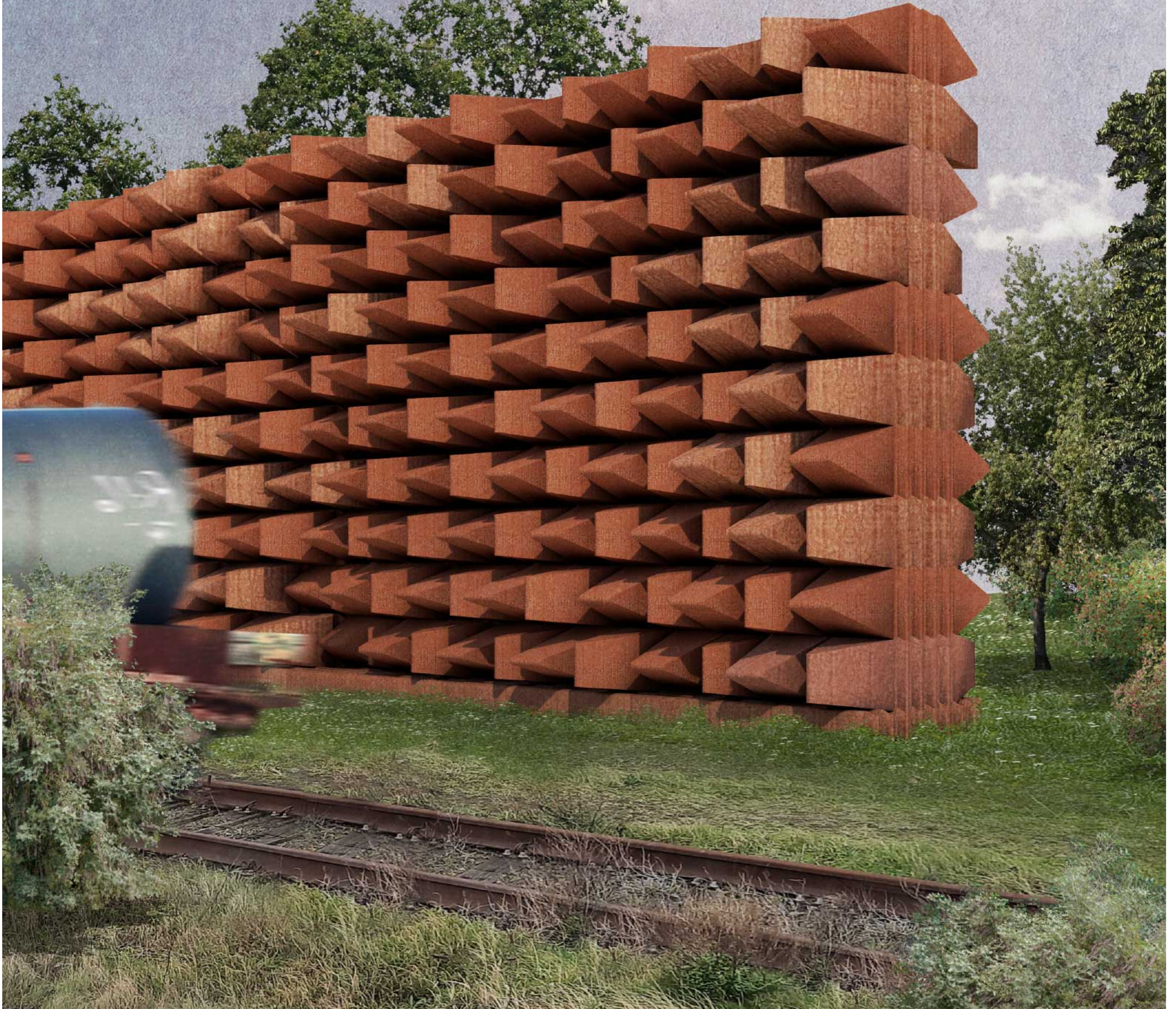


**SW580**

# **Acute Acoustics**

The Anechoic Sound Barrier





# SW580



## Acute Acoustics

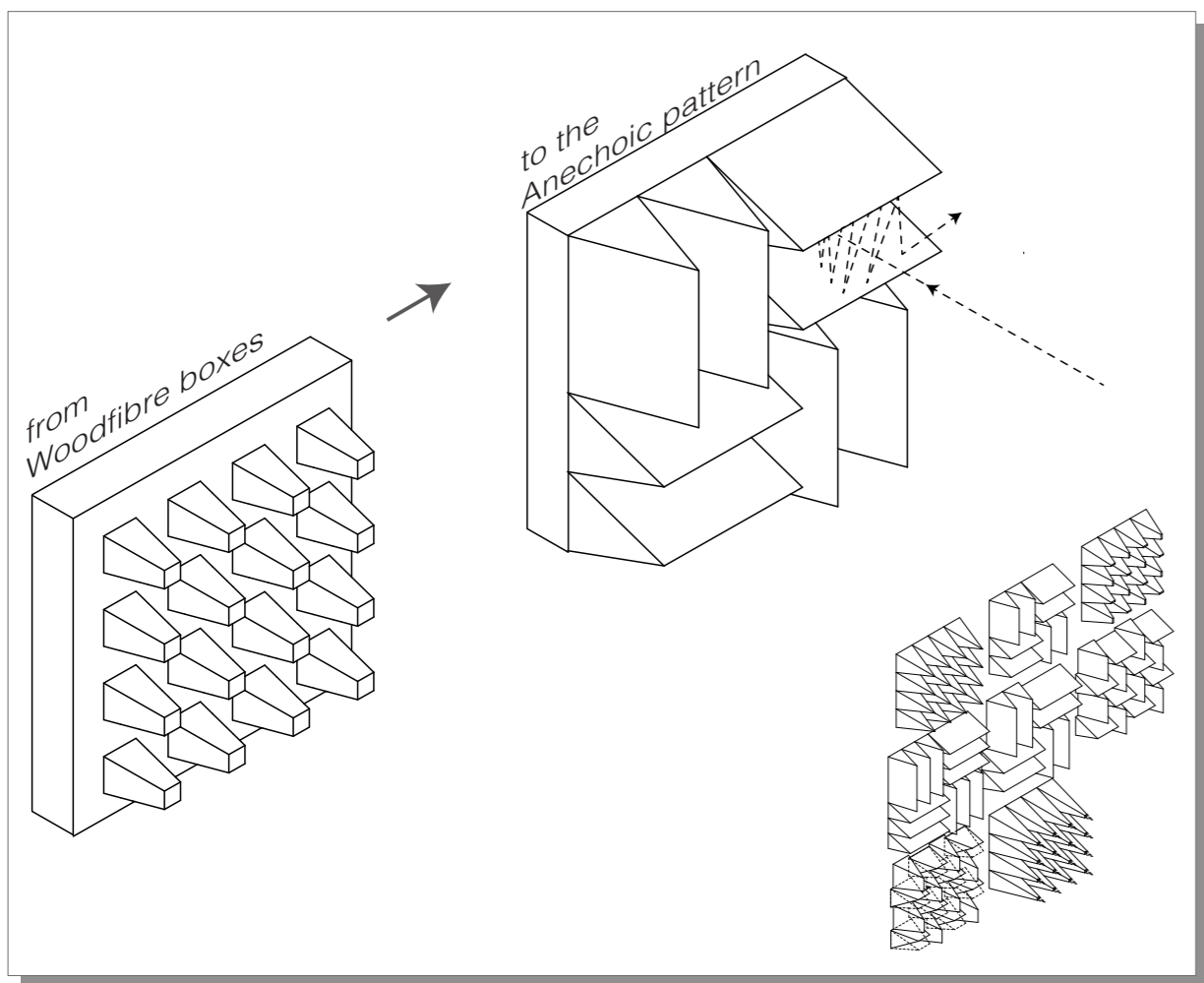
Acute acoustics is an industrial scale modular concrete sound-barrier. The gapless interlocking system with offset module rows prevents noise from travelling through and the dense concrete reflects noise. The negative effects observed when noise is reflected are counteracted by the wall geometry which, by mimicking anechoic chambers, breaks up sound waves. The wall is self-supporting and braced thanks to its undulated plan. It achieves this with a dry assembly method and no reinforcement, which enables it to be taken apart and assembled elsewhere. The modular nature of the wall enables it to adapt to a variety of site conditions and its appearance can be tailored by combining concrete colour and finish texture, and module size. This kit-of-parts approach provides an engaging urban canvas on both sides, on which text and graphics can be drawn.

The form-work we suggest is steel, in order to optimise its lifespan. The form-work is composed of modular sections meaning that each part of the mould (wedges or undulating core) can be mixed and matched.

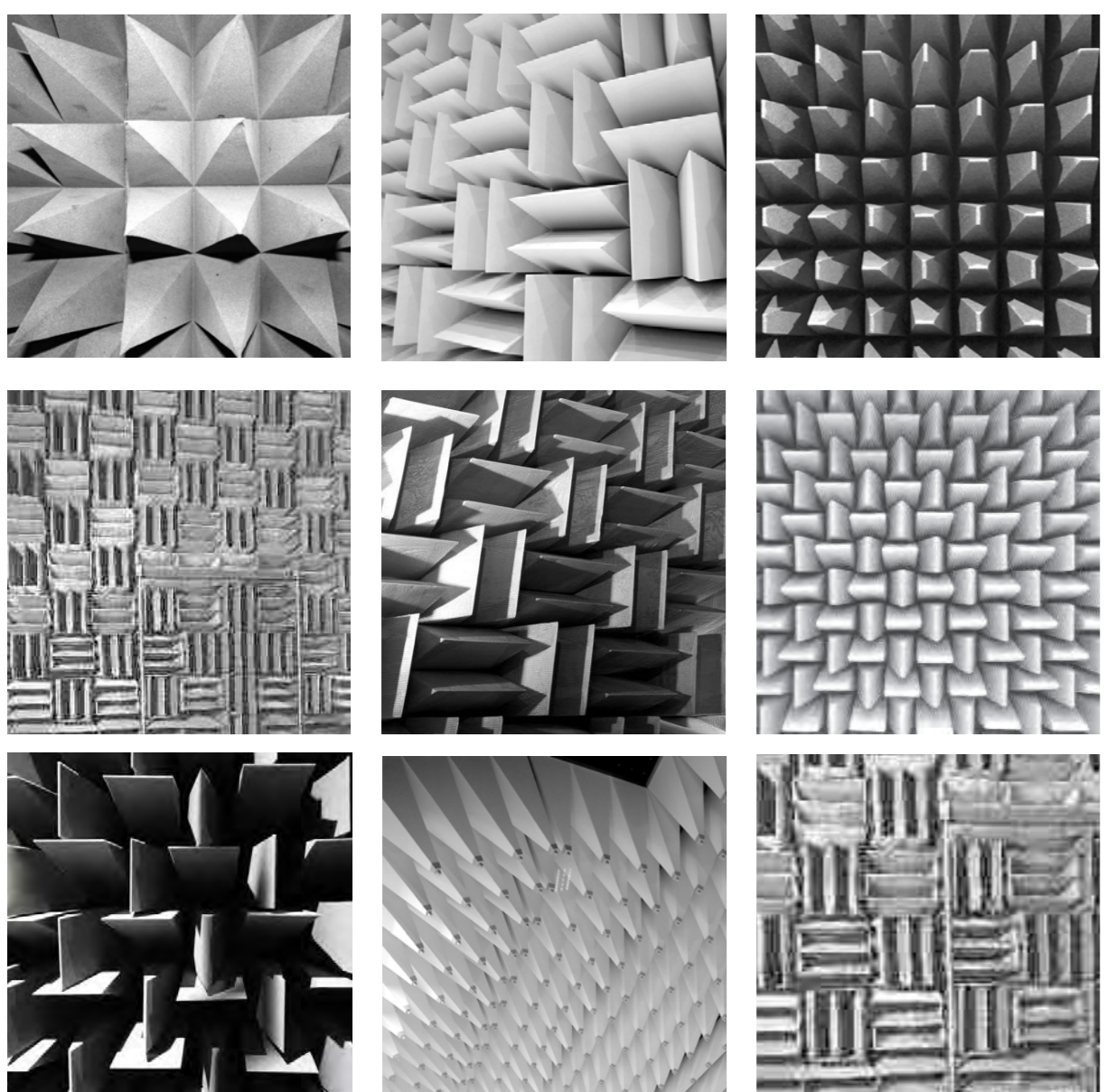
The intention for our Sound Absorbing Brick Wall was born from the idea to create a surface that is as uneven as possible, in which the sound is absorbed in the best possible way. The surface of the Woodfibre Boxes fascinated us the most and lead us to research anechoic chambers whose wedge breaks up sound waves - causing sound waves to bounce back and fourth in the gap between the wedge above or below.



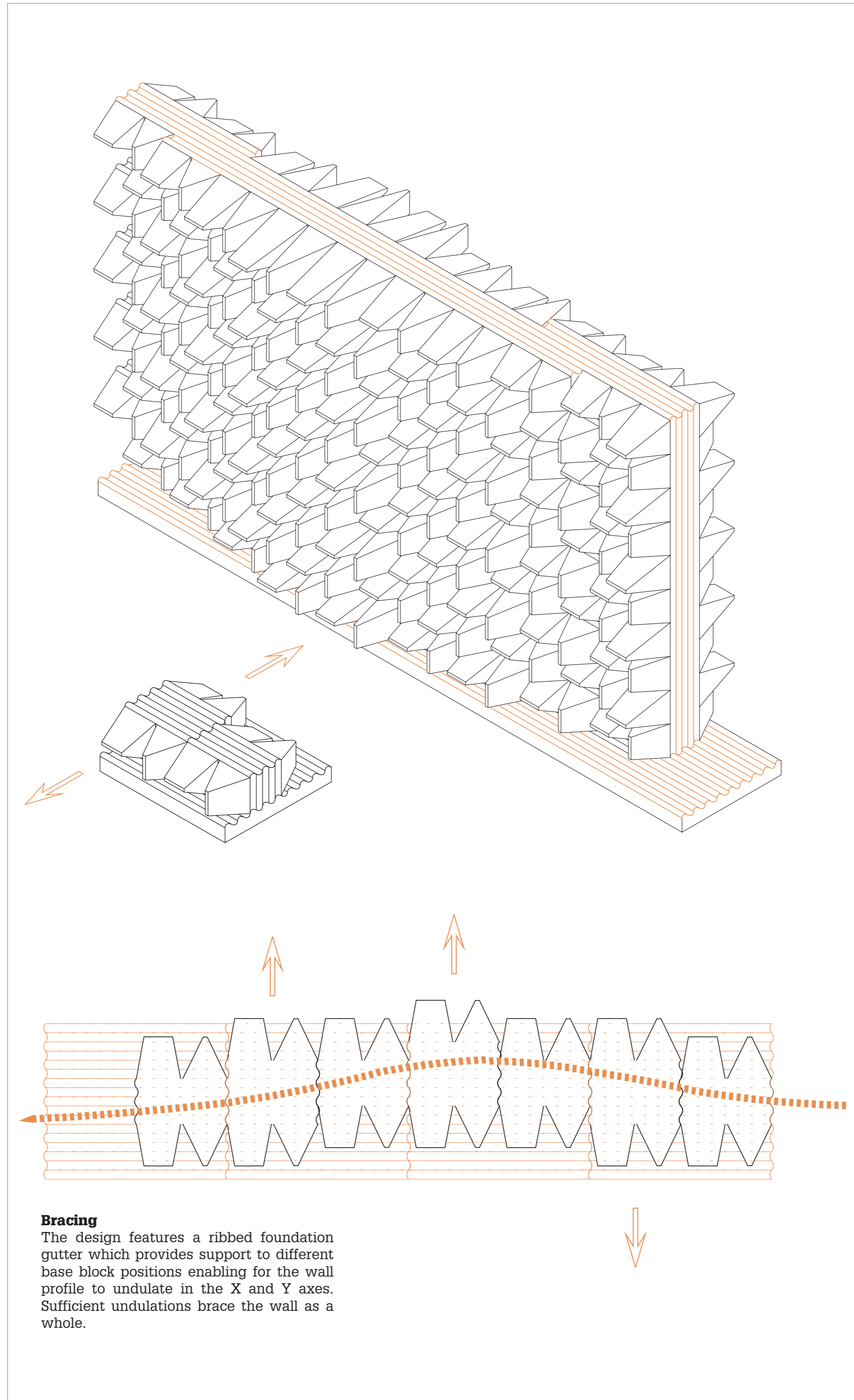
**Making:** Test Pour with different surface qualities like: sponge, egg crate, corrugated plastic and woodfibre boxes.



**Design Development:** From of woodfibre boxes to the anechoic pattern.



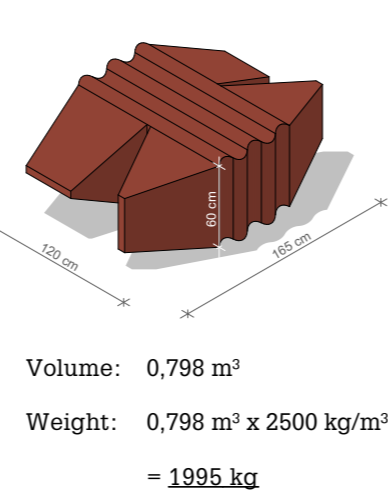
The variety of geometry in anechoic chambers



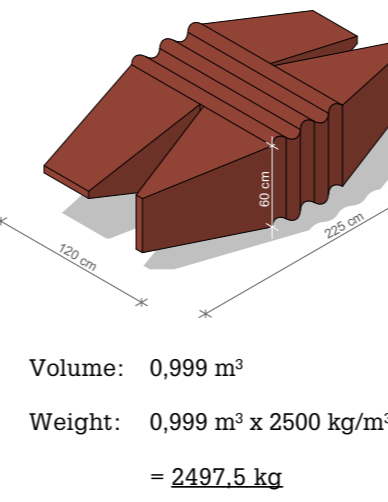
**Bracing**  
The design features a ribbed foundation gutter which provides support to different base block positions enabling for the wall profile to undulate in the X and Y axes. Sufficient undulations brace the wall as a whole.

### Calculation (Concrete Density = 2500 kg/m<sup>3</sup>)

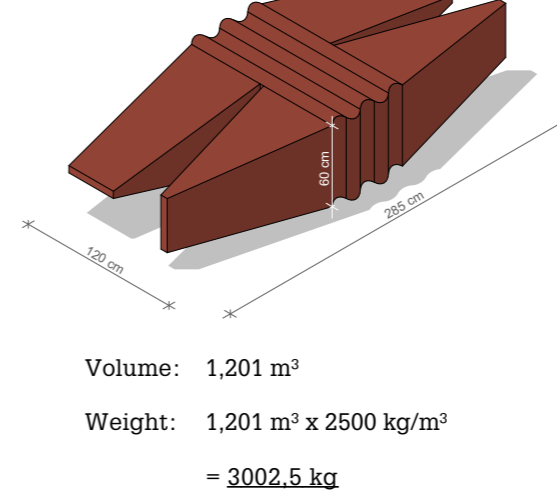
#### Brick Size S (small)



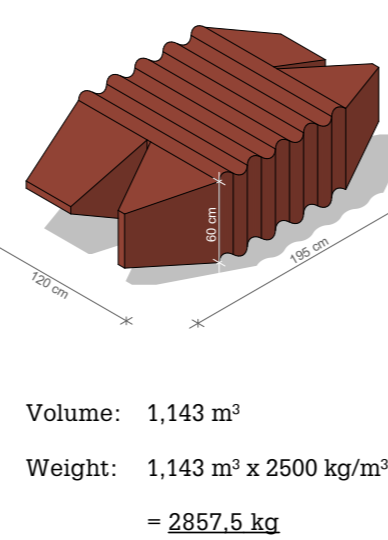
#### Brick Size M (medium)



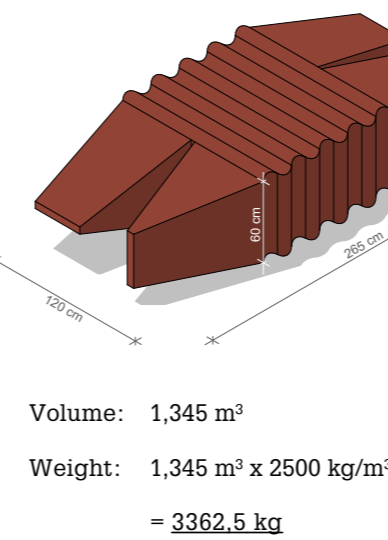
#### Brick Size L (large)



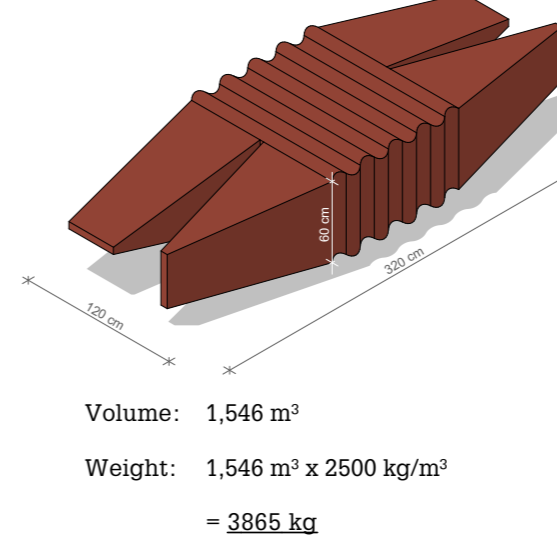
#### Brick Size Bottom S (small)



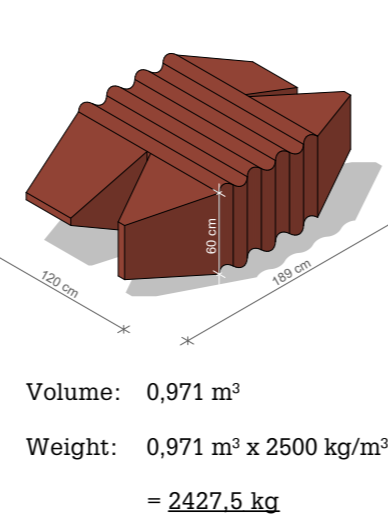
#### Brick Size Bottom M (medium)



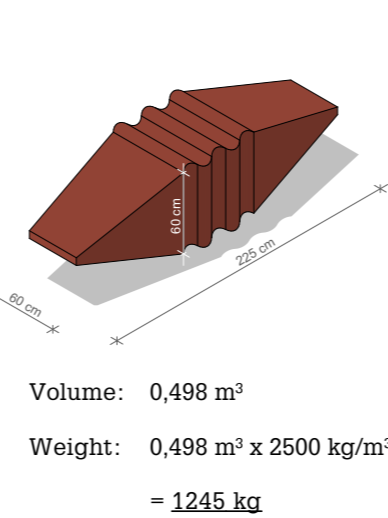
#### Brick Size Bottom L (large)



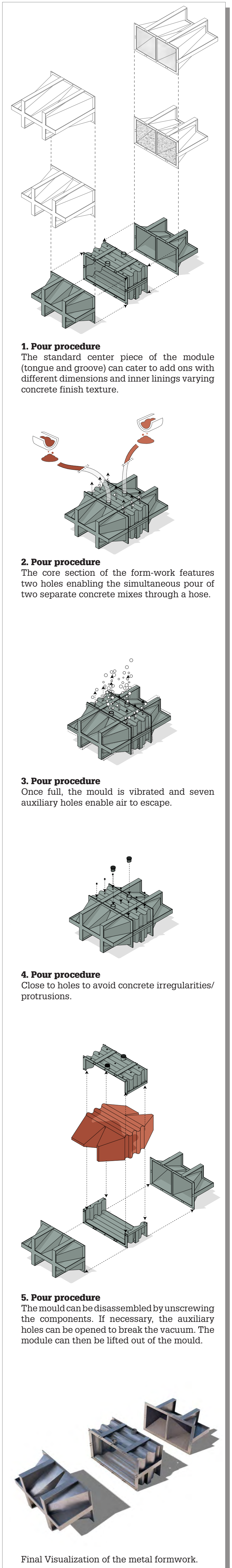
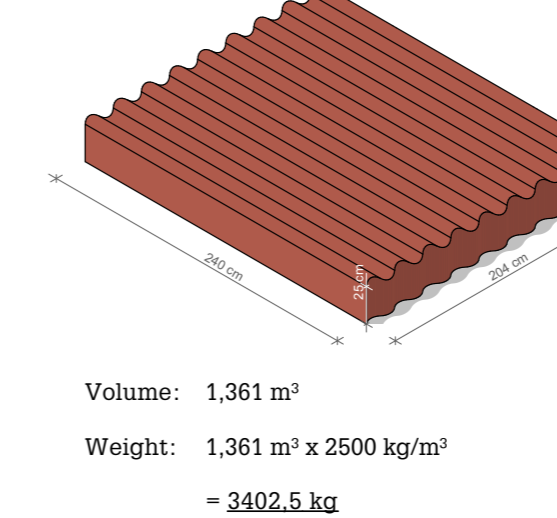
#### Shift Brick (for bracing)



#### Single Brick



#### Gutter



**1. Pour procedure**  
The standard center piece of the module (tongue and groove) can cater to add ons with different dimensions and inner linings varying concrete finish texture.

**2. Pour procedure**  
The core section of the form-work features two holes enabling the simultaneous pour of two separate concrete mixes through a hose.

**3. Pour procedure**  
Once full, the mould is vibrated and seven auxiliary holes enable air to escape.

**4. Pour procedure**  
Close to holes to avoid concrete irregularities/protrusions.

**5. Pour procedure**  
The mould can be disassembled by unscrewing the components. If necessary, the auxiliary holes can be opened to break the vacuum. The module can then be lifted out of the mould.

Final Visualization of the metal formwork.