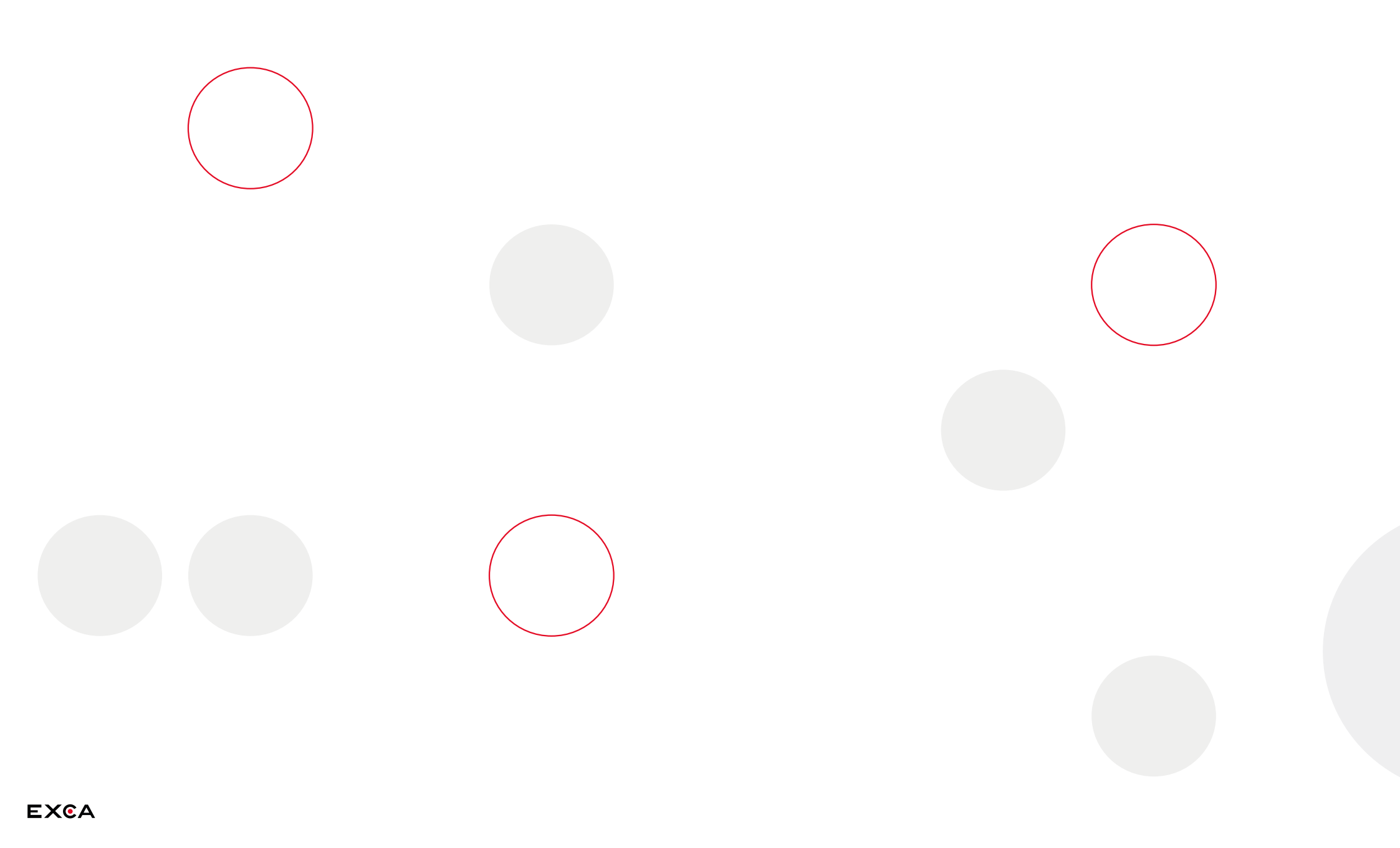
EXCA

Expanded Clay

Shaping a Sustainable Future



Unique lightweight aggregate with versatile applications. The only **all-in-one** solution that drives sustainable innovation **everywhere**, shaping a sustainable future.

Used in construction since Roman times, lightweight aggregates have long been recognised for their versatility and sustainability, and they are valued for their combination of low weight and high strength.

Expanded clay has been manufactured since the early 20th century in the United States, with European production beginning in the 1950s. Today, it is a well-established material known for its durability, safety, and versatility, capable of withstanding diverse climates—from the Mediterranean's heat to Scandinavia's cold.

The European expanded clay industry is a resource-efficient sector, playing a key role in the transition to a competitive low-carbon economy.
With a strong commitment to reducing environmental impact, the industry continuously enhances both the production process and the material's properties, ensuring expanded clay remains a cornerstone of sustainable construction.

Over the past few decades, the industry has made significant strides in reducing both energy consumption and CO_2 emissions, with a clear commitment to further reductions under the EU Emission Trading Scheme. By using waste materials that cannot be recycled or reused and upping our biomass intake, we not only decrease fossil fuel consumption and promote a truly circular economy but also reduce our carbon footprint.

Expanded clay is a well-proven, high-quality, efficient and durable lightweight aggregate suitable for a wide range of applications.
It is sustainable and packed with properties that improve the economic, social and environmental performance of a building or infrastructure over its whole lifetime.

Who Are We

EXCA is the European Expanded Clay Association and represents the interests of all major producers throughout Europe.

With its 10 member companies in 10 countries operating 11 plants throughout Europe EXCA represents more than 80% of the European expanded clay industry.

Who Are We

10 member companies

10 countries operating

11 plants throughout Europe

>80% of the European expanded clay industry

All-in-one product

Expanded clay is a premium, long-lasting lightweight aggregate. Its key feature is its low density paired with high strength. Beyond this, expanded clay offers a variety of other essential qualities, making it a versatile "all-in-one" material with a wide range of properties crucial for sustainable construction.

All-in-one product

Durable
Adds Strength
Lightweight
Resistant to fire

Strong
Recyclable
Thermal insulation
Acoustic insulation

Never-ending life
Drainage capacity
Water absorption
Used everywhere

Durable
Expanded clay is durable has a long lifetime and requires no maintenance.

Adds Strength
Expanded clay can reduce the weight of concrete by nearly 50% while maintaining its strength.

Lightweight
It is 4-5 times lighter than loose gravel or crushed stone fill.

Strong
It can be utilized as loose fill and insulation in road and rail embankments, with the ability to withstand dynamic loads from heavy, high-speed trains.

Recyclable
Expanded clay is fully recyclable and reusable. There are no disposal issues with demolition waste, and it doesn't require new materials, resources, or energy.

Acoustic insulation
It is effective for both acoustic insulation and sound absorption. It is ideal for use as a wall between homes and serves as an excellent barrier against noise from external sources like infrastructure.

Never-ending life
Expanded clay is chemically inert, free from harmful substances, and highly resistant to chemical attack, similar to glazed tiles or glass.

Used everywhere, from the snow to the tropics
Unlike other materials, it is resistant to freezing temperatures, remaining intact without warping, breaking, or bursting. It is commonly used in Northern European countries with extreme weather conditions.

All-in-one

Resistant to fire
It is classified as a completely non-combustible material. It is fire-resistant, emitting no gases or smoke, and maintains its mechanical strength along with all other thermal and physical properties. It provides excellent fire protection.

Thermal insulation
The insulating performance of loose-fill expanded clay is on par with the best values of wood. Concrete made with expanded clay can be up to 12 times more insulating than regular concrete, ensuring comfort in both winter and summer.

Drainage capacity
With 40% hollow space, it ensures quick drainage and runoff, helping prevent flooding and protecting the environment.

Water absorption
It withstands freezing temperatures without warping or breaking, making it ideal for harsh climates.

Expanded clay has a wide range of applications.

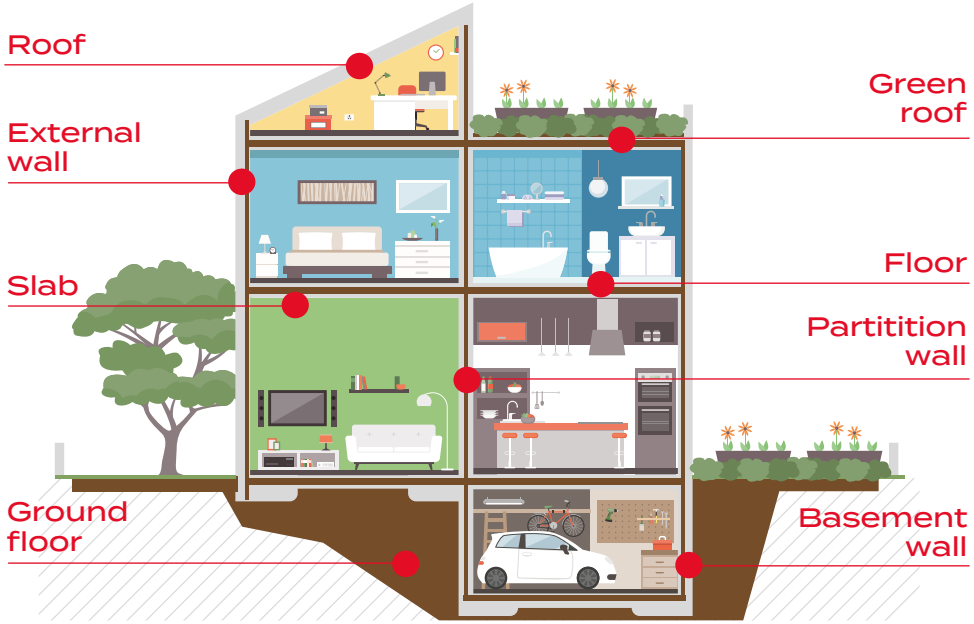
It is used in flower pots to enhance and control plant and tree growth, as well as in the production of lightweight structural concrete for bridge elements in harsh northern waters.

Buildings

Infrastructures

Green Applications/ Water Management

Buildings



It is extensively applied in new buildings, the restoration of historic structures, and renovation projects. Expanded clay is utilized in all aspects of construction, from foundations to rooftops.

It is primarily found in internal and external masonry walls, both in blocks and mortar, and serves as an insulating layer in floors, roofs, and basements. In residential construction, expanded clay provides high levels of thermal and acoustic comfort, improving energy performance and the overall home environment.

Its unique properties also offer effective solutions for stabilizing and restoring the foundations of historical buildings while preserving their original structures.

Roof

- Thermal insulation
- Acoustic insulation
- Lightweight

External wall

- Thermal insulation
- Lightweight
- Durable

Slab

- Lightweight
- Durable
- Thermal insulation

Ground floor

- Drainage
- Radon ventilation
- Thermal insulation

Green roof

- Lightweight
- Drainage
- Water absorption

Floor

- Lightweight
- Thermal insulation
- Acoustic insulation

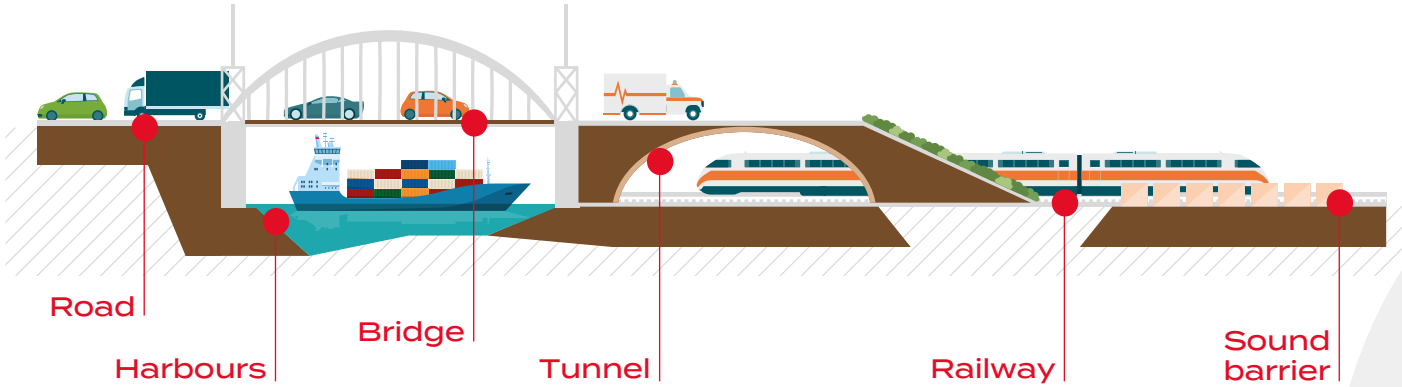
Partition wall

- Sound insulation
- Fire resistance
- Durable

Basement wall

- Thermal insulation
- Drainage
- Low earth pressure

Infra structures



Expanded clay is widely used in civil engineering projects.

Its lightweight nature and durability offer engineers reliable solutions for challenging ground conditions.

Other applications include bridge abutments, retaining walls, tunnel linings, and pipeline coverings. It is also used in areas with unstable ground, such as urban "brownfield" site reclamation. Additionally, expanded clay is utilized in noise barriers and engineering works designed to reduce the environmental impact of infrastructure projects.

Road

- Thermal insulation
- Drainage
- Frost resistance
- Lightweight
- Strength
- Durable

Harbours

- Lightweight
- Strength
- Durable

Bridge

- Lightweight
- Strength
- Durable

Tunnel

- Fire resistance
- Lightweight
- Strength
- Durable
- Drainage
- Frost resistance

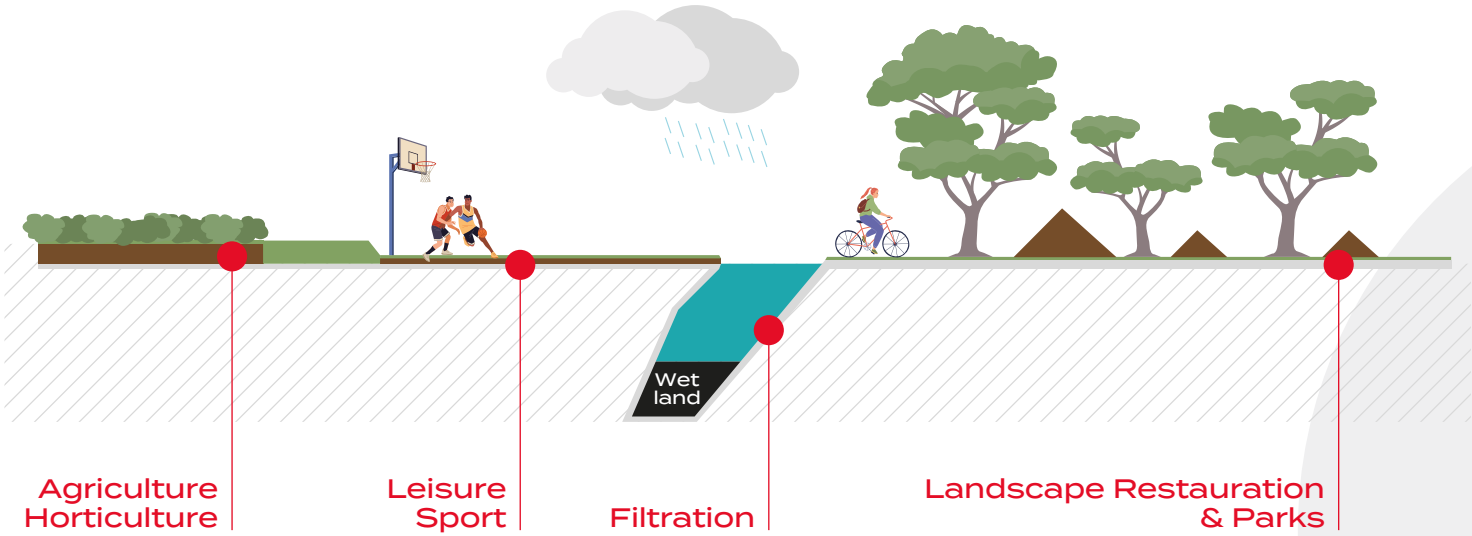
Railway

- Thermal insulation
- Drainage
- Frost resistance
- Lightweight
- Strength
- Durable

Sound barrier

- Acoustic insulation
- Urban decoration
- Durable

Green Applications/ Water Management



In landscape restoration, expanded clay is used in parks and urban green spaces. Green roofs, for example, buffer rainwater, reducing runoff during heavy rainfall and easing pressure on drainage systems. They also promote water evaporation and support urban biodiversity.

Expanded clay provides environmental benefits by absorbing gases and dust, restoring humidity, and improving air quality.

Its porous structure makes it ideal for drainage, water management, and filtration. It is also used as a foundation for sports surfaces, safety zones in motorsports, and as a growing medium in agriculture and horticulture, including waste slurry processing.

Though often unseen, expanded clay aggregate plays a vital role in enhancing the environment.

Agriculture, Horticulture

- Drainage
- Lightweight
- Environmental friendly

Leisure, Sport

- Lightweight
- Strength
- Durability
- Drainage

Filtration

- Water cleaning
- Drainage
- Inert

Landscape, Restauration & Parks

- Lightweight
- Re-use
- Drainage
- Inert

A Sustainable Industry

The expanded clay industry is dedicated to minimising its environmental footprint.

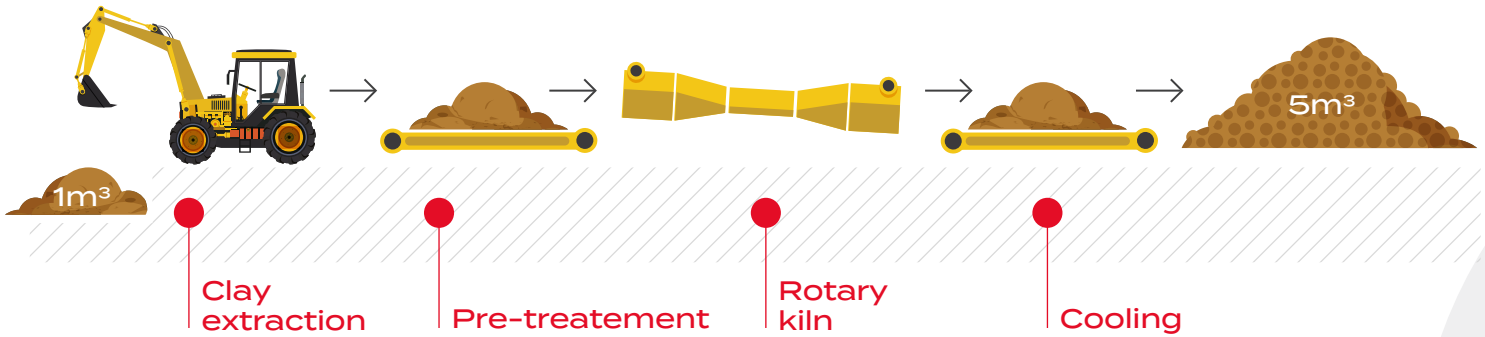
Through optimised production processes, energy efficiency measures, and the use of alternative fuels, we actively contribute to a more sustainable construction sector.

Expanded clay offers numerous benefits

Recyclability

Durability and long lifespan

Contribution to Circular Economy Practices



Expanded clay is made from naturally abundant clay, and processed in rotary kilns at high temperatures. Although energy-intensive, the industry continuously improves efficiency, reducing emissions and optimizing resource use. Each cubic meter of raw clay produces up to five cubic meters of expanded clay, ensuring maximum material efficiency.

Key sustainable practices in production

- Use of alternative fuels to reduce CO_2 emissions
- Efficient transportation to minimize environmental impact
- Restoration and rehabilitation of clay extraction sites to preserve biodiversity

Reducing CO_2 Emissions

- In construction, expanded clay enhances energy efficiency, reducing the overall carbon footprint of buildings and infrastructure
- The industry is committed to the EU Emission Trading System (ETS) and continuously improves its processes to cut CO_2 emissions

Our contribution to a competitive low-carbon economy

- Produce up to 5m³ of high-quality, efficient, and competitive construction material from just 1m³ of locally and abundantly available raw material
- Continuous improvements in the production process reduce fuel and electricity consumption
- Replacing fossil fuels with waste and biomass decreases reliance on fossil fuels, lowers CO_2 emissions, and supports a truly circular economy
- The lightweight nature of expanded clay reduces the number of trucks and journeys, minimizing the carbon impact of transportation
- Using expanded clay enhances the energy performance of buildings, leading to a significant reduction in energy consumption and associated CO_2 emissions

Sustainability Assessment

① Raw material extraction

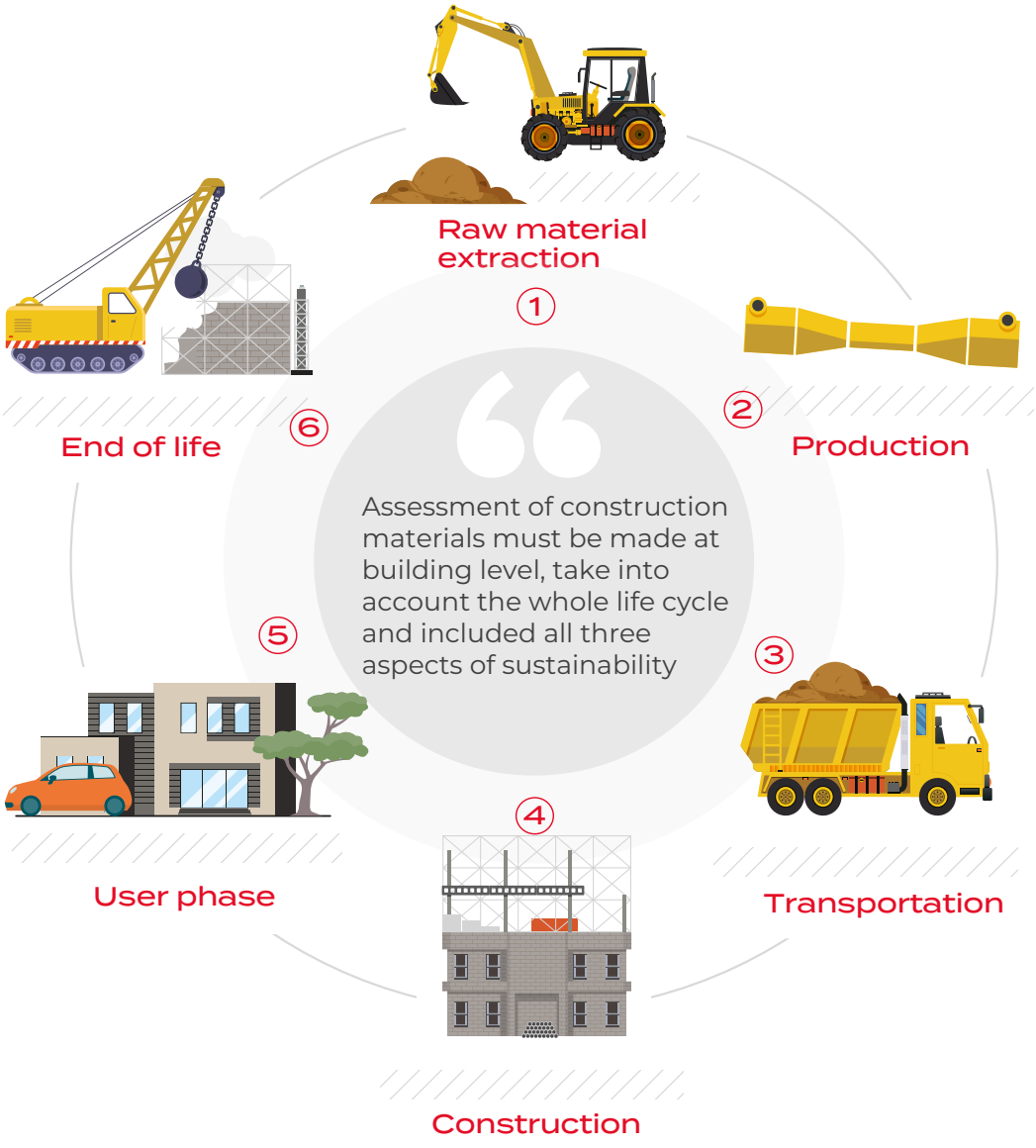
- Naturally and abundantly available clay extracted close to the plants
- Restore and rehabilitate clay pits to preserve biodiversity and create new natural habitats

② Production

- Up to 5 m³ of expanded clay is produced from every 1 m³ of clay
- Efficient production using state-of-the-art technology
- Replace fossil fuel with waste and biomass in compliance with European waste legalization
- No waste is generated

③ Transportation

- Efficient and well-developed infrastructure for delivery to the construction site
- The low weight means fewer trucks and fewer journeys, thus reducing the carbon impact of transportation



Construction ④

- Expanded clay is flexible in use, is durable, has a lifetime and requires no maintenance
- The low weight provides safe and good working conditions during handling and installation

User phase ⑤

- In buildings, expanded clay offers a healthy indoor climate with good acoustic comfort and fire resistance and improves energy efficiency
- In infrastructures and green applications, it guarantees drainage and avoids extensive load to the construction

End of life ⑥

- At the end of life when a building or infrastructure is demolished, expanded clay can be recycled or reused

Expanded Clay

Shaping a Sustainable Future

Expanded clay is more than just a construction material - it's the solution for a sustainable future.

Whether used in buildings, infrastructure, green roofs, or water management, it plays a vital role in modern, eco-friendly construction. With its high performance, durability, and environmental benefits, expanded clay and EXCA are Shaping a Sustainable Future.

EXCA

European Expanded Clay Association

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