CALCHÈRA
SAN GIORGIO
MATERIA E COLORE

GEOPOLYMERS FOR RESTORATION AND CONTEMPORARY ART

Dr. Marco Scalet
R&D Calchèra San Giorgio - Italy

PRESERVING HERITAGE: CRAFTING THE FUTURE WITH HISTORIC MATERIALS

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Calchèra San Giorgio Research and Formulation Center studies and produces special materials for restoration, structural consolidation and renewal of buildings of historical interest. Our focus is developed according to project requirements, historic building techniques and local traditional materials which characterize the physical quality of the structure and its associated culture. The structure of technological laboratories and production is patterned on research and creation of construction materials, in full compliance with the Tradition and the Rule of Art, and is designed to meet a range of requirements set down from Superintendence of Cultural Heritage and Project Architects. Our choice of pure and natural raw materials is based on construction history according to unwritten local tradition and practices passed down from generation to generation, and the best-known nineteenth-century classical literature and manuals. Every material we produce undergoes a production control, and meets CE marking certification, in compliance with Safety Requirements and EU Guidelines.

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→ 2000 Years

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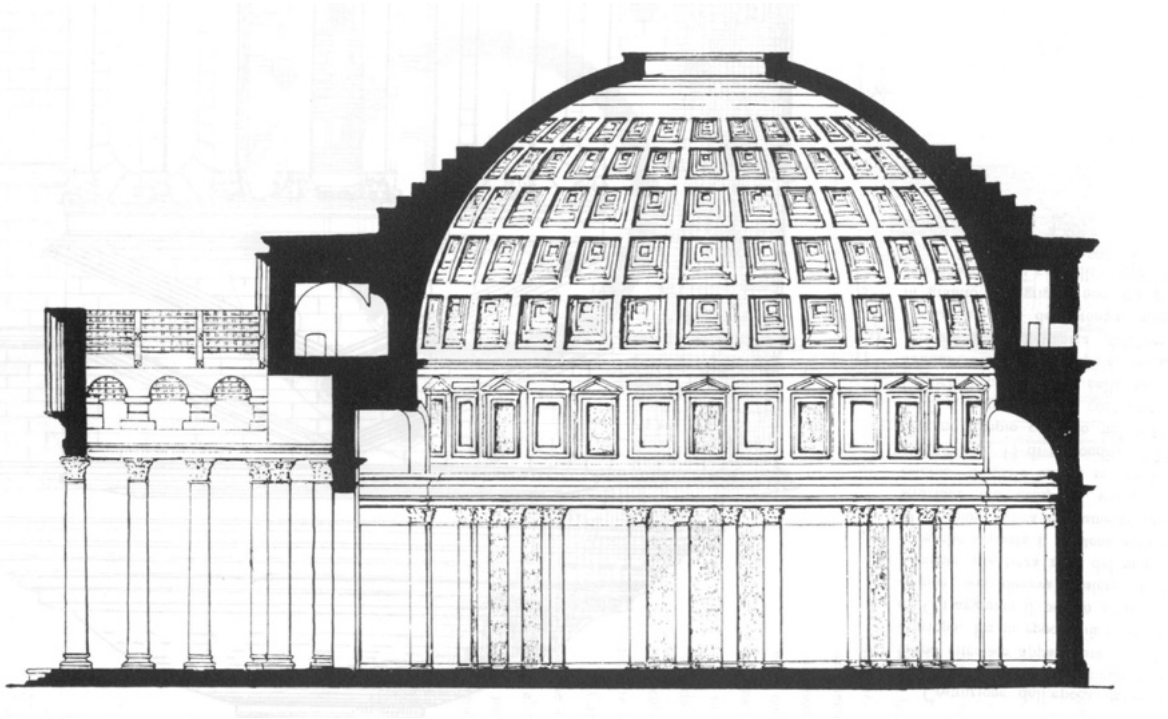
The recipe of OPUS CAEMENTICIUM Of the Pantheon

- CALX INTRITA (slaked lime)
- PULVIS BAIANUS (pozzolana from Baia-Naples)
- TESTA TUNSAM (cocciopesto – crushed pottery)
- PUMEX (pumice)
- SABULUM (sand)



RAW MATERIALS

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- Lime putty
- Quicklime
- Pozzolana
- Metakaolin
- Carbonate and siliceous sands
- Tuff and sandstone dust
- Gravel of various sizes and colors
- Cocciopesto of various colors and granulometry
- Colored sands derived from the crushing of stones and marbles

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Cold-mixed lime with pozzolana gives a binder which was the basis of the **Opus Caementitium** used to make Roman monuments.

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CALCE POZZOLANICA PANTHEON ®

Ancient but futuristic binder

Calce Pozzolanica Pantheon – Calchèra San Giorgio

It is the result of the study of the ancient art of the "Magister Calcariarum" and of the in-depth investigation of the Roman binders that structure the extraordinary and long-lasting monuments that we can still admire today.

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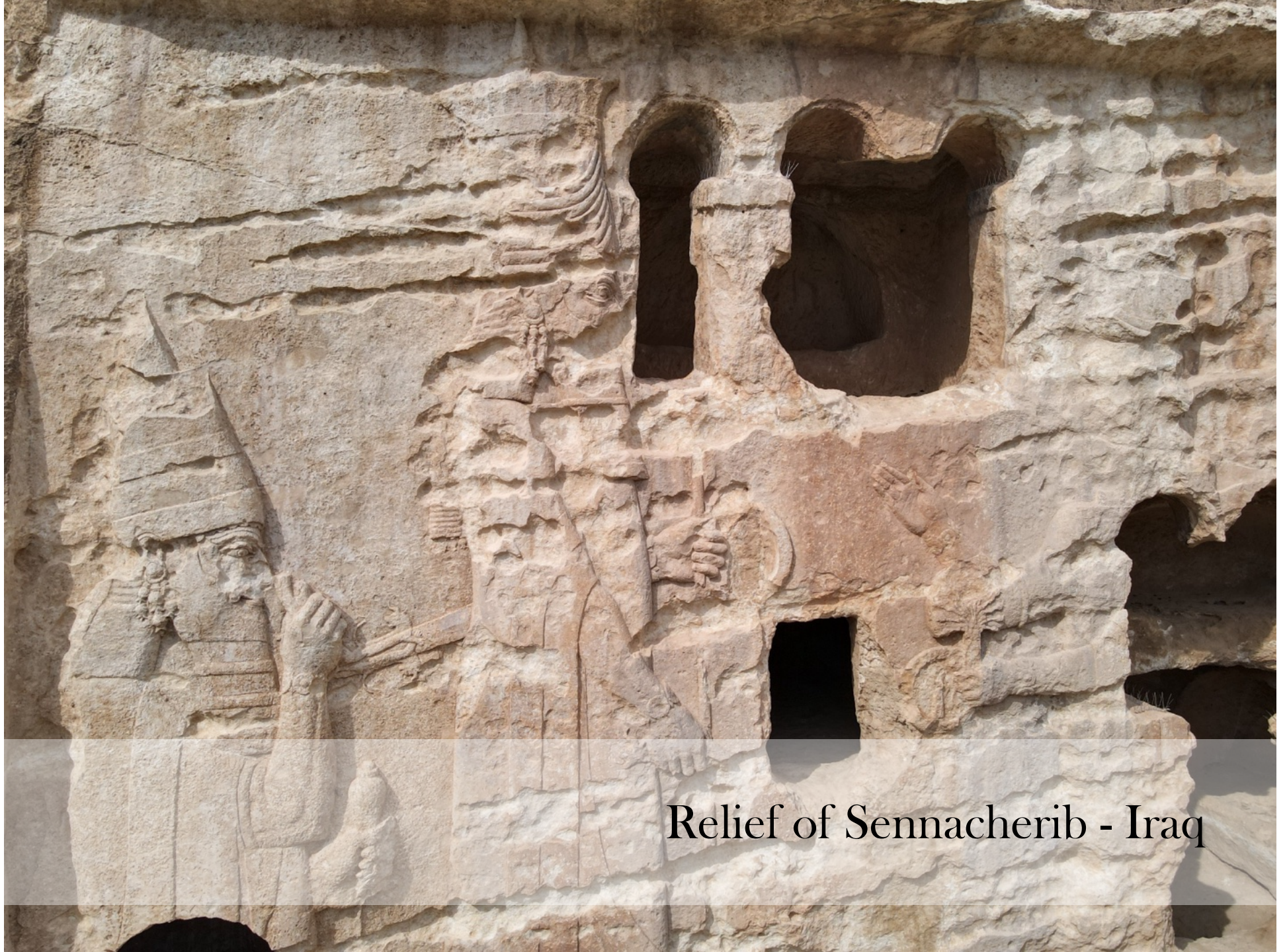
Properties of the binder

CALCE POZZOLANICA PANTHEON ®

- Very porous and breathable
- Absence of harmful soluble salts
- Very resistant in humid environments
- Good resistance to chemical action and weathering
- Absence of free lime
- Controlled mechanical resistance



Relief of Sennacherib - Iraq

Villa di Diomede - Pompeii

Basilica della Salute- Venice

Tomba Brion – Carlo Scarpa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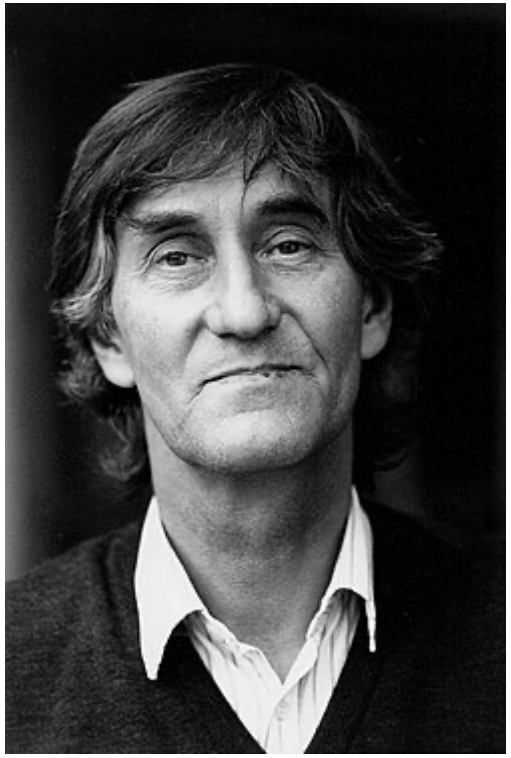


ARTESELLA
THE CONTEMPORARY
MOUNTAIN

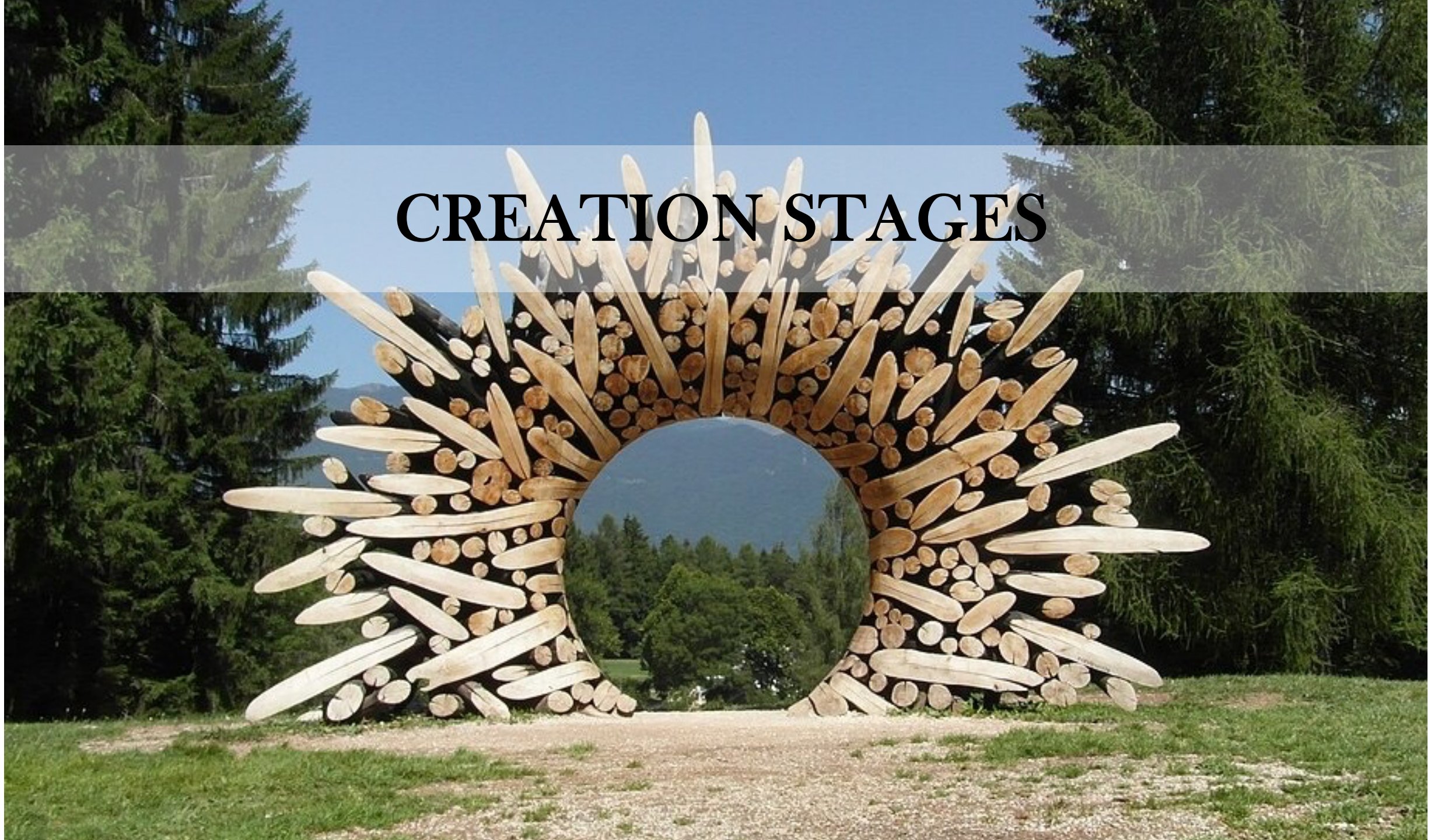
NILS-UDO
Artist

The Land Artist **NILS-UDO** is known for his works of art also with the usage of Carrara Marble and has designed an artwork for the Artesella Park where a permanent exhibition of contemporary art in nature takes place.

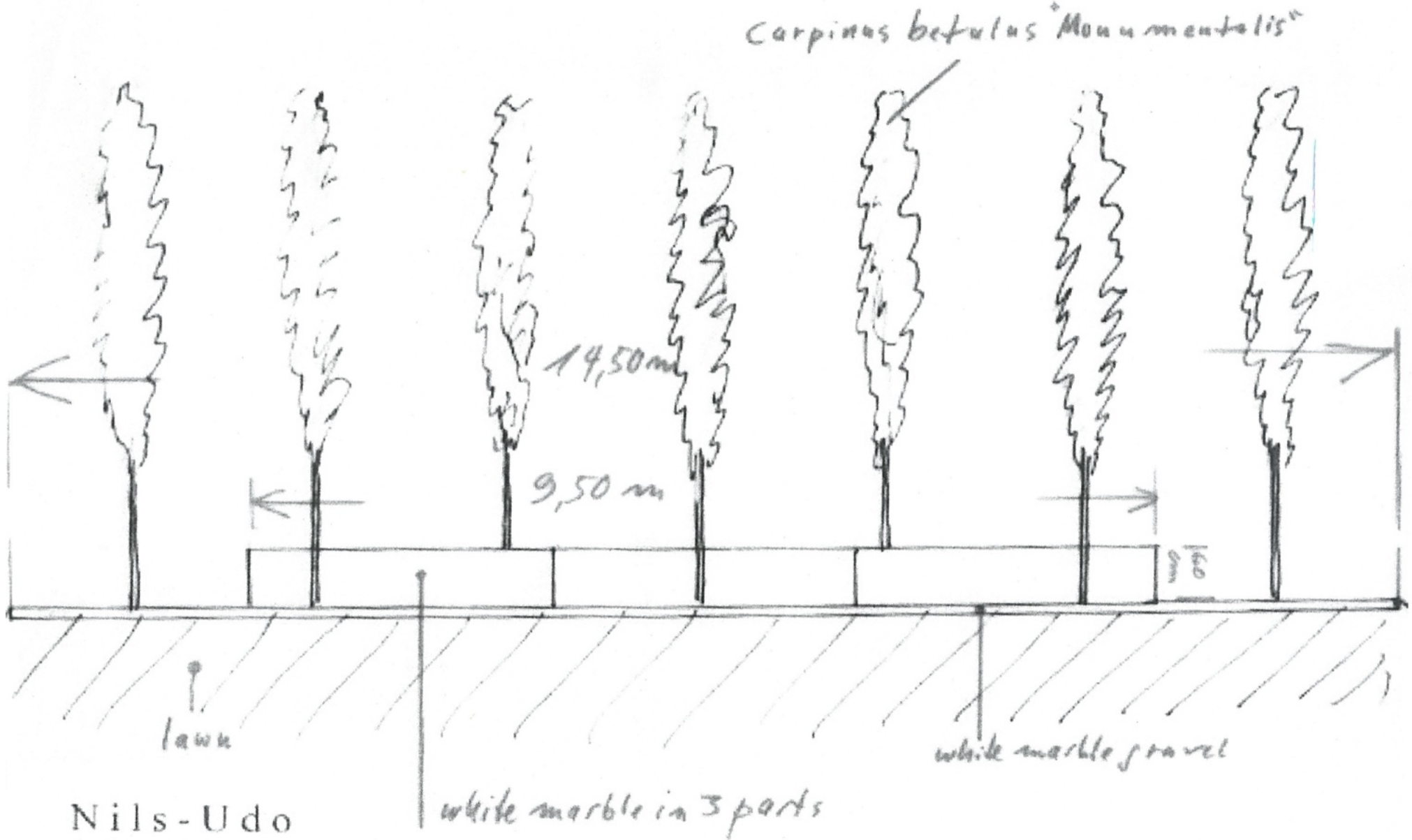
The artwork is a tribute to the migrants in the Mediterranean Sea - so the artist decides to make a shape of a boat in Carrara Marble.

The Artistic Director Emanuele Montibeller, following the request for the creation of the stone work given the high costs, asked us for advice on the replacement of the Carrara Marble with something cheaper and sustainable, therefore opened the way for us to do an experiment.

In agreement with the Artist; Instead of using the more familiar Roman mortars we decided to use a Geopolymer binder inspired by the scientific studies of Prof. Davidovids through the use of waterglass, metakaolin and marble aggregate with max granulometry of 16mm.



CREATION STAGES



Nils-Udo

La Barca

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Construction of the base with natural stones and a first layer of Geopolymer

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Construction of the formwork

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Geopolymer casting

Removal of the formwork after a week.

Marmorino finishing

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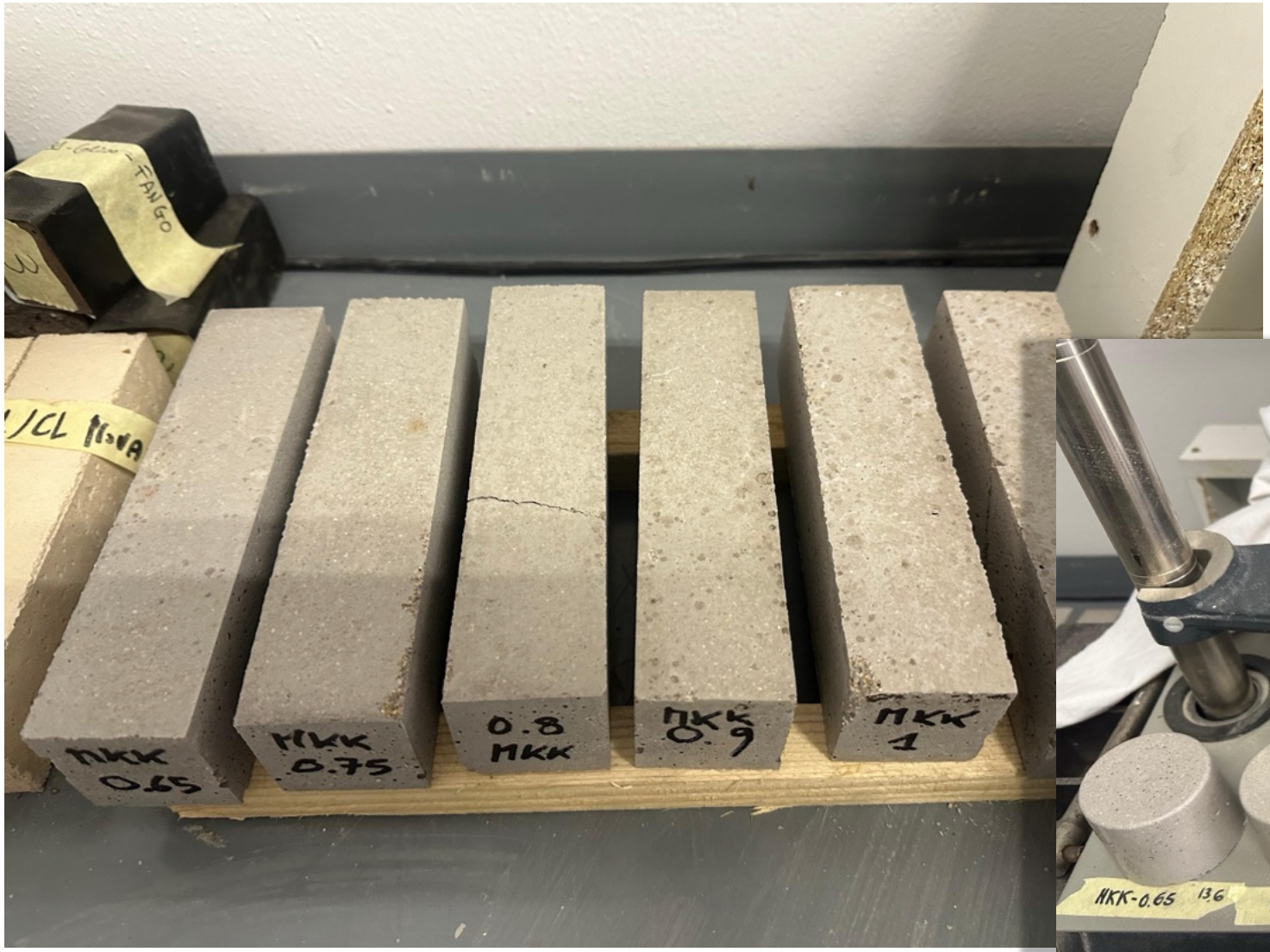

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OUR GOALS

- Use of geopolymers in critical situations, specifically in archaeological restoration, for greater resistance to atmospheric agents; Reduce de application time.
- Texture and color control of the Geopolymer (very important).
- Insert the Geopolymer into a shared and clear European guideline for the superintendencies of cultural heritage.

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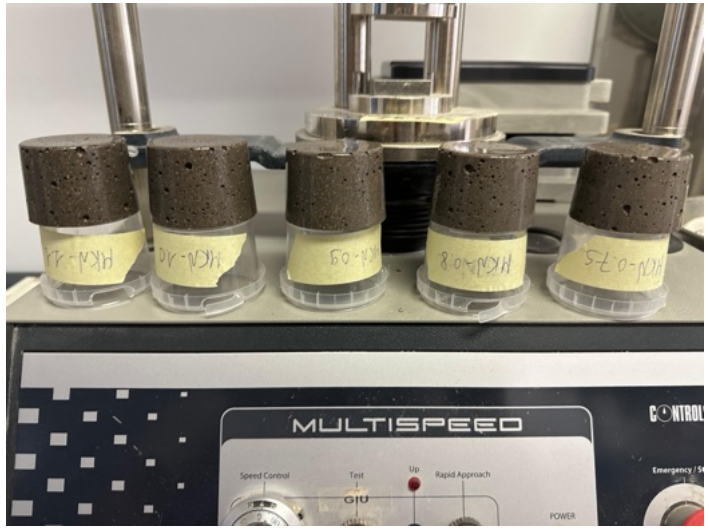
THANKS FOR YOUR ATTENTION



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