PURe Forms

AR0135 Technoledge - Introduction

Design Informatics
Faculty of Architecture
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Content

- Introduction “PURe Forms”
- Adjustable mold
- Polyurethane foam
- PCM
- Design specification
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PURe Forms

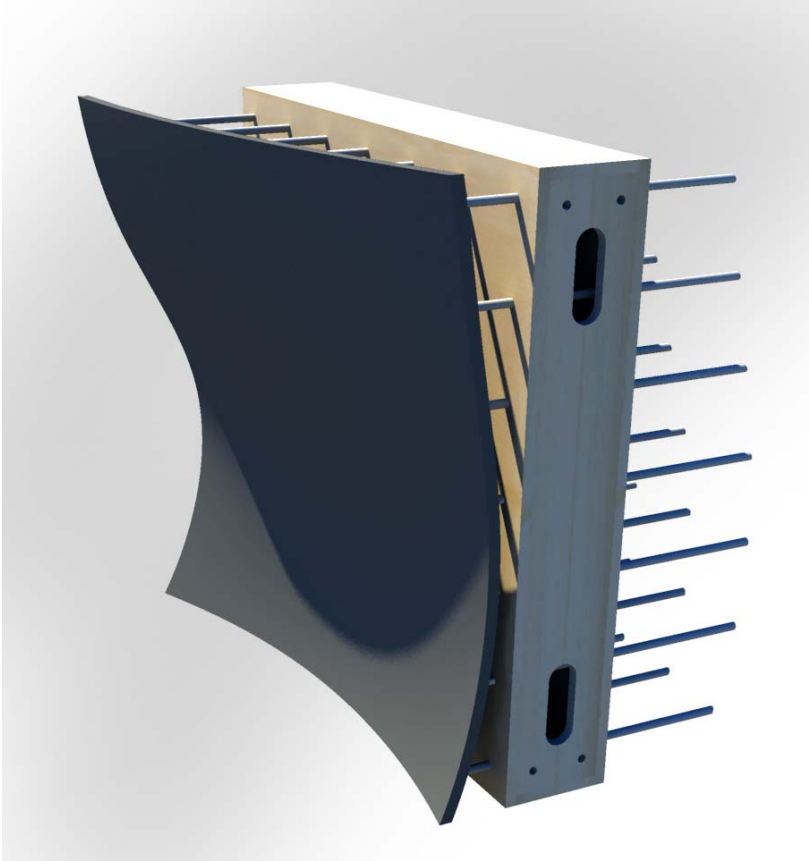
A none standard architectural object in close collaboration with the industry

PURe Forms

- Team effort
- Tight schedule
- Products have to be correct
- Share knowledge and information

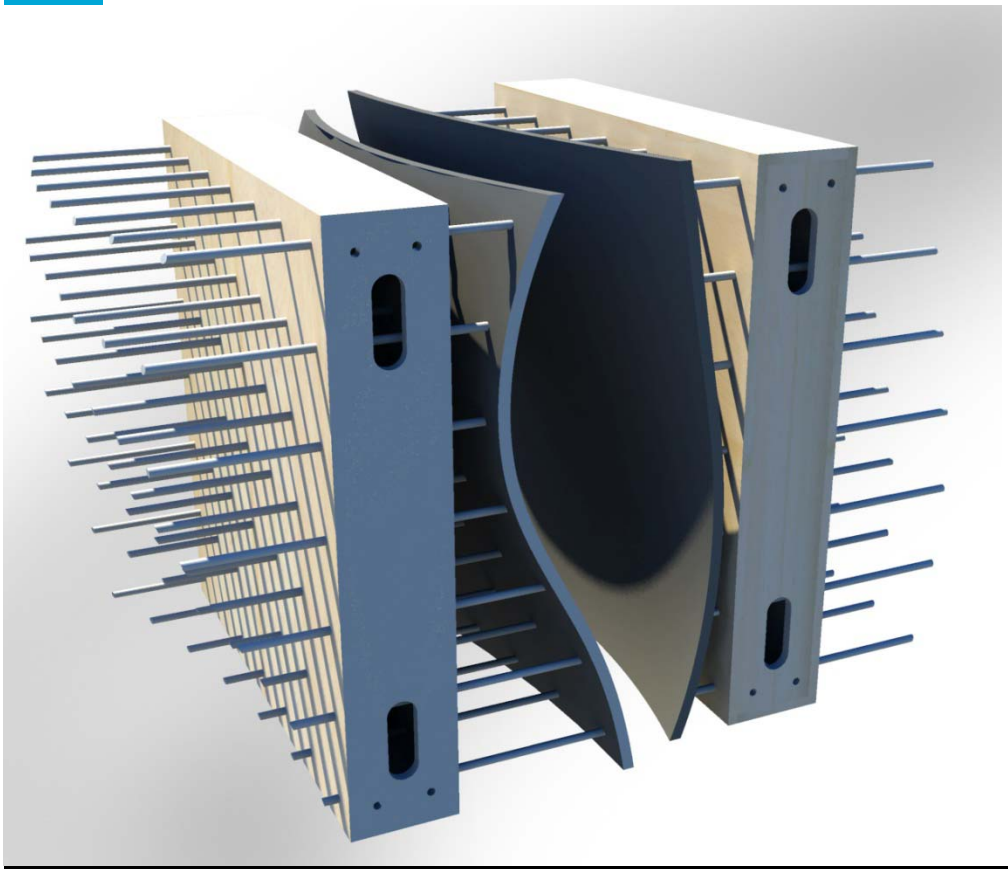
http://blog.bk.tudelft.nl/technoledge/

Adjustable mold



A flexible surface attached to rods that can be moved separately to form doubled curved surfaces

Adjustable mold



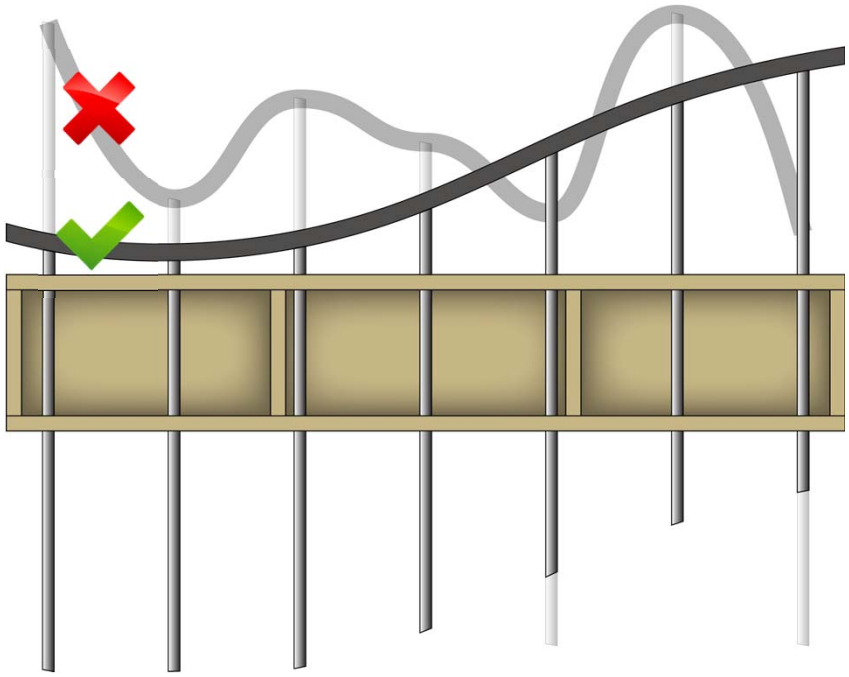
Adding a second adjustable mold allows a void to be formed

Adjustable mold

This void can then be filled with material

In theory, this results in endless possibilities for double curved surfaces

Adjustable mold



Although not everything is possible

Polyurethane foam

A two-component mixture composed of isocyanate and polyol resin comes together at the tip of a gun, and forms an expanding foam that is sprayed onto a surface or into a cavity

Polyurethane foam

In construction, it's mostly used as insulation and to prevent draft

Polyurethane foam

It’s used in many other products, like surfboards, boats, refrigerators, etc.

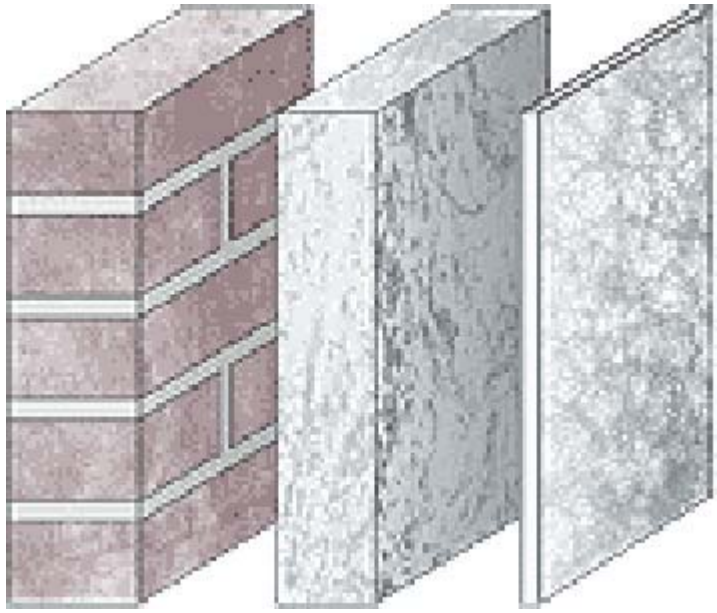
Polyurethane foam

Polyurethane foam

Professional equipment

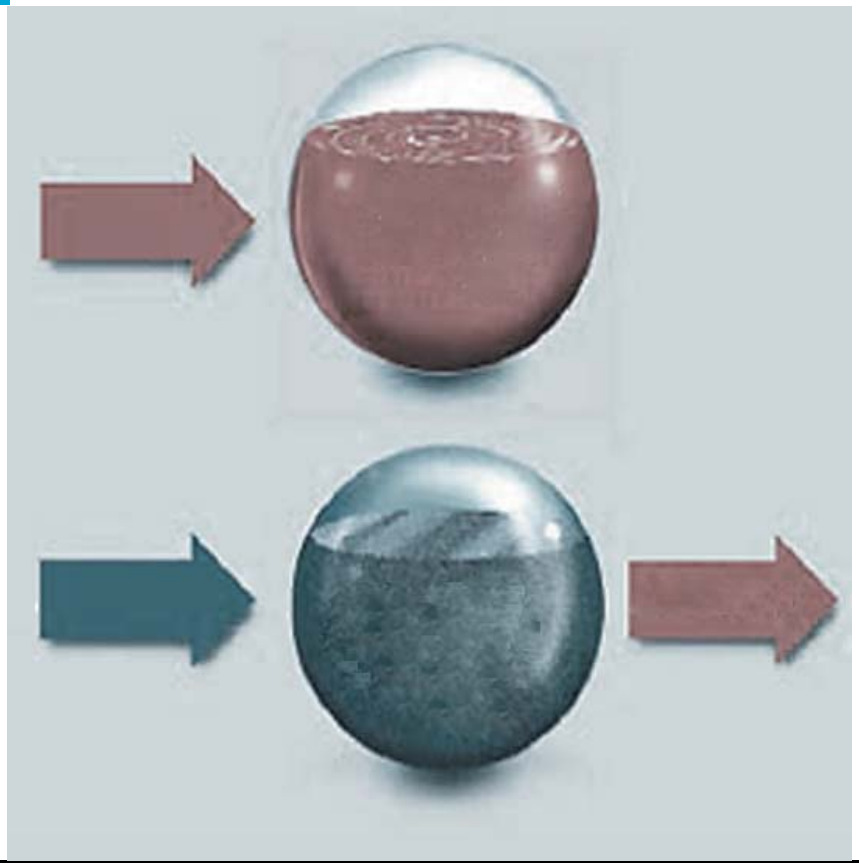
Polyurethane foam

Phase Change Materials



A Phase Change Material is able to store and release heat by a phase change of the material. During the melting process, a lot of heat is absorbed, without raising the temperature of the material.

Phase Change Materials



PCM is a latent heat storage material.

Design specification

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Design specification

A focus point, which has to:

- be a shelter from the sun and the rain
- be a place to meet others and maybe sit down for a chat
- use PCM to make it a comfortable place at night by releasing the stored heat

Design specification

Keep in mind it has to:

- be built in one week;
- be self-supporting;
- be built with a maximum of $4m^3$ of polyurethane foam
- confirm to a maximum mold area: 900mm x 900mm

Design specification

Pre-rationalization!!

Organisation

Period	Theory	Workshop	Teams
Week 1	- Introduction - Curve Based Modeling	- Preparation - Making teams of 3	4
Week 2	- Surface continuity - Grasshopper introduction - PCM	- Concept Sketch Design	4
Week 3	- Grasshopper advanced	- **Preliminary design presentation** - making teams of 4	4 3
Week 4	- Digital manufacturing & Grasshopper	- Concept fabrication drawings	3
Week 5		**- Final design presentation**	3
Week 6 & 7		- Prototyping, testing, etc.	3
Week 8		**- Build week**	**1**
Week 9 & 10		- Individual reflective essay	11

Information

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