



CRITICAL  
CONCRETE

# HEMPCRETE WORKSHOP

May 2023

## CRITICAL CONCRETE

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# PROGRAMME

5 days **intensive hempcrete course in the North of Portugal** led by Critical Concrete with the support from Cesar Cardoso of NATURA MATÉRIA. We'll guarantee:

- Theoretical foundation
- Hands-on construction experience and practical application
- A housing project with social impact
- Sustainability integrated at the core of the programme

This workshop is part of a 3-week construction process.

You can enrol for:

Week 1: May 15th - 19th

Week 2: May 22nd - 26th

Week 3: May 29th - Jun 2nd

Maximum number of participants per week: **6**

Language: **English**

## INTRODUCTION

Discover how hempcrete buildings offer a healthy and comfortable interior, can be beautiful spaces, provide outstanding thermal and acoustic performance and last a lifetime. A special focus of our workshop will be the environmental credentials and occupant health benefits of building with hempcrete. This is a unique opportunity to gain hands-on experience in the use of this incredibly versatile and environmentally sustainable building material whilst contributing to a social housing project.

## WHO CAN PARTICIPATE?

The workshop is open to architects, builders, engineers, self-builders, students, folks planning to build using ecological principles as well as anyone with an interest in hempcrete construction methods or natural building materials.



## WHAT YOU WILL LEARN:

The workshop will cover a theoretical foundation in hemp construction including how to source hemp, methods of application, material performance and various hempcrete mixes. This will be followed by a practical application on a small social housing project implementing methods of hempcrete construction. Tasks and learning include

- Mixing hempcrete to the required consistency, wetness and recipe using an industrial mixer
- Design and application of temporary hoarding for holding the hemp mix
- Reinforcement of hemp panels with wire, thread or mesh
- Application and compression of hempcrete applied to external walls, internal walls and roof using consistent, replicable techniques
- Site logistics and health & safety issues that are unique to hempcrete building

No prior knowledge or construction skills are required.



# MENTORS

Samuel Kalika, founder of **Critical Concrete**, has managed various ecological construction projects, implementing innovative, low-tech solutions. Additionally, through his work at CC, he has organised numerous international summer schools and overseen the founding of the sustainable online learning platform criti.co.

Since 2015, Critical Concrete researches urban, sustainable architectural and design strategies and refurbishes socially relevant places through its theoretical and practical educational programmes. CC runs a post-graduation program in sustainable architecture that balances hands-on and theoretical learning. They regularly host workshops on a variety of topics relating to sustainable construction, wood-working or community participation.



**Samuel**

**Critical Concrete**

César Cardoso is an expert in using hemp as a construction material. His project **NATURA MATÉRIA** is a company that provides consulting services and markets products for construction that respect the new demands of the market, in terms of sustainability, based on the concepts of circular economy and healthy housing.

The priority is to stimulate a culture of innovation in modern architecture, at the level of projects and works, using natural or recycled materials with low environmental impact.



**César**

**Natura Matéria**



## PROJECT CONTEXT

Critical Concrete as an educational and social initiative that aims to implement an alternative dynamic to the current real estate development. We defend the fundamental right to decent housing for all people, which we have not yet managed to guarantee as a society due to a lack of public resources and adequate social policies. We present another way of doing architecture: instead of building for people, we build with people.

In this line of action, in the project co-funded by Portugal Inovação Social, Esposende City Council and Ramalde Parish Council, Critical Concrete organises social and sustainable construction & architecture workshops to promote a new model: the rehabilitation of social housing and public spaces through civic participation and the application of ecological and sustainable construction methods. During the years 2020-2023, Critical Concrete will restore socially relevant spaces through practical and theoretical workshops in the Municipality of Esposende and also in the Parish of Ramalde, together with a continuous training programme on Social and Sustainable Architecture that will accompany the project.





## ABOUT THE SITE

The demonstration project for this workshop is a small eco-house for a Portuguese family, located in Vila Chã, a small parish in the municipality of Esposende. The family was first introduced to us through the social services of the municipality of Esposende. The family's current house was built by Mrs. Maria Luisa and her ex-husband (construction worker) 28 years ago, in 1994. The house was initially composed by one single room with a kitchen and did not include a bathroom. Nowadays the family does not pay rent, because the house and the plot of land are owned. The plot of about 1.530m<sup>2</sup>, is destined to garden, vegetable garden, hen house, storage and a house for 3 dogs.

This eco-house project will implement the highest standards of ecological construction with a focus on natural materials and energy performance. The structure will be timber frame to allow for infilling with hempcrete functioning as a high performing insulating wall. The whole house will sit on cementless foundations to drastically cut the carbon cost associated with its construction.

Natural, lime and clay based flooring will be implemented throughout the dwelling – again a low-carbon, durable alternative to concrete. Hempcrete itself captures carbon in the hemp shivs and the calcification process which cures and stiffens the mixture – further reducing the carbon cost.

Energy efficiency is the highest priority – high performing building fabric results in drastically reduced energy consumption for heating during colder months. A stove system will combine water and air heating for the dwelling using wood fuel.

- Timber frame
- Cementless foundation
- Stove with water heating and air
- Natural flooring
- Hemp - internal, external walls and roof
- Low carbon - Energy efficient





# ECO-HOUSE PLANS

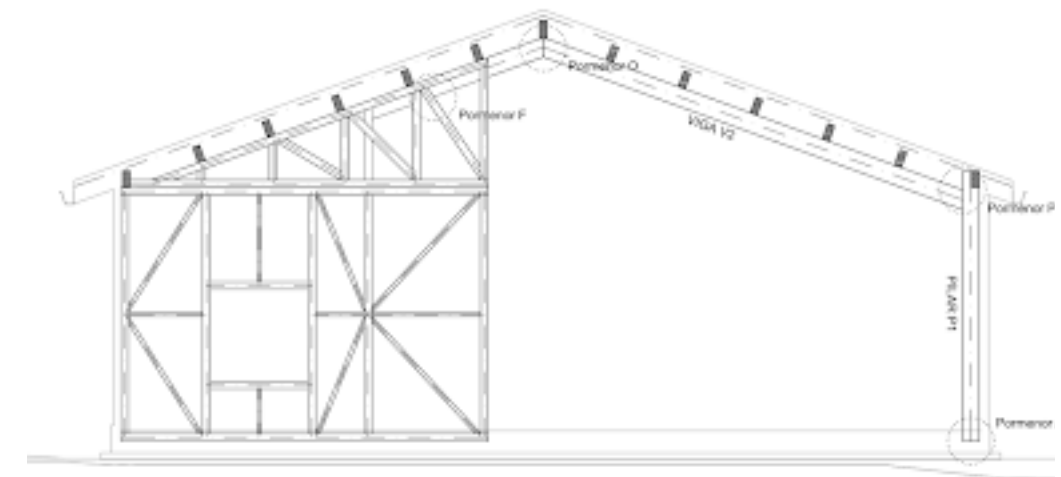


## Wishes of the family:

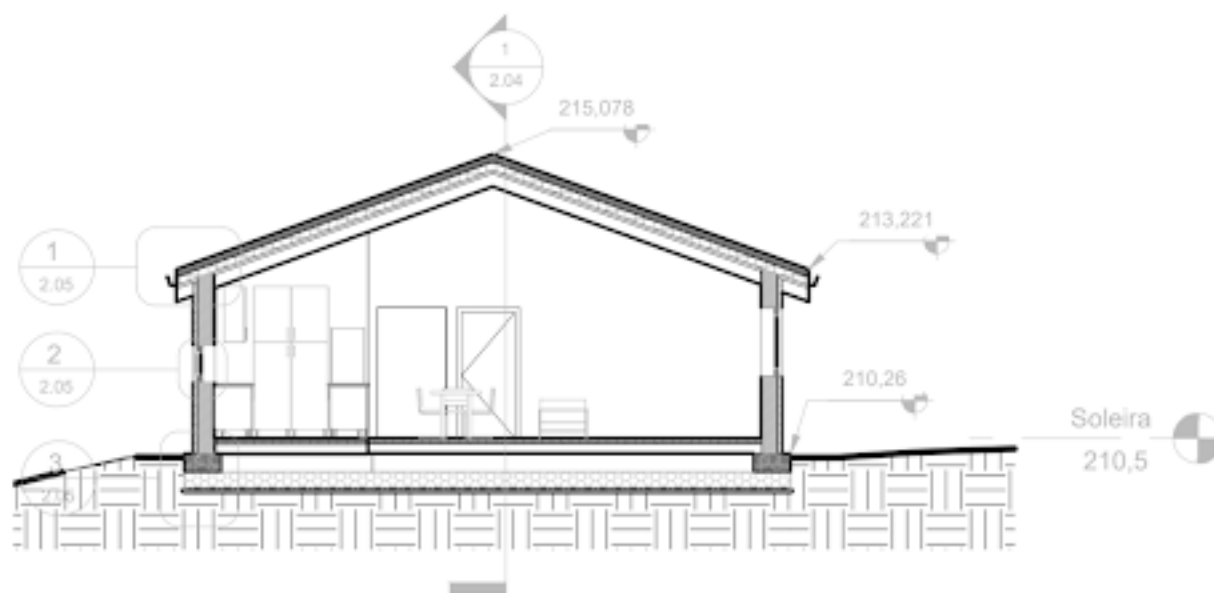
“A bigger kitchen, a bedroom for each child, **proper bedrooms**, a proper outdoor space for the dogs. I really enjoy cooking and taking care of the **vegetable garden**. The garden is a very important space for our family, but it lacks the conditions to be used in a more appropriate way.”

“Essential equipment, a house with **essential conditions**. A bigger house, however what one is entitled to.”

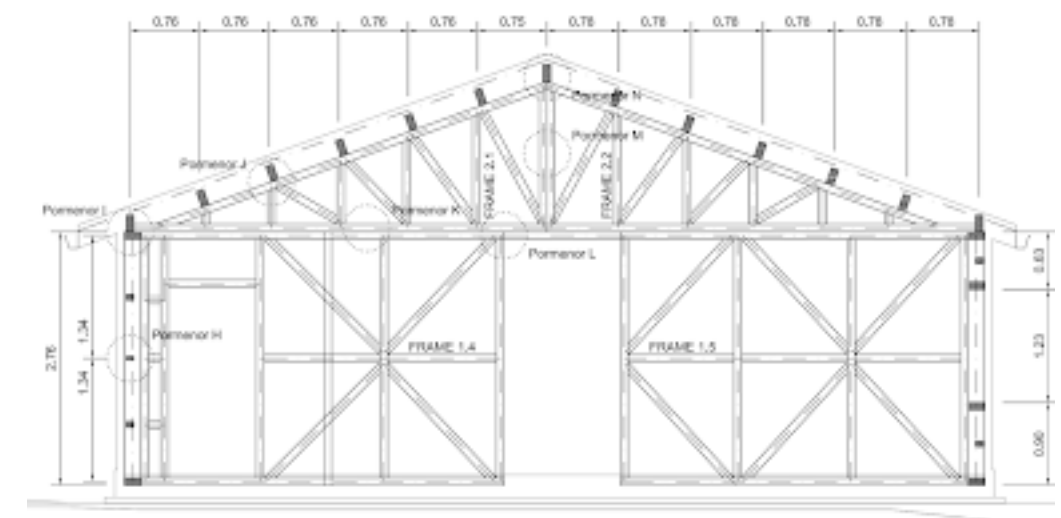
“More privacy, to have **a room just for me**, so that I can be alone to study and I can be alone to study and put my things away, a goal in the garden to play ball with friends. My home is very important to me.”



ALÇADO B  
Esc: 1/50



2 Corte 2  
1 : 100



CORTE A  
Esc: 1/50



# KEY INFORMATION



**Duration & Dates:** 5 days; choose between the following

- Week 1: May 15th - 19th
- Week 2: May 22nd - 26th
- Week 3: May 29nd - June 2nd



**Working hours:** 10am - 6pm (*incl. 1 hour lunch break*)



**Location:** Vila Chã, Esposende, Portugal

## PRICING

**Fee per participant:** 395€ (+VAT)

### Payment details

- Accepted methods: Bank transfer/Pay Pal/MBWay
- Reference: [Your Name] hemp
- Send confirmation of payment via e-mail to [mail@criticalconcrete.com](mailto:mail@criticalconcrete.com)

### What is included?

- All construction materials and tools
- Detailed instruction and guidance from mentors
- Delicious and nutritious daily vegan lunch on site
- Voucher for 1 [Criti.co](https://criti.co) course

### What is NOT included?

- Transportation to and from the construction site
- Accommodation for the duration of the workshop

## SUSTAINABILITY ON SITE

Sustainability is at the heart of all of the activities of Critical Concrete. We strive to be conscious and critical about our activities and their impact. We have a preference for re-using materials where possible, prioritising natural materials that are responsibly sourced and minimising construction waste.

Another big way that we strive for sustainability is through conscious eating. Critical Concrete is a vegan organisation which means we don't consume animal products at our production centre and during our projects. We kindly ask you to respect this when you join our team for a workshop. We are always happy to talk about it and the ways in which we can live as sustainably as possible.

## ENROLMENT

APPLY NOW by filling out our [Online Registration Form](#). We'll be in touch with you shortly after with the next steps to secure your spot.



# PROGRAMME DETAILS

## MONDAY

Theoretical introduction from Cesar Cardoso with practical demonstration of techniques

## TUESDAY

Work on site rotating between mixing, filling, preparing hoardings

## WEDNESDAY

Work on site rotating between mixing, filling, preparing hoardings.  
Mid week check-in and reflection

## THURSDAY

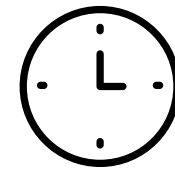
Work on site rotating between mixing, filling, preparing hoardings.

## FRIDAY

Work on site rotating between mixing, filling, preparing hoardings.  
Closing celebration

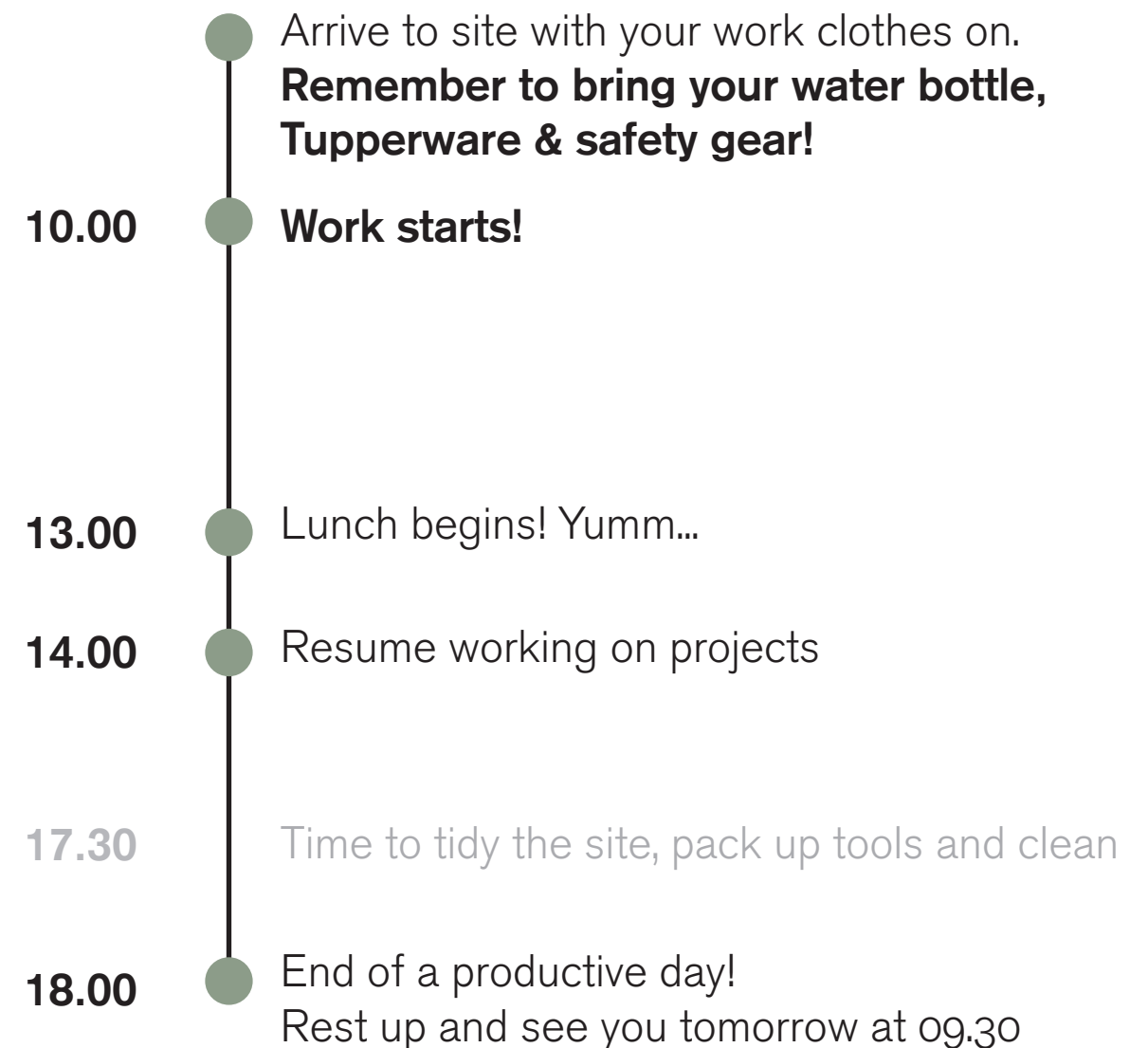
**Please be aware that the programme may be subject to last minute changes due to weather conditions or surprises out of our control. Don't worry, we'll keep you informed!**

## DAILY SCHEDULE



**Work will start on site every day at 10am and we leave site every day at 6pm, being on time is crucial! (unless otherwise stated)**

This project has many components and stretches over a large area. We want to be completing full working days in order to achieve the desired programme. Here's a general daily overview:





# LOCATION

## ADDRESS OF THE WORKSITE

Vila Chã, 4740-638, PORTUGAL

**Closest city:** Esposende

**Closest airport:** Porto

## HOW TO GET THERE?

It is the responsibility of participants to organise their transportation to and from their place of residence (if abroad) and to site every day. If you are not arriving by car, you'll most likely have to do a combination of Metro + Taxi/rideshare/bike.

**Car:** 10 minutes car ride from Esposende, 45 minutes car ride from Porto

**Ride sharing:** Uber and Bolt may also be operating in the area.

**Bike:** You can rent a bike in Esposende ([PROPEDAL](#))

**Metro:** The closest metro stop is Póvoa de Varzim on line B. It takes roughly 55 minutes from Trindade station (Porto) or 45 minutes from Porto Airport.

**Bus:** You can take a bus from Campo 24 de Agosto to Esposende Bus Terminal and take a taxi/rideshare to Vila Cha.

**Taxi:** Taxi companies from either Esposende or Póvoa de Varzim:

<https://www.taxisesposende.pt>

<https://taxis-povoa-de-varzim.business.site>

# ACCOMMODATION

It is the responsibility of participants to organise their accommodation and transportation to and from site every day. We highly recommend staying in Esposende or its surroundings to avoid long and complicated commutes.

Here's a list of places we suggest to look into:

- Hostel in Esposende: <https://innesposende.com/en/sports-hostel/>
- Another hostel in Esposende: <http://www.hosteleleven.pt/>
- Guest house 5 capacity: <https://bestvillas.pt/en/park-ofir-2/>
- Guest house 5-10 capacity: <https://casadoarantes.pt/>
- Campsite: <https://www.cccbarcelos.com/?pg=19&lng=pt>
- Youth Hostel: <https://www.pousadasjuventude.pt/pt/pousadas/pousada-de-ofir/>
- Hostel: <https://www.spot-hostel-ofir.com/>
- Apartments: <https://www.booking.com/hotel/pt/al-park-ofir.pt-pt.html>
- Montemar Guesthouse: <https://www.booking.com/Share-JcJCU1>
- Casa do Avô Grande: <https://www.booking.com/hotel/pt/casa-do-avo-grande.pt-pt.html>
- Marinhas Bed & Breakfast: <https://www.booking.com/hotel/pt/marinhas-bed-amp-breakfast.pt-pt.html>



# PACKING LIST

**In order to guarantee a safe environment for everybody, we ask you to bring your own safety and work equipment.**



## PERSONAL KIT

- Meter
- Notebook
- Pencils/Markers
- Refillable water bottle
- Tupperware (for lunches)
- Cutlery (for lunches)
- Cup/Mug (for lunches)
- Suncream
- Hat
- Raincoat (for rough work)

## SECURITY KIT

- multiple rubber/latex gloves (we will be working with lime which is an irritant!)
- security shoes (level S1 or more)
- ear plugs/ ear protection against noise
- 2 pairs of standard working gloves
- protection glasses (model Würth)
- some pairs of long pants (which can get dirty)
- protective mask (rz mask or anti-pollution mask for bicycle)

## TETANUS VACCINATION

Tetanus is a rare but serious condition caused by bacteria getting into a wound. Tetanus vaccines are recommended throughout your life. The full course of the vaccination requires five injections, usually given in different ages during childhood. Please check, if your last vaccine dose was more than 10 years ago. If so, we highly recommend to get a new shot to refresh your vaccination. If you are not sure about your vaccination status, please contact your doctor.





Feel free to e-mail us if you have further questions:  
[mail@criticalconcrete.com](mailto:mail@criticalconcrete.com)

**SEE YOU SOON!**