CRUSH UP

Prototypes made of waste

WS21-22 | FG Borrego

Collaborative Design Laboratory
Architekturdarstellung und Gestaltung

We are

CoLab is a collaborative design laboratory whose aim is to examine certain interfaces that exist between design strategies and design processes in contemporary industry in order to apply a model - based on collective work in design practice and architectural representation.

Between designers and the manufacturing trades there is still a lack of communication and interaction. In order to bridge this gap and to promote good cooperation, design practice, architectural representation and production processes are included in projects, the success of which is based on working together.

CoLab Berlin is part of a larger network that also includes a team in Madrid where it was founded in 2009. CoLab Berlin is based in the department of architectural representation and design at TU Berlin.

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Crush Up

RECYCLING OUR OWN WASTE_
INTRODUCTION

We live in a dramatic environmental situation where climatic change and abuse of natural resources is overtaking all future agendas.

The building industry is responsible for a relevant contribution to the CO2 emissions and any sustainable initiative has become a necessity.

We should not produce waste and we need a new approach to our resources. Waste has to become our new material. We are in the time of recycled materials and renewable energies. How can we build with our own waste?

This necessity of reducing our waste is a process that needs technical solutions and general consciousness, so we should focus both on the scientific research to make it feasible and at the same time communicating this necessity to the society to be able to accelerate the change of paradigm.

In this context any teaching experience where students face a real construction is an opportunity, and at the same time a responsibility, to introduce these sustainable requirements and make them part as a manifesto to complement the learning contents of the experience.

This is why we have started researching the potential of building with the waste produced in our own faculty, taking advantage of the new digital fabrication tools.

models for the National Theatre, London, “models in dialogue” - Denys Lasdun - 1967

Task

This is the second in a series of three seminars working towards the construction of a pavilion constructed out of our own waste scheduled for the End of the Year Exhibition 2022 (IfA Jahresausstellung 2022) at our Institute for Architecture.

The site of the pavilion is freely selectable but it is expected to be in a visible place such as the main access in front of the building, in the foyer or in the courtyard.

The function of the Pavilion is free as long as it is partly or completely related to the IfA Jahresausstellung 2022. The pavilion should offer, besides a functional environment, an added value from the thermodynamic point of view. It is expected that the construction lasts at least the whole event (2-3 days), and will consider the weather of that time of the year in case it is located outside.

This goal will be a collective enterprise where we will work in groups. We will learn from the insights and discoveries of the first CrushUp seminar (SS21) and the research undertook by the CoLab team.

We will continue to work along two main research lines: on the one hand we will refine the workflows, technologies and recipes for processing the waste of our institute, on the other hand we will work towards a final design of a pavilion using this technology.

visualisation CrushUp SS 21 (Adrien Bressan, Paula Eggert, Noha Elhady, Myrto Klimi & Janosch Pein)

Structure

HORIZONTAL COORDINATION

The number of members in each group will be between 3 and 5 depending on the total amount of participants of the course. It is expected to share the acquired knowledge horizontally across all groups. For that reason we will give the responsibility of one aspect to each student of the group that will be responsible for that expertise and its coordination with other groups.

- Coordinator for up-cycling process
- Coordinator for digital fabrication and software
- Coordinator for energy
- Coordinator for mechanical structure
- Coordinator for construction

This responsibility will consist only in the coordination but the tasks will be developed collectively by the whole group.

prototyping CrushUp SS 21 (Veronika Zaripova, Sebastian Roth, Raquel Stattmiller & Adèle Lebaudy)

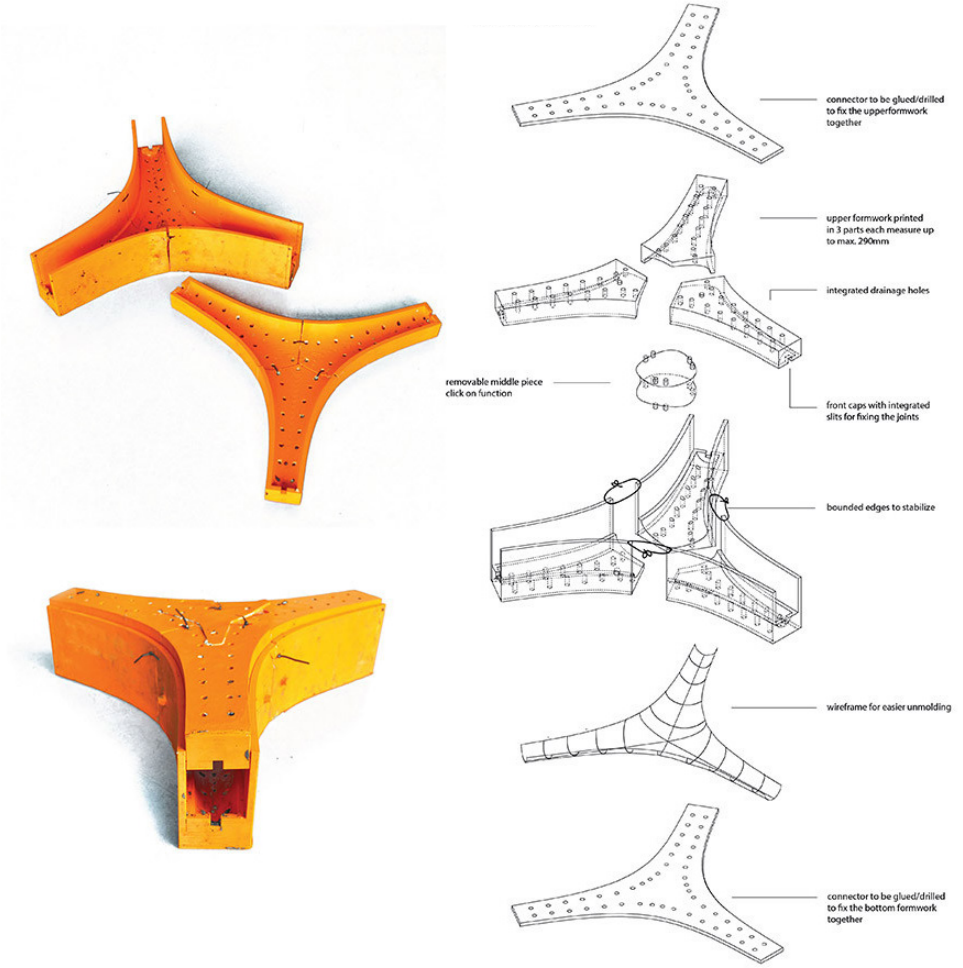

diagram and mold CrushUp SS 21 (Adrien Bressan, Paula Eggert, Noha Elhady, Myrto Klimi & Janosch Pein)

Structure

DELIVERABLES

Each group will design a project for a pavilion for the IfA Jahresausstellung 2022 and will produce the following results:

- Prototype: at least 4 components out of which the pavilion will be built (scale 1:1), including the way these components are joined / assembled
- Plans of the whole pavilion (1:50)
- Axonometries of the pavilion (1:50)
- Diagrams of use and construction
- Interior and exterior visualization
- Plans of the construction details (1:1/1:5)
- Axonometries of the construction details (1:1/1:5)
- Diagrams of recycling process
- Explanation text of the pavilion design

CNC milled panel by Luiz Bueno (Director FabLab TU Berlin) 2021

visualisation CrushUp SS 21 (Veronika Zaripova, Sebastian Roth, Raquel Stattmiller & Adèle Lebaudy

Calendar

WS 21-22

	DATE	INFO
	Tuesday (online) 10:00 -12:00	
KW 42	**19.10.21** Hello!	First meeting / short introduction / organization of the groups
KW 43	**26.10.21** Introduction	Introduction of “Crush Up”
KW 44	**02.11.21** Workshop	Component: knowledge transfer
KW 45	**09.11.21** Supervision	Component: group supervision
KW 46	**16.11.21** **Presentation**	**Component: presentation** + input lecture on compressive structures
KW 47	**23.11.21** Supervision	System: 3 proposals per group
KW 48	**30.11.21** Supervision	System: group supervision
KW 49	**07.12.21** Supervision	System: group supervision
KW 50	**14.12.21** **Presentation**	**System: presentation**
KW 01	**04.01.22** Supervision	Pavilion: 3 proposals per group

	DATE	INFO
	Tuesday (online) 10:00 -12:00	
KW 02	**11.01.22** Supervision	Pavilion: group supervision
KW 03	**18.01.22** **Presentation**	**Pavilion: interim presentation**
KW 04	**25.01.22** Supervision	Pavilion: group supervision
KW 05	**01.02.22** Supervision	Pavilion: group supervision
KW 06	**08.02.22** Supervision	Pavilion: group supervision
KW 07	**15.02.22** **Final Deadline**	**Submission of final documents in digital form**
KW 08	**22.02.22** **Final Presentation**	**Component-System-Pavilion: presentation**

MEETINGS

Meetings: Tuesdays 10:00 – 12:00 in CoLab Zoom room:
https://tu-berlin.zoom.us/j/92884189565?pwd=cFB4UFljRlJBbmRpc3JwNytWZmtkZz09
ID: 92884189565
Password: 20202020

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