

UNI TIMBERATE

Mass-Timber Housing Units

https://**competitions**.uni.xyz



Img 1: Earthen ware of Marrakesh Region (Source: Veranda)

Premise

Human movement towards city areas has set off a huge shift of resources pooling in building construction around the world. This propels not only architects, but entire humankind to find sustainable ways to re-analyze construction in its life cycle and finding means to make it greener through its life.

No matter how much we hide, the construction sector is answerable for half of the world's CO^2 discharge. RCC based construction generates so much carbon not only while manufacturing, but it is very tough to discard construction waste post its lifecycle.

Can alternative natural origin materials, for example, wood, can help change the course of global warming caused by excessive construction? Can wood be the real game-changer we had been always looking for?



Img 2: Non structural uses of timber to deliver unique experiences - Credits: March Studio

Advantages

Mass timber construction is fast, cost-efficient, it implicates less construction traffic and offers a high variety of solutions to complex design challenges. While it may not seem the most obvious choice for large-scale building, modern treating methods are opening new gateways to bring this material into the mainstream.

Pre-fabrication and technological advancement are reshaping the contemporary building typologies. and new spatial configuration can be developed for the future of the urban context.

The fact that timber is quite strong and weighs less than other construction materials, as well as that showcases sustainable and renewable characteristics, brings great opportunity for innovation.

With its acoustic and insulation properties, timber is an excellent material for energy efficient passive houses.

Mass timber structural performance and its lighter carbon footprint can be the answer to the future of wood architecture and the environmental impacts of construction.



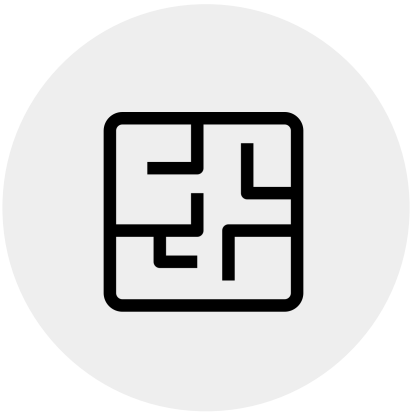
Img 3: Outdoor detailing in a full timber residence - An illustration.

Brief

The proposed challenge is the development of an innovative mass-timber compact urban housing with sustainable carbon free impact designed to be lightweight, minimal, and compact.

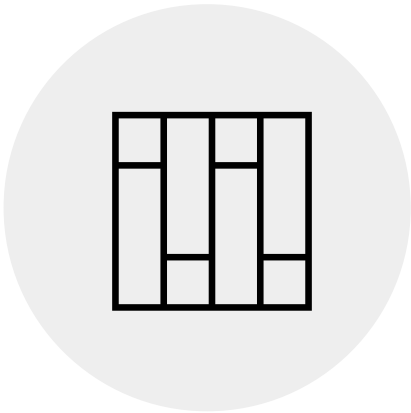
Primary focus on the design of a parametric and prefabricated timber building system for a two storey housing unit where it can be shown the potential for a modular building system for horizontal and vertical expansion.

Utilize digital fabrication technology to achieve high precision fabrication, for **easy assembly / disassembly / expandable** for **upgrading / relocation / end of life recycling** making it resilient and adaptable to the rapidly changing needs of society. The houses are expected to be machine manufactured and the design hence should be made in resonance to mass-fabrication.



Planning

Developing a functional residence model based on the programmatic outline.



Construction System

Explore timber construction to resolve structure and spaces of your house.



Modularity

Designing a house system that has combinations possible on the form level.



Thermal Comfort

Optimization and resolution of thermal comfort of the living spaces.

Objectives

The following objectives can be a point of beginning to conceive this design. Participants can assume their own contexts and users before initiating their design process.

1. Total ground footprint (Excluding patio)
40sqm

2. Max 2 floors (Including terraces)
80sqm

A. Bathrooms
Area as per design

B. Bedroom: Master and Children's
(1 to 3) Area as per design

C. Kitchen
Area as per design

D. Living Room
Area as per design

Programmatic Outline

The following programmatic outline is the point to begin your design at. You can add more functions and activities in relevance or modify the above design programme



Img 4: Amsterdam City - A visual

Amsterdam

Amsterdam is growing and building an economically strong and sustainable metropolis, expanding in all directions, now extending far beyond the city boundaries.

The City of Amsterdam is planning to increase housing density, to transform existing built-up areas and to integrate the public transport network to the green belt as well as to incentivize the development of attractive, high-quality public areas.

One of the main aims of this expansion is to make living accessible and affordable, regardless of income and family composition.

The theme of this challenge makes an excellent setting for finding this new equatability definition in the realm of housing stock through timber as a medium.





The design process begins from a model house and expands to this site as a mass housing proposition. The masterplan can be conceptual or can show massing level arrangement of units across the site. This is to understand inter-residence relationship.

Site Plan

The given site of this competition is situated in the outskirts of Amsterdam, within the city limits of Zaandam which provides a perfect setting for urban expansion in touch with nature. The area of Hembrug, which received the name after the former railway bridge over the North Sea Canal, from 1895 hosted factories for the production of artillery and ammunition for the Dutch army. Now the majority of companies closed, nature took over the buildings and the city opened calls to housing planning proposals. **The proposal has to fit 200-250 housing units in the site to reflect the neighborhood level qualities of your modular house.**

Site Area: **~31000**sqm.| Height Restriction: **8m** | FAR: N/A |
Set Backs: As per CAD Plan | Ground Coverage: N/A | Coordinates

Guidelines

You have to deliver an architectural outcome on the following site, based on the given outlines.

• Recommended number of sheets/presentation images/boards:

5 (Five) of size **[2362px** x **3544px]** or **[400mm x 600mm** in **150 dpi]** in portrait digital format (**JPEG only**).

Minimum 3 (Three) & **No maximum sheet limit.** Each image should be less than **15MB.** (Do not submit PNG format)

Minimum requisite submission are sheets/boards + Cover image containing:

• Site plan (Compulsory)
• Key conceptual sections x 1 (Minimum)
• 3D views x 4
• Cover image / Thumbnail of size 2000px x 1000px or larger in aspect ratio 2:1.
• Answering 6 FAQs #
• This is the link for new file sizes, here.

#The FAQ's have to be answered as instructed in the FAQ document in the 'additional resources folder'.

Deadlines

Discover the competition schedule and deadlines on the competitions page or on this link - Schedule.

Resources

This competition contains additional resources that contains a set of files useful to complete the competition submission. This folder is made available on your profile dashboard automatically as soon as you register.

This additional resources folder of this competition contains: Submission Format files in PSD | AI | InDD, High Res maps, Site Images, CAD file of the site plan.

Rules

+ The competitions is open for **students and professionals** from all the disciplines of design.

+ The team limit for this competition is **4 members maximum per team.**

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+ You can register more than one team but they have to be registered separately.

+ Ensure that the final sheets submitted **do not include your name or any other mark of identification**. Your submission is linked to your user account which stands as your identification.

+ This is a design **ideas challenge only.** There is no built commission/realization associated with the problem.

+ In case of publication in yearbook we will reach out separately for selected entries.

Pro-Tips

+ Use exploded views to discuss multi levelled conceptual models better.

+ Mention sheet number on corner of every sheet.

+ Plagiarism of any idea / form / design / image will be disqualified with a notice.

+ All the sheets or images will be viewed on a digital device. **e.g.** Laptop screen or projector. Uploaded sheets or images will not be physically printed for evaluation. The submission hence should be prepared for digital viewing only.

+ Submit JPEG images only. (PNG will not function)

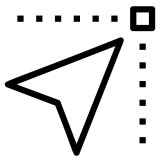
+ While submitting, name your project with an original title and not by the name of the competition. This makes your project more unique for the viewers and boosts searchability.



Awards

Grants of up to a total of **24,000$** can be won on this challenge. Learn more about the full conditions on the competition page here.

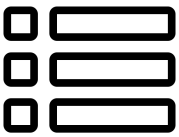
The entries will be judged by an international jury of the competition on the following criterions:



Presentation
The fundamental to a good entry is a good presentation.



Concept/Innovation
Quality of thought and innovation in design phase.



Spaces/Programme
How the spaces are calculated and ordered.



Design Outcome
The final architectural outcome of the solution.

Judging Criteria

The judging panel can also add other criterions based on their internal discussions - which will be in line with the problem statement. Participants are advised to fulfil above given criterions first in their design.



Curator | Djordje Stanojevic

Architect & Researcher

ME—ST

Djordje Stanojevic is an architect and researcher, with a strong focus on robotic fabrication and the development of innovative building systems. B.Sc. IUAV in 2011 and winner of the Touch Fair Architecture Competition. M.Sc ITECH at the **University of Stuttgart in 2015**. He was involved in the system development, fabrication and construction of the **ICD/ITKE Research Pavilions 2013-14 and 2014-15**, merging engineering, robotics, digital manufacturing, material science and biology. He is cofounder of **ME-ST and ALTERAT**, two design practices one focused on computational design and the other on digital fabrication strategies. He taught and continues teaching at various educational programmes such as the **Institute for Advanced Architecture of Catalonia (IAAC)**, **Universidad Autónoma De Nuevo León (UANL)**, **Universidad de Monterrey (UDEM)** and the **Centro de Estudios Superiores de Diseño de Monterrey (CEDIM)** where is currently the director of the Industrial Design and Product Development department. Between education and practise Djordje has been working on integrative design strategies with multiscalar approaches and material driven design criterias materialized with full scale pavilion prototypes. He has been contributing to the academic world with scientific papers on the development of bending active lightweight structures. His current research is looking into AR for construction and performative assembly systems.

About

unfuse™

Unfuse serves as a unit for **Uni** in the field of Architecture. It intends to break the fusion of traditional design barriers and methodologies by making it a platform for experimentation and conceptual exchange of ideas in architecture, urbanism, society, culture and ecology. It is a research initiative dedicated to providing opportunities for designers from all domains to explore ideas that go beyond the boundaries of architectural discipline and enrich our built environment; thereby opening up possibilities for promotion of architectural thought at a global level.

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