

Where

FMAA Lab,
Turconi -1

Future Earth

About

Can we design the way earthen buildings erode over time using digital technologies?

Rammed earth walls built in the global north often integrate erosion breakers to slow down degradation by water and wind. These typically appear as horizontal bands of waterproof material within the earth layers, based on a pre-calculated height. Although highly effective, the resulting erosion remains sporadic and inconsistent, prompting premature maintenance. But what if we could efficiently produce new shapes and patterns for these erosion breakers? Could we then control erosion more intently and expressively?

Complimenting traditional rammed/ cast earth techniques, this workshop leverages the flexibility of 3D printing to try and rethink how these waterproof elements can trigger new effects upon standard earthen wall systems. Using a printable earth as a formwork, concrete is cast inside to form the erosion breakers. The earth walls are then constructed by strategically placing the cured elements within a standard frame and later casting a special earth mixture. Conducted in groups, each team of participants will design and fabricate their own wall, complete with custom-printed erosion breakers. After production, the walls will continue to be monitored in subsequent months, documenting emerging patterns of erosion.

The workshop takes place across 2 days, covering some of the fundamentals of earth building and digital fabrication, how to classify contemporary mixtures from printable to cast earth, how to set up appropriate formworks, and how the overall shape, size, orientation and frequency of erosion breakers can produce durable earthen structures that become more beautiful as they age.

Schedule

Important Note: This workshop begins on 4th November, one day before the Symposium.

Day 1 / 04.11. (Theory + Design + Printing):

09:00 – 11:00 | Introduction

Material science of earth (IG Lehm)

Earth building methods (IG Lehm)

Digital Fabrication with Earth

Workshop Introduction

11:00 – 12:00 | Group forming + start design

12:00 – 13:00 | Lunch break

13:00 – 15:00 | Design + modelling (mix + setup)

15:00 – 18:00 | Printing + Casting

Day 2 / 05.11. (Casting):

09:00 – 11:00 | Build Formwork (3 drills) mobile workshop.

11:00 – 12:00 | Earth mixing

12:00 – 13:00 | Lunch break

13:00 – 15:00 | Placing breakers + Casting

15:00 – 16:30 | Cleaning

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