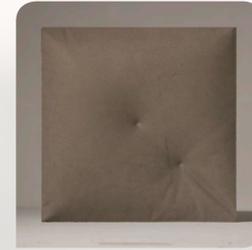


VELVET CONCRETE

Multiple iterations were explored with different handmade formworks with a wide variety of inlay materials. From beeswax with organically shaped hexagons to the influence on concrete of an industrial serpentine belt. The experiments with leather were the most promising. Both the Flesh (hairy) and the Grain (smooth) side of the leather were used for prototype casting. Inspired by the P_Wall of Andrew Kudless the leather was held up by sticks while other parts were formed by the gravitation force of the concrete. Resulting in a pillow shape tiles. In both tiles the imprint of the leather was visible as well as the shapes of the folds that occurred. On top of that the Flesh side of the leather transferred a large amount of individual hairs on the concrete, resulting in a soft to the touch top layer.

In the prototype the border between leather formwork and regular formwork is very clear, showing the impact that the formwork has on the cast. Elaborating on this soft velvet effect of the prototypes, the final panels took the shape of fabric in the form of a curtain to further emphasize the newfound softness of the objects. Again in these bigger moulds the Flesh side gave a marvellous texture to the panels.



PICTURE 2 - Prototype cast result Grain side



PICTURE 4 - Prototype Flesh (hair) and Grain (smooth) side of leather cast results



PICTURE 1 - Prototype sharp edge between Flesh side and plain side



PICTURE 3 - Prototype cast result Flesh side



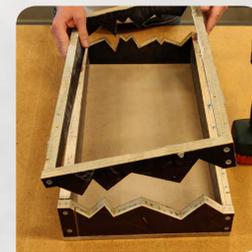
PICTURE 5 - Tearing Flesh side from cast



PICTURE 6 - Prototype residue in mould

The outer shape of the cast were set by the dimensions of the mould. The inner shape of the mould was a result of the interaction between the concrete and the leather. Creating a unique outcome for each cast. The addition of carefully positioned openings in the mould further randomized the outcome. Ultimately, two mirrored moulds resulted in a variety of panels which would merge seamlessly.

The mould was constructed with two longer sloped sides and two jagged sides. The leather was stretched over the mould. The back side of the leather was later strengthened with expanded clay pebbles, a light material that fixates the shape of the stretched leather. The casting side of the leather mould was raised by a framework, creating a certain thickness to the panel. The backside of the panels were reinforced with steel mesh. For casting the four panels two different types of concrete were tested. Two of the panels are casted with a fast-curing concrete and the other two with a self-levelling concrete. The fast-curing panel became more bulky, while the self-levelling concrete resulted in a more elegant panel with a more expressed wave pattern. The shape of each panel is a unique outcome between mould, leather stretch, type of concrete and the amount of openings.



PICTURE 8 - Lower and top part of mould fit perfectly

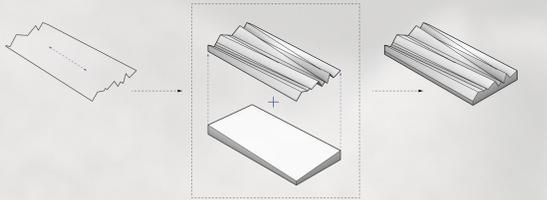


FIGURE 1 - Rhino based prediction of the shape 1:10



PICTURE 7 - Two mirrored moulds



PICTURE 9 - Lower part is reinforced with expanded clay pebbles

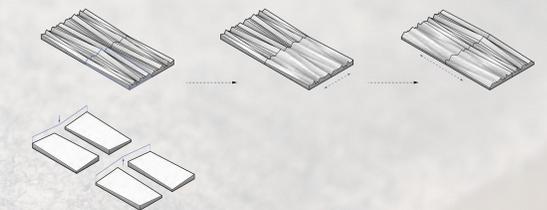


FIGURE 2 - Rhino based sequence and pattern possibilities 1:10

The result is a panel that changes from one cast to the other while they are still be able to fit seamlessly together. This type of manufacturing will lead to unique panels that can be used as façade decoration as well as stand-alone space dividers. Both the colour and the soft touch of leather is transferred to the panels creating a pleasant ambience within the room. Due to the seamless connections between the panels, the panels can cover entire walls or be placed around corners. Additionally the panels can be placed in series, creating a continuous stroke of long waves.

The panels have the benefit of a simple pattern creating an endless repetition. The uniqueness of each panel, due to construction method, creates an infinite amount of variation within the rippling effect. These ripples can be further emphasized by the use of grazing light. Both perpendicular and in line with the ripples, the application of light creates an intriguing effect. The wave pattern has an advantage on the diffusion of sounds. Further research could be conducted into the acoustic benefits of the small leather hairs as a skin for concrete panels. These velvet concrete panels can be used for multiple applications transforming an otherwise hard concrete surface into a warm velvet undulation.



RENDER 1 - Interior wall



RENDER 3 - Close up



PICTURE 10 - Line arrangement



PICTURE 11 - Square arrangement



RENDER 2 - Interior around the corner

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