to produce various engineered earth retaining systems.

Products include: sea walls, residential retaining wall, commercial retaining wall, modular block systems, mechanically stabilized earth (MSE) panels, segmental retaining walls, and many more.
Sanitary and Storm water management products are structures designed for underground installation that have been specifically engineered for the treatment and removal of pollutants from sanitary and storm water run-off.

These precast concrete products using Expanded Clay Aggregate include catch basins, storm water detention vaults, and manholes.
Precast Concrete Products Using Expanded Clay Aggregate (ECA):

Expanded Clay Aggregate precast concrete transportation products are used in the construction, safety and site protection of road, airport and railroad transportation systems. Products include: box culverts, 3-sided culverts, bridge systems, railroad crossings, railroad ties, sound walls/barriers, Jersey barriers, tunnel segments, precast concrete barriers, TVCBs, central reservation barriers and other transportation products.

It can also be used to make underpasses, surface-passes and pedestrian subways, so that traffic in cities is disturbed for less amount of time.
For communications, electrical, gas or steam systems, Expanded Clay Aggregates (ECA) precast concrete utility structures protect the vital connections and controls for utility distribution.

Expanded Clay Aggregates (ECA) precast concrete is nontoxic and environmentally safe. Products include: hand holes, hollow-core products, light pole bases, meter boxes, panel vaults, pull boxes, telecommunications structures, transformer pads, transformer vaults, trenches, utility buildings, utility vaults, utility poles, controlled environment vaults (CEVs,) and other utility structures.
Benefits Of Using Expanded Clay Aggregate (ECA) In Precast Concrete Segments:

- Expanded Clay Aggregate (ECA) has higher strength/weight ratio
- Expanded Clay Aggregate (ECA) has better tensile strain capacity,
- Expanded Clay Aggregate (ECA) has lower coefficient of thermal expansion
- Expanded Clay Aggregate (ECA) has a superior heat and sound insulation characteristics due to air voids in Expanded Clay Aggregate (ECA) honey combed structure.