

Eremos

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A deployable modular system for adapting to hybrid working, that balances your need for space, sound and light to enhance your working experience

Manifesto

A successful private workspace is somewhere which is comfortable and isolated from distraction. Although, we do appreciate that the feelings and behaviour related to comfort and isolation depend on personal reactions to the sensorial stimulants of the environment. Hence, we are committed to developing a structure which can be controlled intuitively by the user to shape their desired space and form.

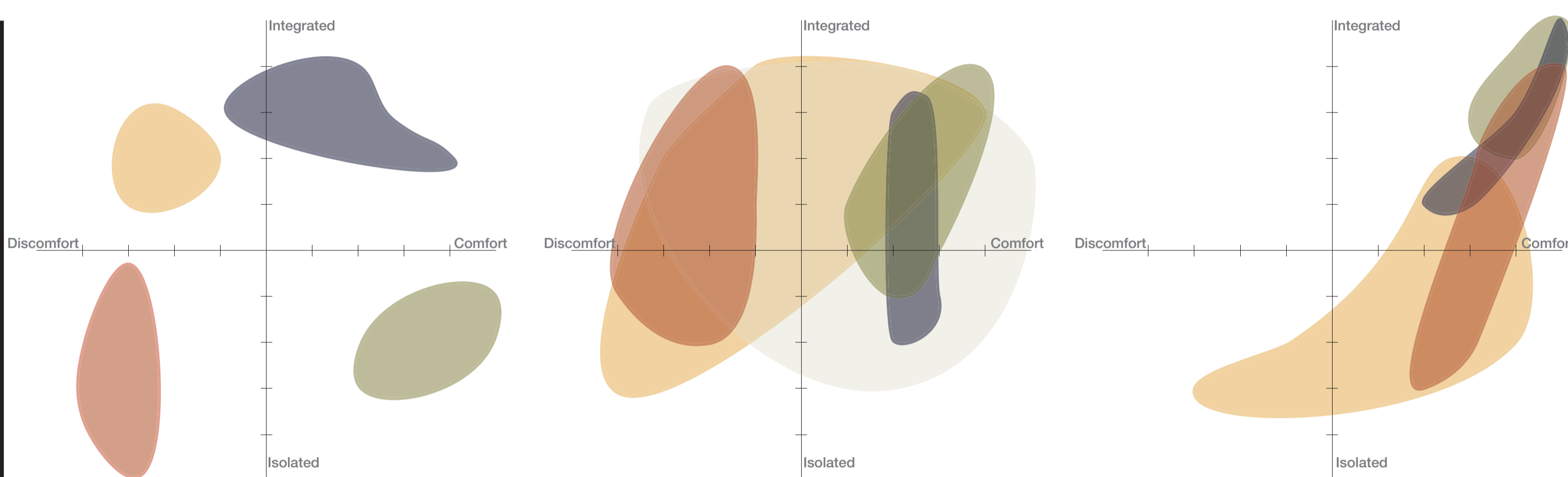
Concept Study

To identify the confines of our design we carried out a case study in an existing office space studying our different movements around the space. We observed that we all were seeking a range of two qualities; isolation/integration and comfort/discomfort, further we could quantify our emotional reaction to these based on acoustical, visual and haptic factors. Generating a survey, and questioning each sensorial factor, allowed us to map these feelings on an x-y system.

The first graphics represent the spread of answers to each question, showing a spread of reactions across the emotional spectrum. The second set of graphics represents the same data but groups answers by each individual, showing how per individual the same stimuli generate a completely different emotional reaction – thus providing our focus on adaptability for user-specific requirements

“How does ... effect your feelings of isolation and comfort ?”

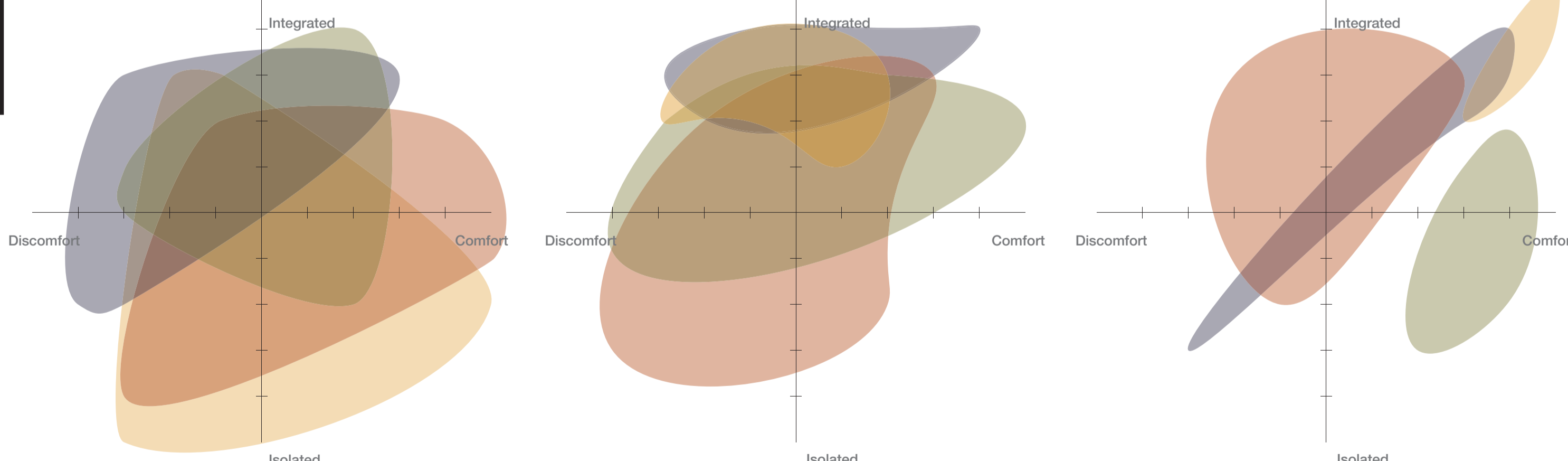
- Muffled background sounds
- No Background sounds
- Sound of movement
- Perception of self volume
- Seeing external movement
- Neutral colour tones
- Being overlooked
- Large amounts of natural light
- Perceived softness of surroundings
- Flexibility of the space
- Large obstacles or imposing objects
- Enclosed spaces



Acoustic

Visual

Haptic

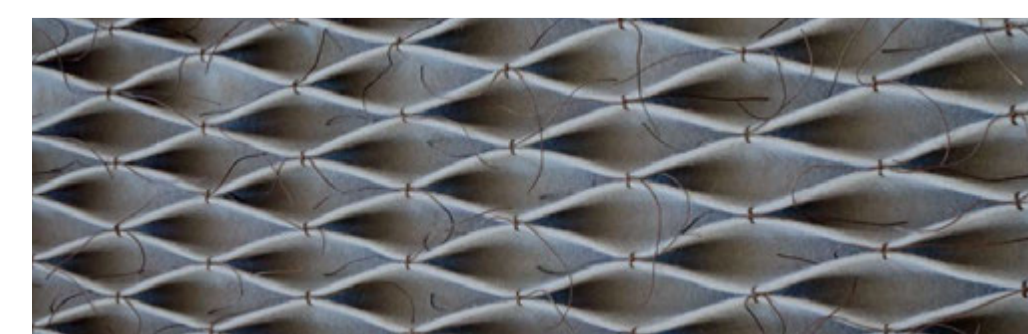


Inspirations

Molo 'softwall + softblock' system, inspired the honeycomb structure of our design.



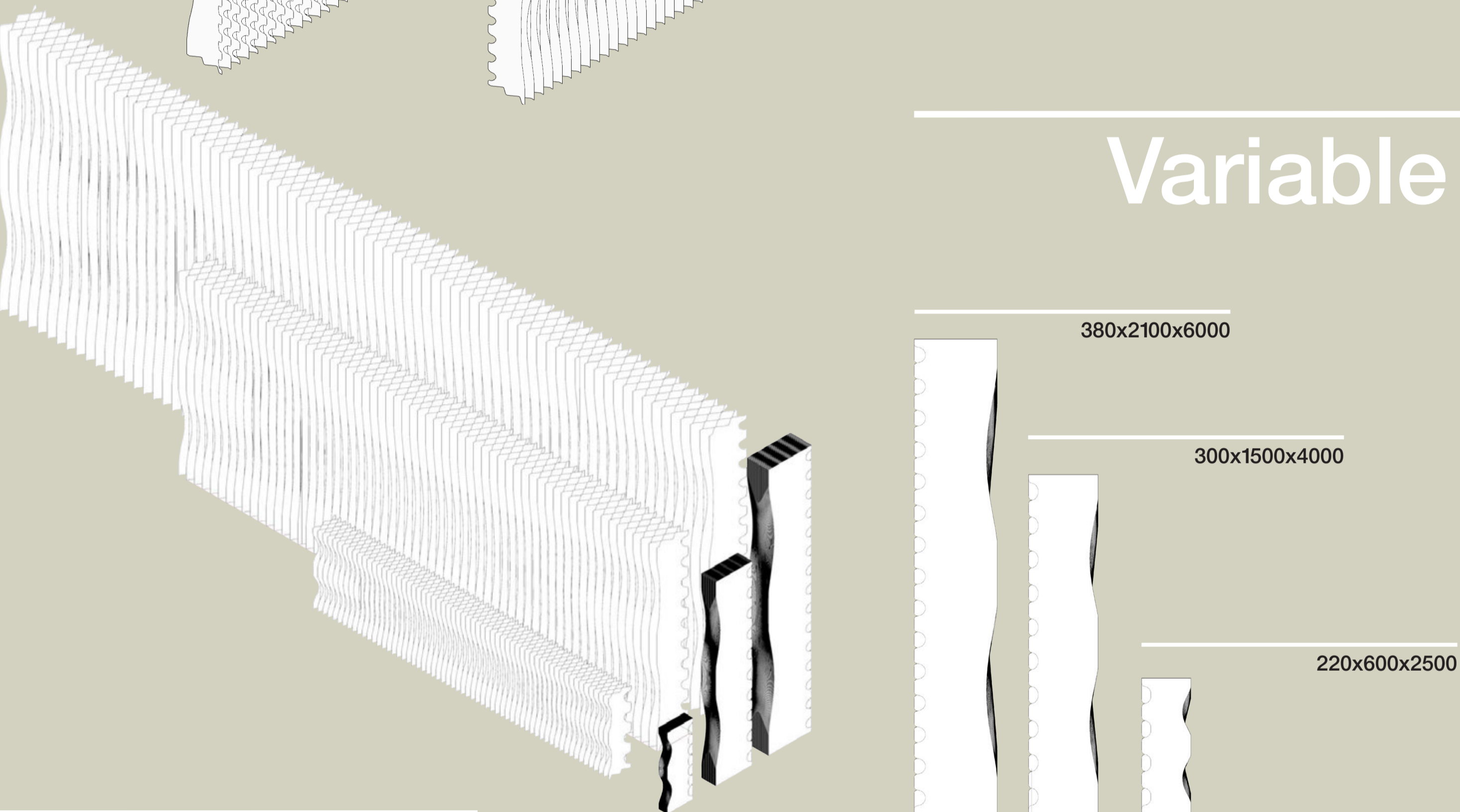
Mary-Ann Williams' 'Origami Acoustic Felt' inspired the perforations achieved through folding in our design.



Acoustic

Perforated internal surface

Parametric wave cut exterior surface



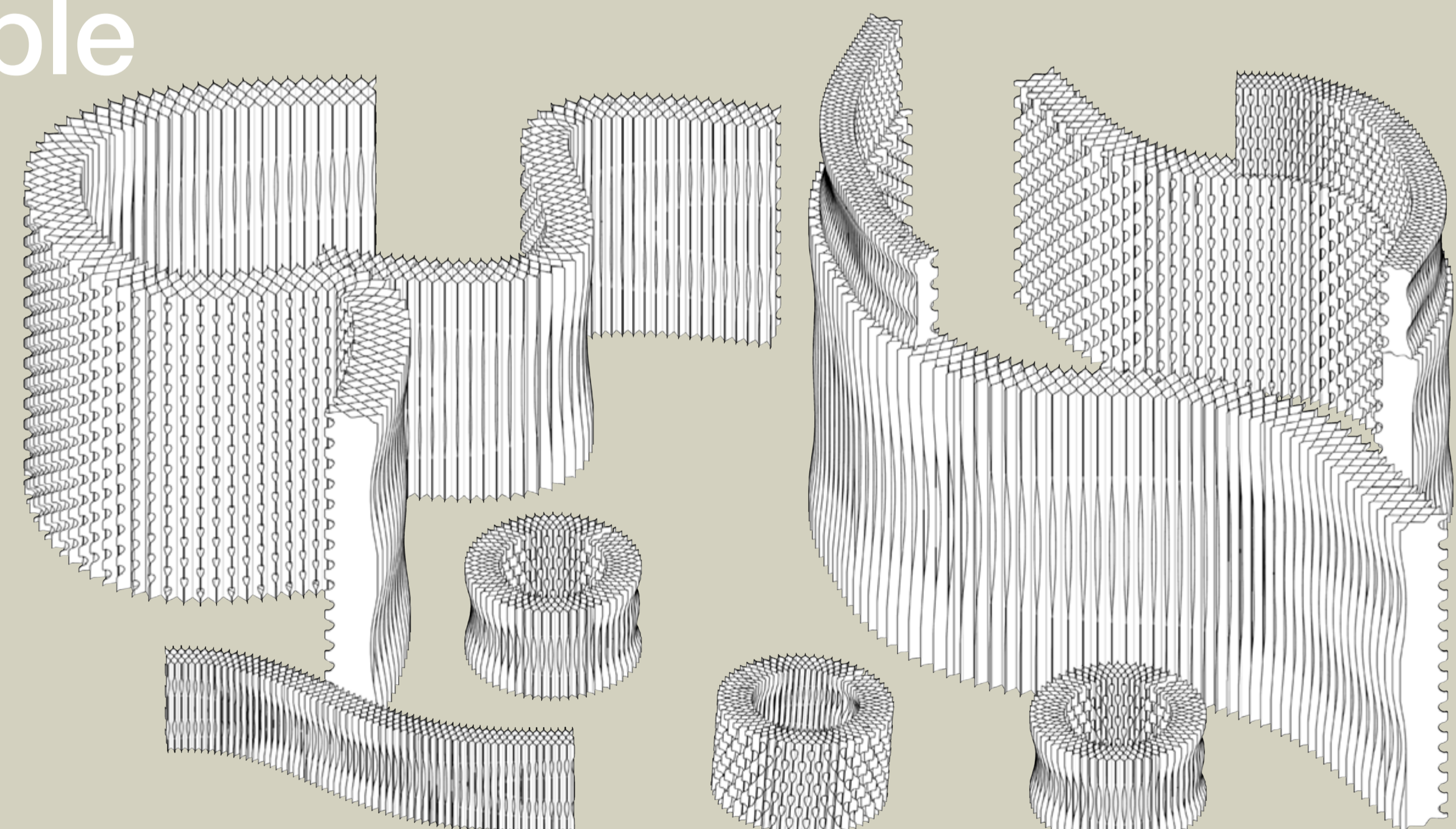
Variable

380x2100x6000

300x1500x4000

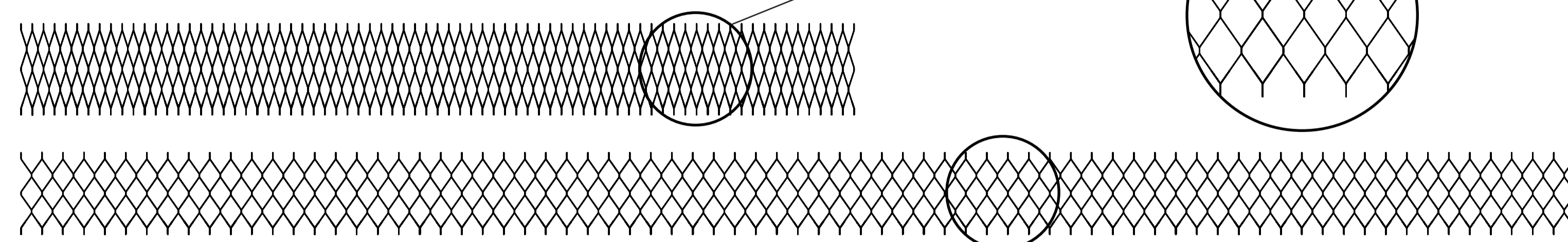
220x600x2500

Flexible



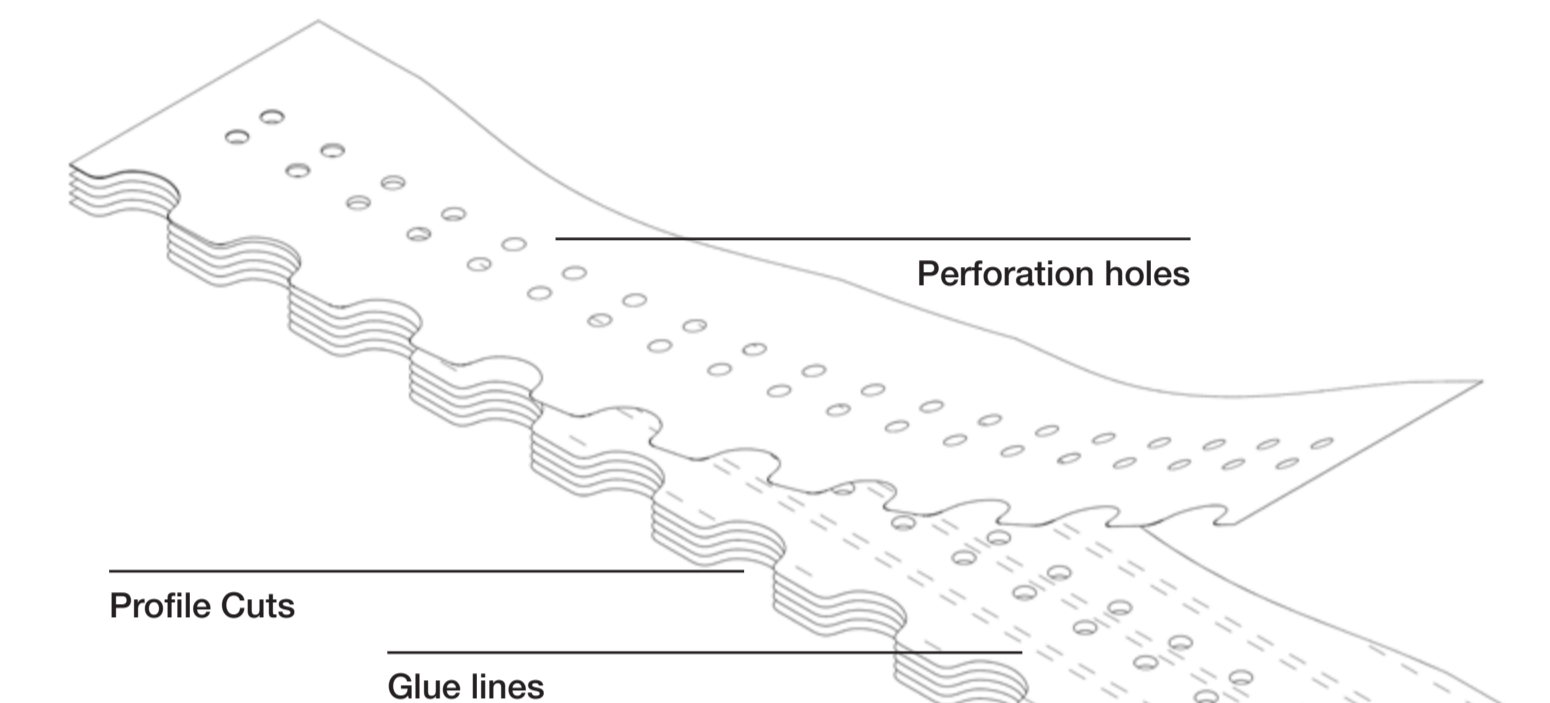
01 Structure

The honeycomb wall structure is assembled with layers of translucent paper joined with adhesive strips, allowing the structure to expand as it is deployed with vertical cushions of air. Outer joins use thicker adhesive strips for enhanced durability at its extremities.



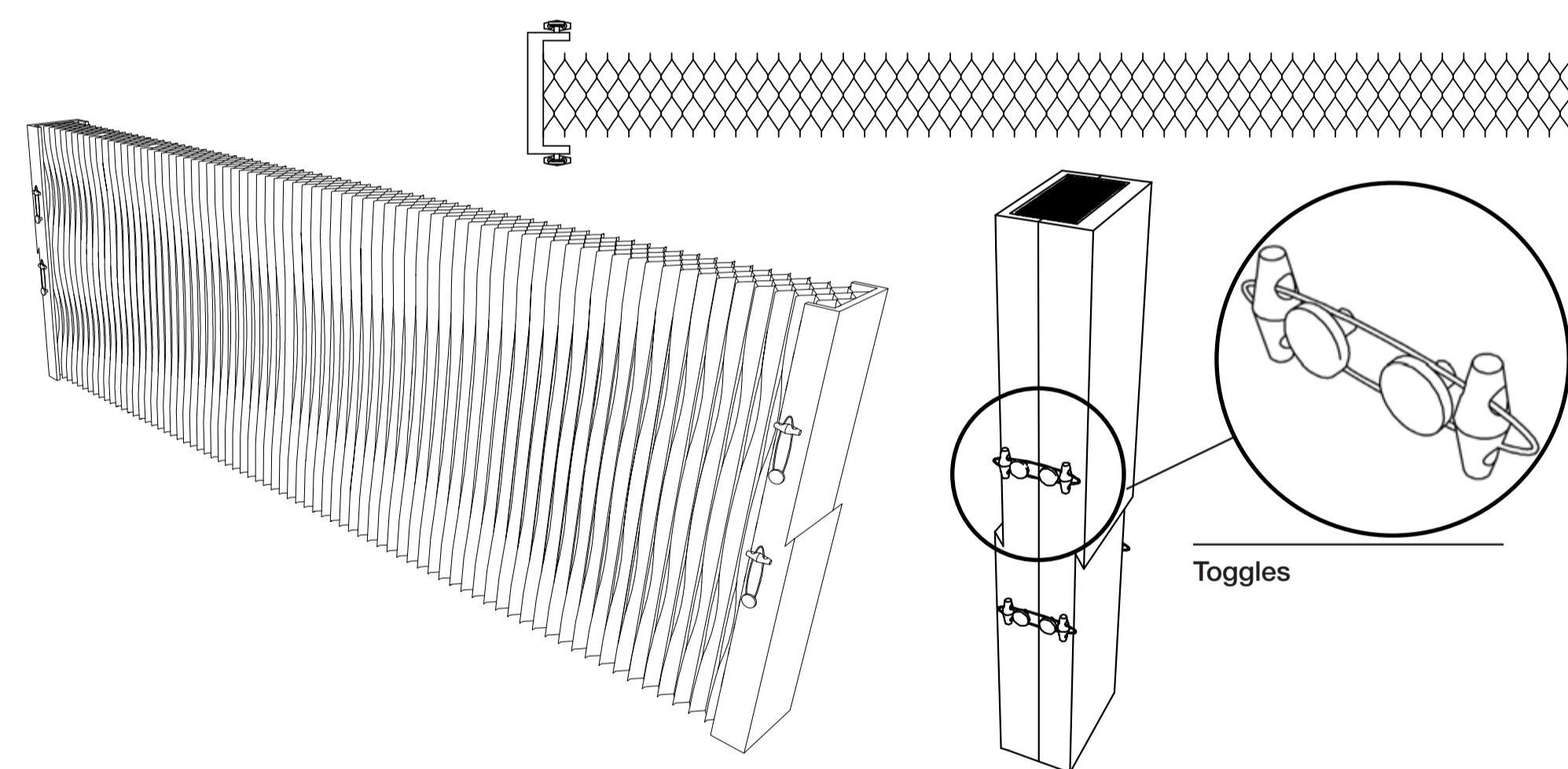
02 Construction

Each paper layer is laser cut so each layer can have tailored profile cuts. The profiles are computationally driven to sculpt emergent carvings into the assembled wall. Inspired by paper origami and fabric smocking techniques, carvings and perforations of the walls outer skins create dynamic surfaces that absorb and reflect sound. Scalable holes in the skins of the central vertical air cushions increase translucent range of the wall. Specified holes can be used as pin-locator holes during assembly for accurate alignment of sandwiched layers.



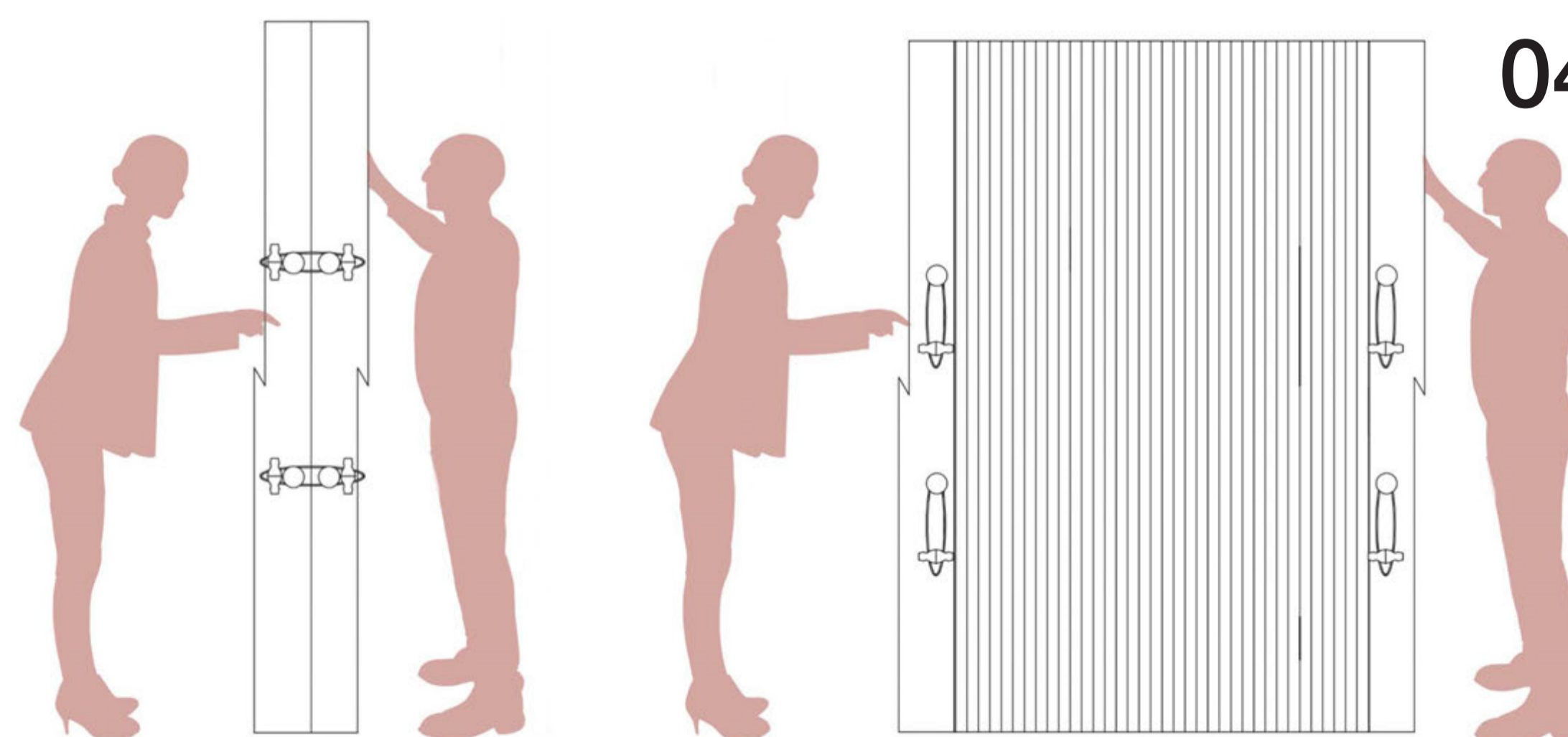
03 Framework

The honey cone paper structure will be bonded to an end panel on each end, this will allow for the control of the shape once extended. The end panels have a French cleat on the ends to help join to addition panels, this can also be used as handles to help with moving. The shape of the end panel will allow for the paper to be stored inside when not deployed, this will help with keeping the paper protected when not in use and during transit.

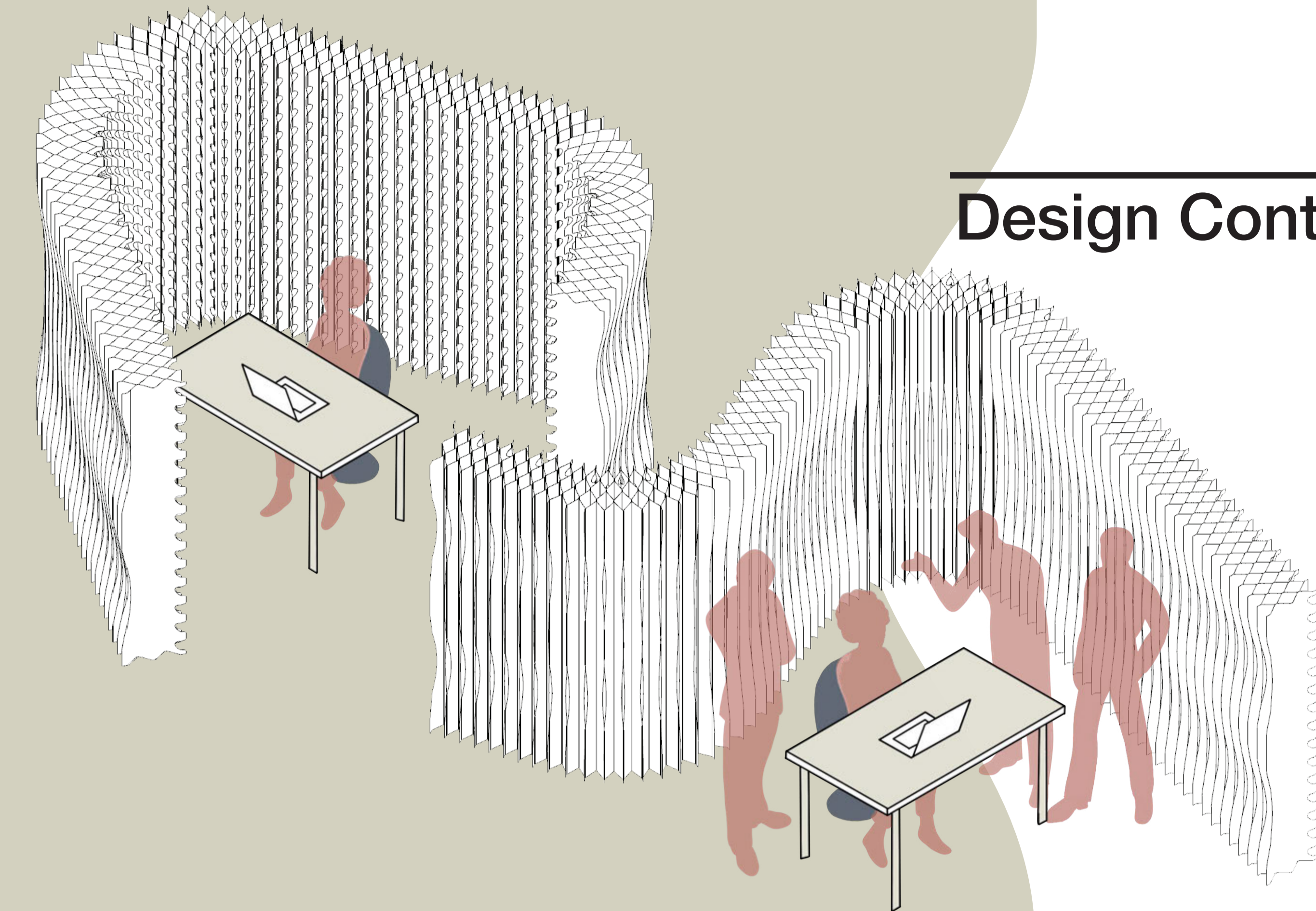


04 Deployment

On the front and back of the end panels there will be a joining mechanism, these will use a toggle system with can be used to join to addition panels to create a longer wall or used to join the two panel to a closed position ready to store away. The reason a toggle system will be used is because it is easy to use and will make it more accessible for the user.



Design Context



Acoustic Testing

Acoustic analysis shows sound waves as red lines travelling from a point on the right of the wall as shown left in plan view.

The 'Basic wall' shows that sound is partially absorbed and reflected back whilst a lot passes through the wall. The developed 'Perforated' and 'Curved Face' designs show that more sound is absorbed and less passes through meaning that these developments have improved the acoustic insulation performance of the wall.

Critically the 'Perforated Face' exhibits more scattered reflections which is vital for sound diffusion. This indicates that this face is ideally suited as the inner face of the wall, softening the perceived sound within the dynamically created space.

