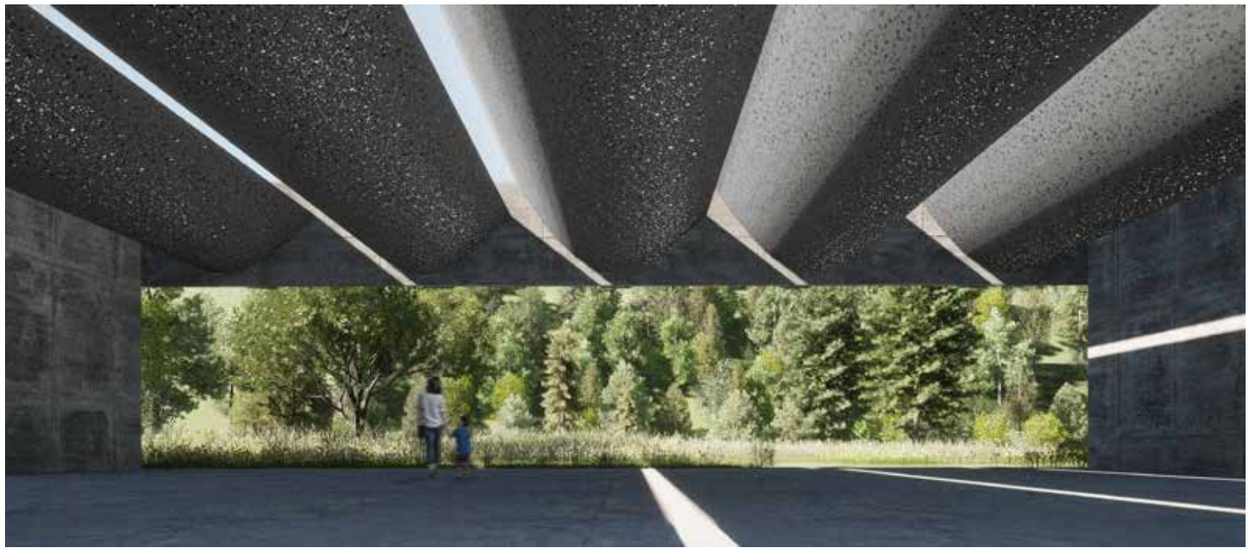
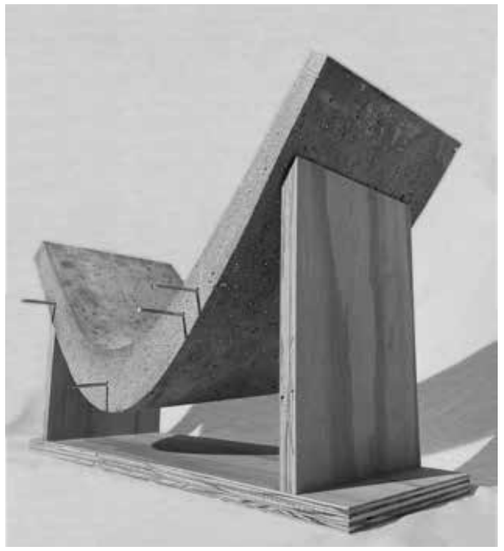
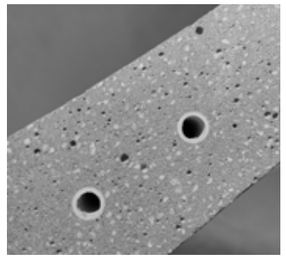




skycrete module presented on a pedistal



detail of holes for structural reinforcement

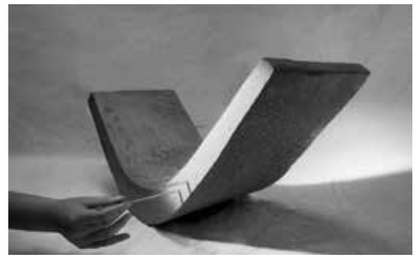
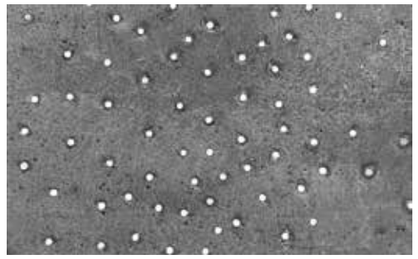


photo of steel rebars within the skycrete

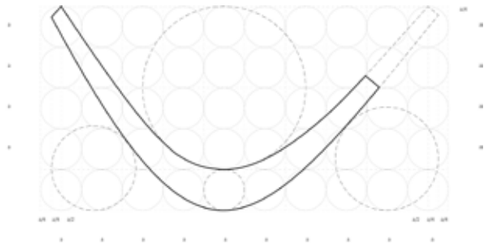
light effect of the translucent surface in a black box



detail of the texture effect

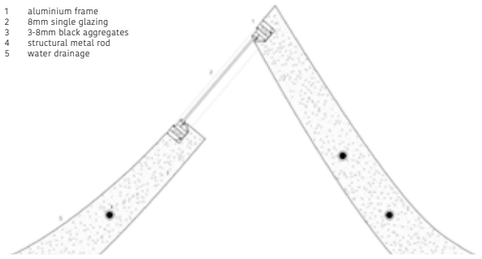
SKYCRETE

modular concrete skylight

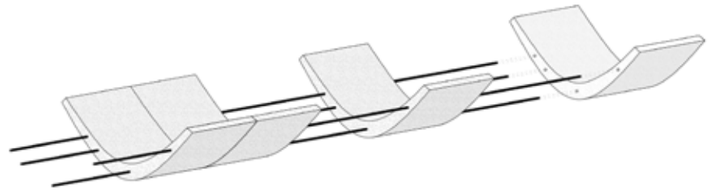


form modulation

1 aluminium frame
2 8mm single glazing
3 3-8mm black aggregates
4 structural metal rod
5 water drainage



waterproofing detail between modules



assembling system

Throughout the 21st century, concrete is utilized to create a clear division between spaces, especially shaping the indoor and outdoor boundaries. As a starting point, we question the necessity to clearly divide these spaces, focusing on roof elements and skylights. Challenging the properties of the material and the ways that it is used in the built environment shapes the design both in its form and function.

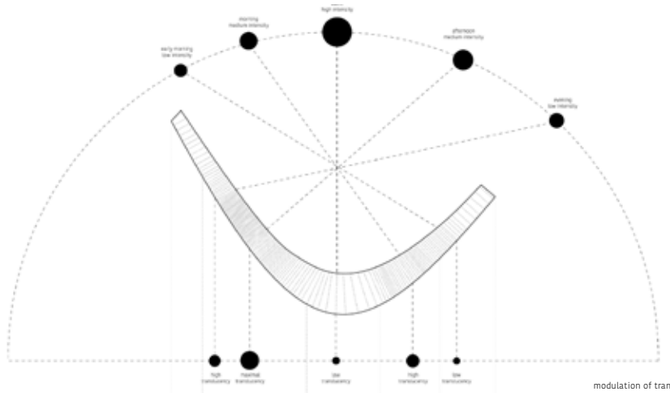
Does concrete have to fully obstruct light and seperate the interior from the exterior in its entirety? The initial concept stemmed from the questioning of concrete as a material, and the functionalities that it covers. The aim is to confront the nature of concrete being a dense and opaque material by incorporating different techniques to lower concrete molecule density within the material, and make it translucent. Through the use of optical rods running through the thickness of the element, translucency is achieved in different densities.

From a morphological stance, the concrete skylight is shaped to absorb as much sunlight as possible throughout the day. The rounded shape embraces natural light during all moments of the day, creating an interactive and ever-changing effect on the indoor quality.
Moulded and poured as modules secures the opportunity to manipulate and operate the elements easily, while also providing liberty regarding the dimensions of the space.
These elements come together via steel rods that run through the span of the space, and attached to the load-bearing structure.

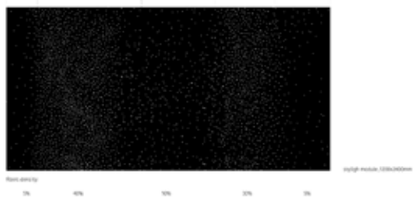
The function of the skycrete is to blur the boundaries between the outdoor and indoor spaces. As the element is to be used in large spaces such as warehouses and pavillions, the skylight returns interior quality by providing a sense of time (of the day) and by breaking the monotomy of roof panels. Furthermore, the concrete skylight ensures waterproofing by incorporating small glass panels in the gaps between its modules.

The design process results in the creation of a spectrum of concrete translucency. These tests guide us to the formulation of a concrete skylight, which would have various translucencies and therefore allow different densities of light to perforate throughout the day.

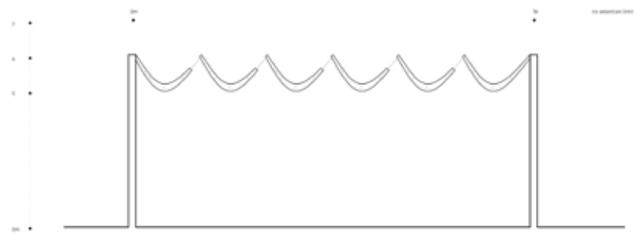
skycrete module, scale 1:2



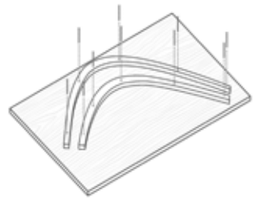
modulation of translucency



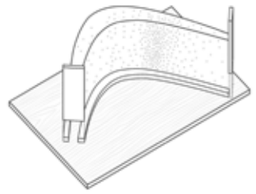
light effect



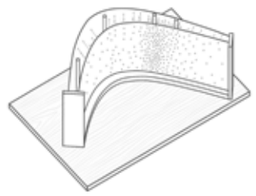
conceptual section



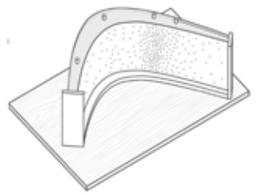
1. screw two wooden pieces shaped as the negatives of the skylight to a wooden plank.



2. position two plastified plywood strips against the wooden pieces, curving them accordingly. These are premade with holes of diameter 2 mm where the plexiglass will run through.
Close off the corners using vertical wooden elements.



3. position optical rods of diameter 2 millimeters in the holes, running from one plywood strip to the other.



4. pour the concrete from the top, allowing it to flow thoroughly around the tubes, vibrating the base until air bubbles exit the mixture.

skycrete production principle for scaled up modular industry

view of the interior space