Wasted Traces/Wasted Spaces

Deploying Pre-Consumer Textile Waste to Activate Vacant Storefronts for Transitional Homeless Housing

This thesis reimagines pre-consumer textile waste as a spatial tool for activation of vacant retail sites into spaces of habitation and learning. Designed as deployable prototypes, Pop-Up Havens equip residents with the tools, knowledge, and context to transform waste into a haptic humanizing interior, one which evolves over time in a constant state of transformation.

ABSTRACT

Textile waste is one of the leading problems humans currently face with waste disposal. This thesis investigates the opportunity to reuse pre-consumer textile waste where it is reevaluated and given value through artisanal weaving techniques, instilling quality through craftsmanship. The woven tectonic combines the use of pre-consumer textile waste with a mesh system, creating a tool to explore the aesthetic values and establishing a tectonic language with an inherent integrated structural support system that allow discontinuous cutoffs to create continuity in a haptic interface. This thesis introduces a canon of techniques to this one tectonic, where the methodology deployed has the potential to facilitate different types of utility, visual protection, acoustic barrier and haptic interfaces to act as a spatial driver that uses pre-consumer textile waste to create a three-dimensionalized sense of materiality out of it.

The result is a robust and haptic spatial driver that facilitates a constantly evolving environment, one where transformation takes on a passive role as space is transformed by its users while transforming its users with an educational platform and employment opportunity.

Pop-Up Havens is a 3-month initiative for transitional-homeless individuals that teaches specialized skills for employment within the program in exchange for boarding and income to help ease them out of homelessness. It also fosters collaboration among multidisciplinary fields in the community to create a network that helps support the initiative, providing it with the local resources (food, wet spaces, agencies for permanent housing) to run smoothly. Through deployable modular design, Pop-Up Havens offers quick adaptability to every space it's installed in.

MATERIAL STUDY

WEAVING

One of the more accessible and readily available pre-consumer waste is of course, offcuts. Similar to working with ready-made pre-consumer textile waste, there is a vast amount of rescued fabrics that are ready for use. Due to the nature of rescued fabrics, offcuts tend to vary in size, colors, and quality. However for this same reason, there is a plethora of offcuts available, making the material highly accessible and efficient for use. Another benefit to consider is that offcuts come straight from the manufacturer, a material result from the production phase. This means hygiene and sanitation of the rescued fabric isn't a cause for concern as the material is typically unused and clean as it comes straight from the production process.

In trying to create a strategy that echoes the efficiency and readily available nature of the offcuts, creating strips of yarn from the material was developed. Fig. 1 shows the process of the offcuts being trimmed and made into a more readily available for use shape - strips.

This ideology led to a series of investigation with the use of the strips as the primary focus.

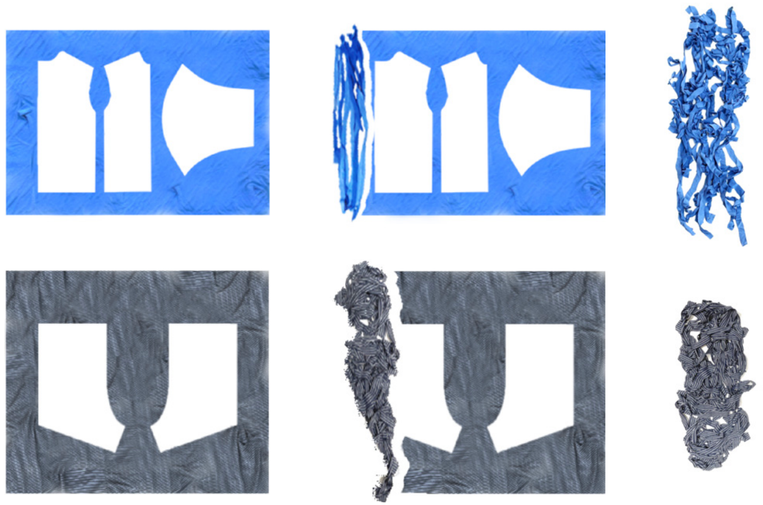

FIGURE 1 - IMAGE DIAGRAM OF OFFCUTS BEING TURNED INTO STRIPS

MATERIAL STUDY

WEAVING CONT.

The tectonic language of combining woven pre-consumer textile waste strips with a wire mesh was the most successful (Fig. 2). In depth studies further investigates the potential of this tectonic.

This system allowed for an inherent integrated structural support system that would allow discontinuous cutoffs to create continuity in a haptic interface.

Fig. 2 is the culmination of the testing - a canon of techniques in response to this one tectonic, which moving forward is the tectonic language used in my thesis project. The techniques seen in Fig. 2 becomes deployed in this thesis project to facilitate different types of utility, visual protection, acoustic barrier and haptic interfaces.

Offcuts are taken and used to create a three-dimensionalized sense of materiality in this thesis project.

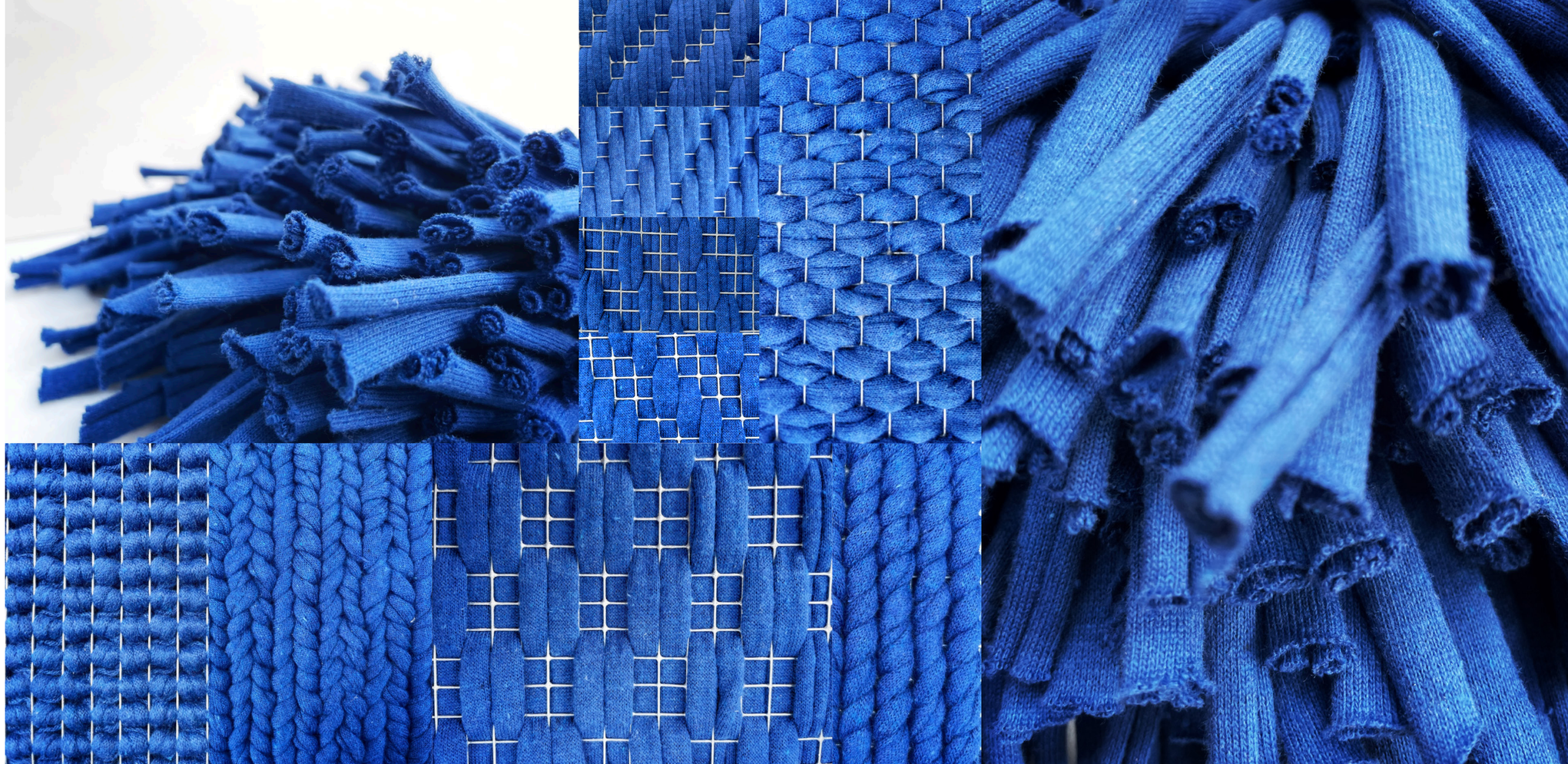

FIGURE 2 - IMAGE COLLECTION OF TESTED WEAVE AND MESH SERIES

MATERIAL STUDY

WEAVING CONT.

In depth look at each weaving technique, showing the woven finish on both sides as well as the thickness of each method (Fig. 3-9).

FIGURE 6 - IMAGE DIAGRAM OF RYA KNOT

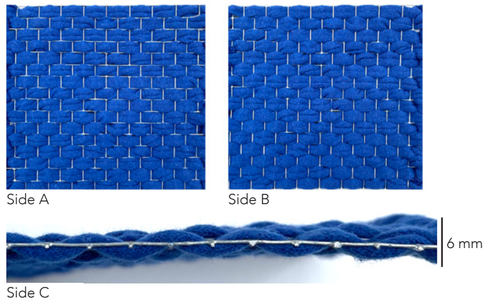

FIGURE 3 - IMAGE DIAGRAM OF PLAIN WEAVE

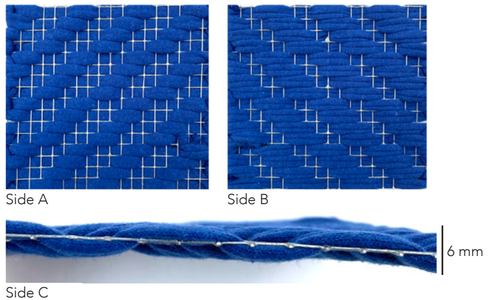

FIGURE 4 - IMAGE DIAGRAM OF TWILL WEAVE

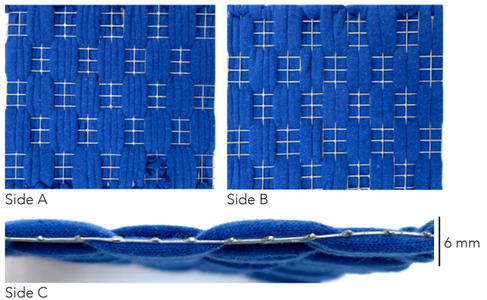

FIGURE 5 - IMAGE DIAGRAM OF BASKET WEAVE

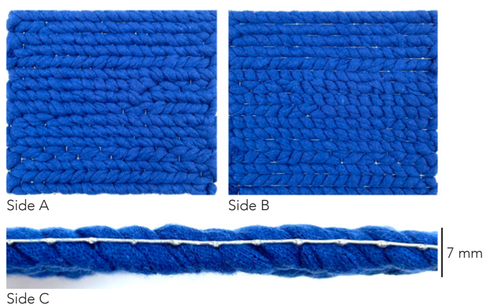

FIGURE 7 - IMAGE DIAGRAM OF LENO WEAVE

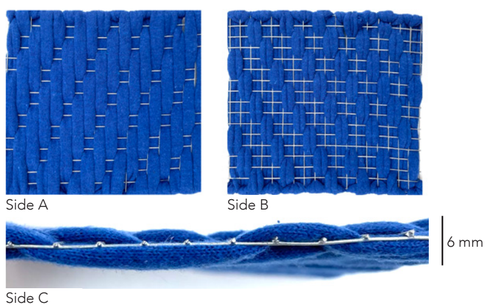

FIGURE 8 - IMAGE DIAGRAM OF SATIN WEAVE

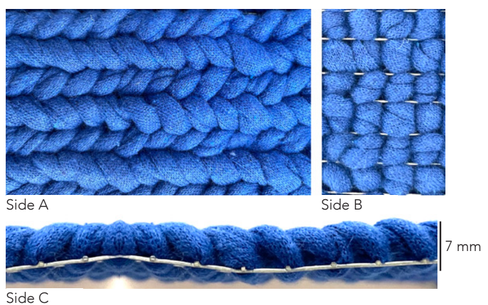

FIGURE 9 - IMAGE DIAGRAM OF SOUMAK WEAVE

MATERIAL STUDY

WEAVING CONT.

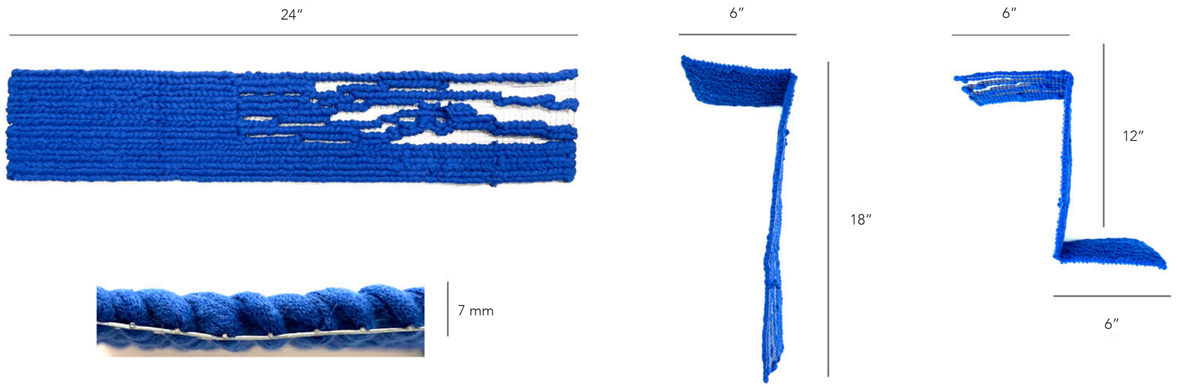

FIGURE 10 - IMAGE DIAGRAM OF A LARGE TEST MODEL OF TECTONIC WEAVE + MESH SYSTEM

Working with a larger woven system shows the nature of the pre-consumer textile strips and mesh combination. Fig. 10 demonstrates how the model is reluctant to be hung or even stand straight as it shows signs of buckle. In order to investigate the best method that would allow for the tectonic to stand alone without signs of buckling, further tests were conducted. This test established the importance of using curvatures. Fig. 13 illustrates how the tectonic demands to be curved, thereby removing the buckling while enhancing the soft haptic nature of the woven textile. Fig. 11 & 12 shows alternative testings conducted via a hinge system and a sharp bend for comparison.

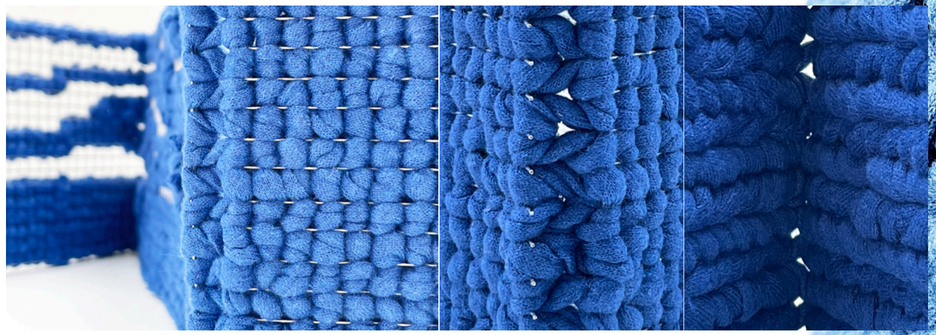

FIGURE 11 - IMAGE DOCUMENTATIONN OF FLEXIBILITY TEST VIA HINGE

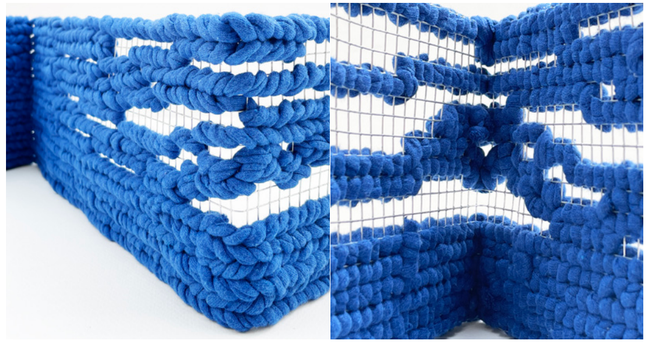

FIGURE 12 - IMAGE DOCUMENTATON OF FLEXIBILITY TEST VIA SHARP BEND

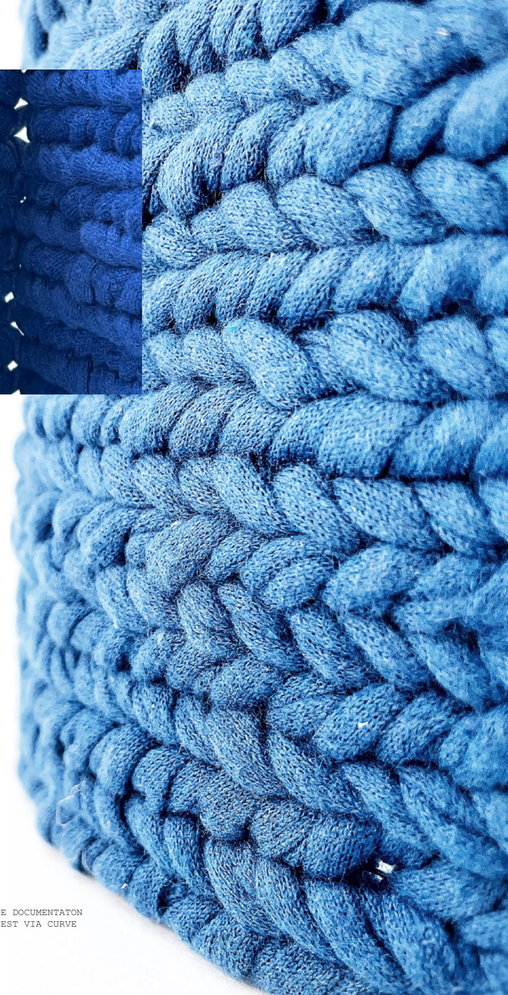

FIGURE 13 - IMAGE DOCUMENTATON OF FLEXIBILITY TEST VIA CURVE

As a local Pop-Up Haven is being assembled, simultaneously people are able to sign up and register to be occupants for a 3 month duration cycle in this space. Selected residents would move in, where they are then taught how to weave (Fig. 14) and how to deploy and create these haptic spaces -

FIGURE 14 -
PERSPECTIVE OF PART OF THE PRODUCTION SPACE
BEING USED FOR SKILL LEARNING BY RESIDENTS

Simultaneously residents are producing both their interior environment as well as products that can be sold for retail in commercial and residential spaces (Fig. 15). This provides for their employment that they benefit from as paychecks that helps ease their transition of reintegration back into society.

FIGURE 15 -
PERSPECTIVE OF THE SAME PRODUCTION SPACE AS FIG. 14, BEING USED AND WOVEN FOR BY RESIDENTS

Residents learn skills and once they become proficient, they then teach others - youth programs start to enter the space and other people who are visiting also have the opportunity to be taught (Fig. 16).

Effectively, residents are transformed from active learners to teachers.

FIGURE 16 -
PERSPECTIVE OF THE SAME PRODUCTION SPACE AS FIG. 15, BEING USED BY RESIDENTS (AS TEACHERS) TO TEACH WEAVING SKILLS TO THE LOCAL COMMUNITY

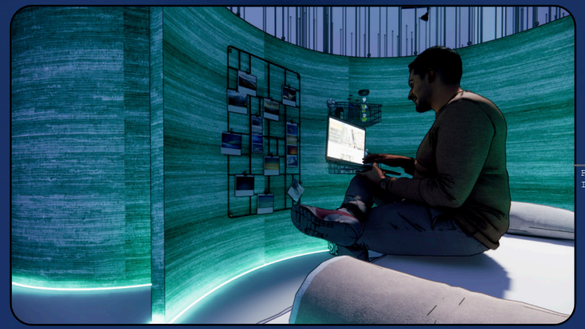

FIGURE 17 -
INSIDE OF SLEEP SPACE A

FIGURE 18 -
INSIDE OF SLEEP SPACE B

FIGURE 19 -
INSIDE OF SLEEP SPACE C

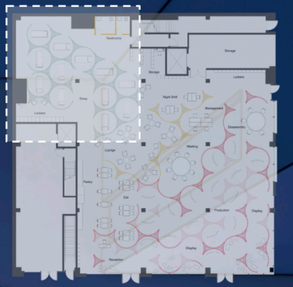

FIGURE 20 - PLAN DIAGRAM OF SITE A SLEEP SPACE

FIGURE 21 - AXON TOP VIEW
OF ALL SITE A SLEEP SPACES

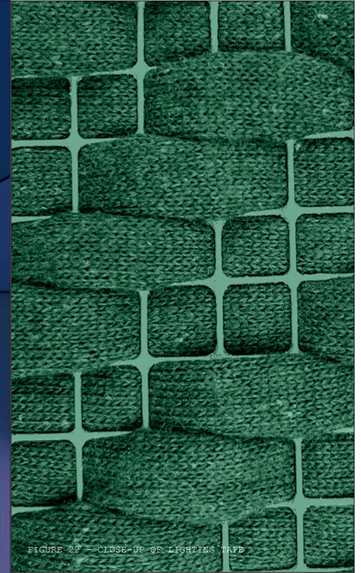

FIGURE 22 - CLOSE-UP OF LIGHTING TAPE

FIGURE 23 - CLOSE-UP OF LIGHTING TAPE

Sleep spaces (Fig. 21).

A glimpse into some of these individual sleeping quarters (Fig. 17-19) begins to show how each user can utilize the tectonic system (Fig. 22) through an arrangement of hooking. This allows residents with the capacity to freely explore and display their individuality, free of any restriction which allows for residents to “nest.”

These spaces are transformed by residents to become the most personal, as it transforms to reflect them as individuals.

FIGURE 24 - PERSPECTIVE OF SITE B DISPLAY, DAY TIME

On the other side of the storefront, within the site is the display area where items are available for purchase (Fig. 24).

Purchaseable items are placed on display and items are rotated as needed (Fig. 25). Items on display also utilize the same tectonic language as the partitions system.

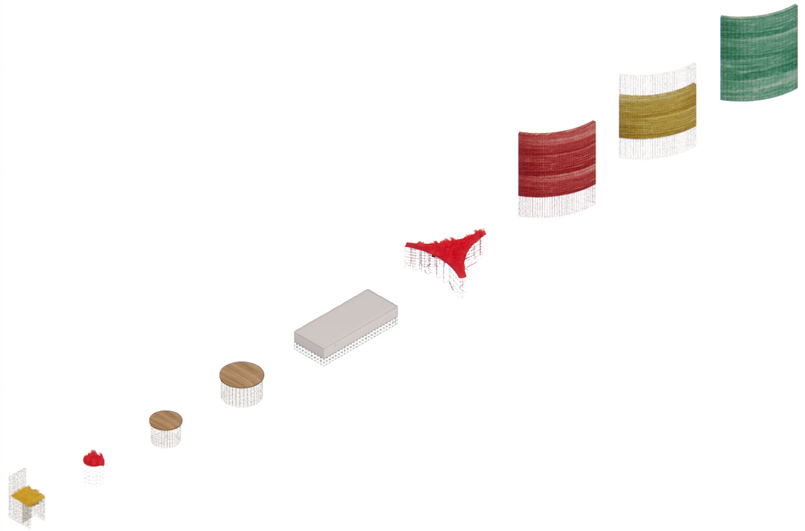

FIGURE 25 - AXON SERIES OF PURCHASABLE ITEMS THAT GOES ON DISPLAY