



# BUILDING WITH EARTH

An Introduction to Natural Building  
with Raw Earth

di Virginia Stammitti - Incolte



[www.incolte.com](http://www.incolte.com)

[infoincolte@gmail.com](mailto:infoincolte@gmail.com)



## About Me

My name is Virginia, and I'm a craftswoman specializing in natural building.

Besides designing and building, I also lead theoretical and hands-on training through workshops and participatory building sites.

My work stems from essential human needs — food, health, home, relationships — and from the desire to meet them in ways that foster well-being, sharing, and mutual learning.

Through the Incolte project, I integrate permaculture design, natural building, self-production, and nonviolent communication with the aim of creating spaces that nurture and support those who inhabit them.



## What Does It Mean to Build with Earth?

The term earth building refers to the natural soil we find in our gardens or fields — which, without industrial processing, can be mixed and shaped by hand to become a building material.

Because earth can be sourced and transformed directly on-site, its environmental impact is almost zero: it requires very little energy to process and can be reused indefinitely.

At the end of a building's life cycle, the material can simply be soaked and remixed to take on new forms — it never becomes waste.

Beyond its environmental sustainability, raw earth offers natural properties that enhance comfort, reduce energy consumption, and improve the health and livability of indoor spaces.

## The Properties of Earth



### Hygroscopic

Earth can absorb and retain moisture from the air, naturally regulating indoor humidity. When we produce steam — through breathing, cooking, or showering — the walls made of earth absorb the excess, acting as a natural dehumidifier.

### Breathable

In addition to absorbing moisture, earth can also release it when the air becomes too dry. When combined with natural materials like straw, it creates fully breathable walls. It can even improve less “alive” structures (such as concrete or hollow blocks) thanks to its moisture-regulating capacity.

### Thermal Mass

Earth has the ability to store heat and release it slowly. This is beneficial both in winter — retaining heat indoors — and in summer, when it helps delay and reduce heat gain from outside.

### Malleable and Reversible

Earth is an extremely versatile and sculptable material, allowing for unique forms, decorations, and textures. Even when dry, it can be rehydrated and reshaped, making it endlessly reusable and recyclable.



## Main Earth-Building Techniques

Raw earth can be used in many ways within a home. Depending on the climate and needs, we can make the most of its various properties:

- Earthen plasters and floors → create breathable, humidity-regulating spaces.
- Masonry stoves and thermal mass ovens → make use of heat storage and release.
- Solid earth walls → improve thermal comfort in both summer and winter.
- Mixtures with straw or natural fibers → provide insulation and lightness.
- Decorative finishes and bas-reliefs → combine functionality and beauty, often with reclaimed materials.



## How Earth Becomes a Building Material

Earth is composed of clay, silt, and sand.

When working with excavated soil (the earth found on-site), it's essential to understand the proportions of these three elements.

This can be tested with simple field methods, such as the jar test.

Each building technique (plaster, wall, floor, insulation) requires a different mix, varying in clay, sand, and fiber content.

Learning to formulate earth mortars takes practice, observation, and sensitivity.

Basic components of an earthen mortar:

- Binder → clay, acting as the natural glue.
- Aggregate → sand, giving body and compressive strength.
- Fiber → chopped straw or similar, providing cohesion and uniformity to the mix.





## What You'll Learn in the Workshops

I hope this short guide has helped you better understand the basics of building with natural materials.

During the workshops, we'll dive deeper into theory and spend time working hands-on, learning to:

- recognize the right consistency of earth mixes,
- use tools and techniques,
- train the eye for detail,
- and learn by doing.

If you'd like to explore the world of earth building and learn through practice, visit our website to check out upcoming workshops and community builds.

Contact:

[www.incolte.com](http://www.incolte.com)

[infoincolte@gmail.com](mailto:infoincolte@gmail.com)

Instagram: [@incolte.permacultura](https://www.instagram.com/incolte.permacultura)

Facebook: [incolte](https://www.facebook.com/incolte)