

Competition Brief



Student Challenge:

Pioneering the Ultimate 3D-Printed Residential House and Mobile Printing Technology Project

3D_4bX

Innovate, Construct, Transform: 3D for Ukraine & the World

WZMH



UA IT Hub

Competition introduction

6 m
SEA CONTAINER

This competition requires a **DESIGN SOLUTION** for the home as well as the **3D PRINTER**



80 m²



Introducing **3D_4bX**, an architectural and engineering competition tailored for Ukrainian students.

The challenge to conceive the ultimate design for an **80-square-meter home** that can be efficiently **3D printed**.

The 3D printer must be designed to fit within a with a standard **6-meter sea container** and shipped anywhere in the world to print these homes.

This competition serves as a platform for students to not only demonstrate their prowess in **3D technology** and **architectural innovation** but also to address the pressing need for portable and versatile housing solutions.



Audience

**WE INVITE UKRAINIAN STUDENTS TO
EXCHANGE EXPERIENCE
AND FIND NEW SOLUTIONS FOR THE
VISION OF UKRAINE'S FUTURE**

THE RIGHT TO PARTICIPATE:

Students who are currently in Ukraine and are studying in the field of design, architecture, urban planning, engineering and others can participate in the competition.

4th HACKATHON

IS ORGANIZED BY THE CANADIAN ARCHITECTURAL COMPANY WZMH
ARCHITECTS AND THEIR RESEARCH AND DEVELOPMENT LAB SPARKBIRD



WZMH

About

3D TECHNOLOGY AND ITS GLOBAL SIGNIFICANCE

Modern technologies can make construction more efficient and faster.

3D printing technologies are developing quite quickly and are used in various areas of humanity. Recently, a lot of attention has been paid to the printing of buildings, and printed houses have increasingly appeared in recent years in various countries of the world - the USA, Saudi Arabia, Mexico, France, the UAE and others.

3D technology in architecture has gained significant worldwide recognition due to its capacity to create innovative and sustainable living spaces.



Prizes

TOTAL PRIZE FUND

\$5,000 CAD

1st place
\$2,500 Canadian

2nd place
\$1,500 Canadian

3rd place
\$1,000 Canadian

PROJECT'S POTENTIAL FOR UKRAINE AND BEYOND:

The winning project not only stands to win a substantial prize but also holds the potential to serve as an alternative solution for reconstruction efforts in Ukraine and other countries and cities.

**Prizes will be paid via PayPal. Prizes include any service fees applicable to PayPal.*

***100% of the prize money received from sponsors will be distributed among the works of the winners!*

Competition Conditions

PARTICIPANTS MUST DESIGN a home capable of adapting to various climatic and environmental conditions, including cold winters, hot summers, and rainy seasons.

THE HOME SHOULD BE 80 SQUARE METERS IN SIZE, which includes the house and a small plot around it, enough to fully support two adults and two children. The focus of the competition is the house design and 3D printer itself.

THE PROJECT SHOULD BE SELF-SUSTAINING, with solar panels providing the necessary electricity / hot water and rainwater harvesting systems to provide both drinking water and irrigation needs. There will be an area for growing food using traditional methods as well as hydroponic systems.

IMPROVE THE QUALITY OF LIFE in areas with shortages of water, food and industrial materials.

IN THIS PROJECT, YOU HAVE TO DEMONSTRATE YOUR OWN VISION for the use of 3D printers in the construction of housing, in the center of which will be people, their needs and opportunities.

THE PROJECT MUST ACCOUNT FOR DISASSEMBLY and packaging of the 3D printer into a standard 6m long sea container, making it mobile and suitable for transportation to different destinations. Use of solar panels and other green technologies should be considered to power the 3D printer.

SOLUTIONS FOR THE 3D PRINTERS “building material” or “construction material” should be identified (i.e. concrete, cement, or other innovative specialized 3D printing materials designed for construction purposes).

Competition Schedule

In your project, you must demonstrate to the world the vast possibilities of architectural design and the technological advancements associated with 3D printing for housing solutions.

19

Registration
opens

October 19, 2023

13

Registration
closes

November 13, 2023

30


Closing date
for submission

November 30, 2023

14

Winners will be
announced

December 14, 2023



Evaluation criteria

FUNCTIONALITY AND SUSTAINABILITY OF THE DESIGN

3D PRINTER SOLUTION AND HOW IT CAN BE EASILY TRANSPORTED WORLDWIDE IN A SEA CONTAINER

CREATIVITY AND ORIGINALITY

INNOVATION RELATED TO THE 3D PRINTED BUILDING MATERIAL

ACCESSIBILITY AND INCLUSIVENESS

AESTHETIC APPEAL

POSSIBILITY OF IMPLEMENTATION AND USE WORLDWIDE

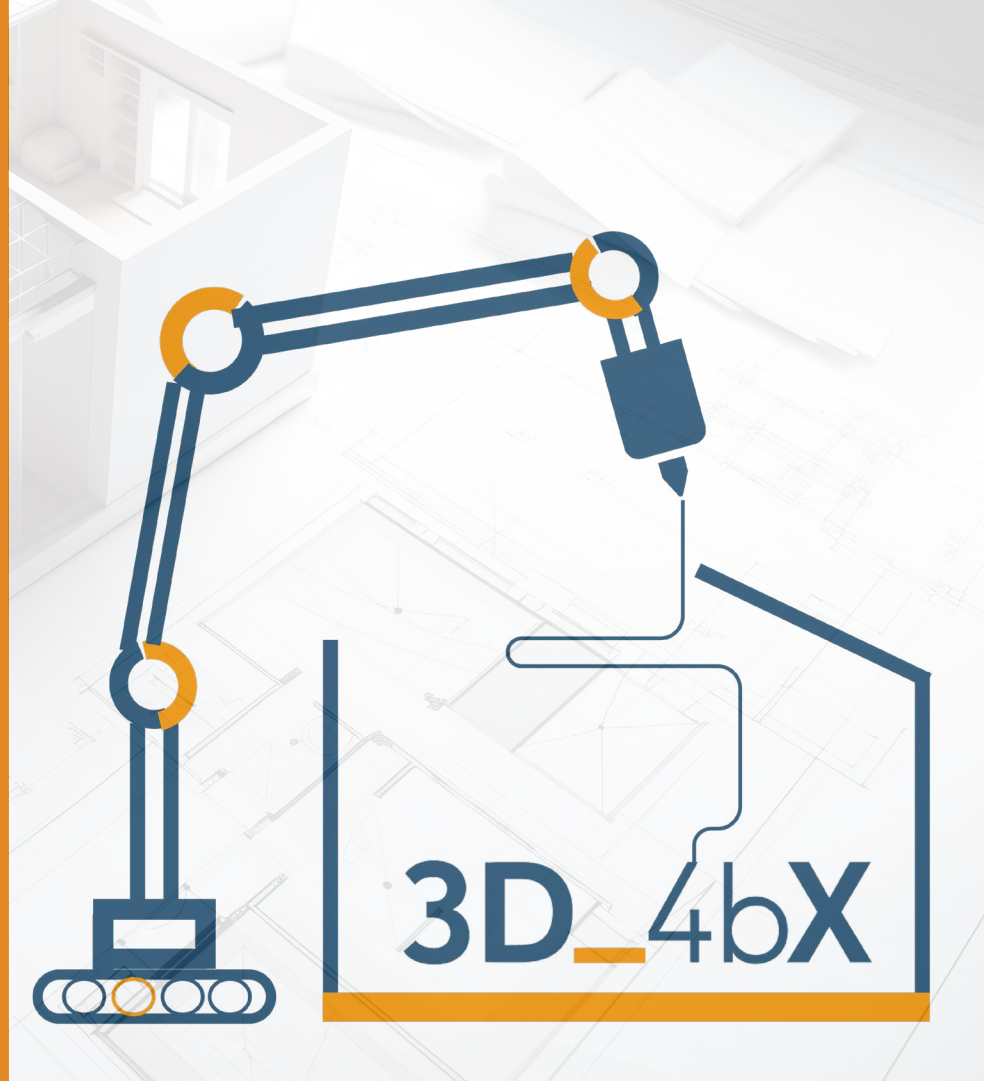
Requirements

Entrants must submit a maximum of 10 slides (A3 size and must not exceed 25MB for all slides), including drawings, renderings, plans, sections, elevations, diagrams and/or other presentation materials.

All materials must be submitted electronically. Drawings must contain English for key words and statements. A minimum of two of the slides must showcase the solution for the 3D printer and how it is assembled / disassembled and fits within a 6m long sea container and the type of printing building material that is used.

Entrants can select and upload one project preview image that best represents their application (this is more than the 10 slides listed above). Project preview image must be horizontally oriented, no larger than 10 MB and in jpg/jpeg format. A preview image of the project will be used in promotional materials to highlight the project on social media and publications such as Instagram, LinkedIn, websites, etc.) Information on how and where to download entry requirements is available at:

www.rebuilduahackathon.com



Drawings and Schemes

PARTICIPANTS CAN USE THE ENTIRE LIST OR A SELECTION FROM IT, OR PROPOSE AN ENTIRELY ALTERNATIVE COLLECTION THAT BEST EXPLAINS THEIR CONCEPT.

Technical Description of the 3D Printer:

- Detailed description of the printer.
- Concept sketches of the 3D printer.
- Description of the printing process and its parameters.

House Design:

- Architectural plans, elevations and cross sections for the house.
- At least one wall section showing the detailing related to the 3D printed components of the house.
- Visualizations of the house as it will appear after printing.

Technical Description of Building Materials:

- Description of the materials to be used in the 3D printing process of the house.
- Information on the strength, insulation, and durability of these materials.

Calculations and Construction Documentation:

- Any calculations, modeling or studies confirming the technical and economic feasibility of the project.
- Conceptual drawings for construction.
- Environmental Assessment:
- Assessment of the project's impact on the environment.
- Proposals for sustainability and energy efficiency.

Project Presentation:

- Presentation in PDF format explaining the concept, technical solutions, and commercial potential of the project.

This list of documents will assist the jury in evaluating the students' projects in terms of technical complexity, innovation, environmental sustainability, and commercial viability.



**REBUILD UA
HACKATHON**

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