



How can design be used to improve people's attitude towards paper waste?

Note: This PDF is a snippet from my full logbook of the whole project. It contains only the end part of my work. To see the full logbook please go to my portfolio at www.dylansykes.myportfolio.com

Initial Ideas.....

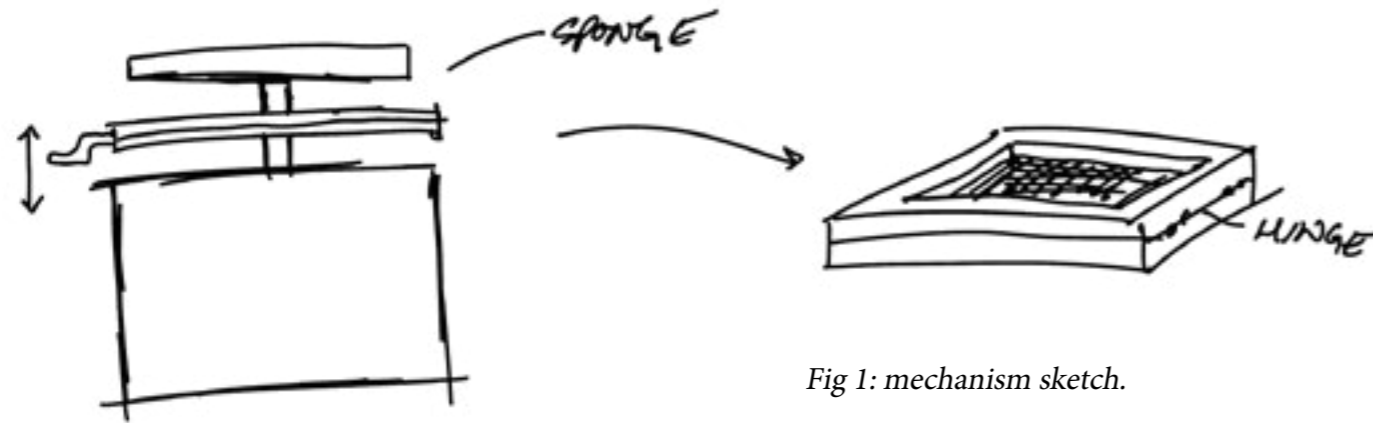


Fig 1: mechanism sketch.

Initial thoughts for the paper maker were in relation to the mechanism behind screening and pressing the pulp.

Ideas involved pouring the pulp straight onto the mould and deckle, or having a lift mechanism to bring the mould and deckle up from the bottom of the tub. Both of these ideas were scrapped due to them causing irregular thickness of the paper, or being too messy to handle and clean.

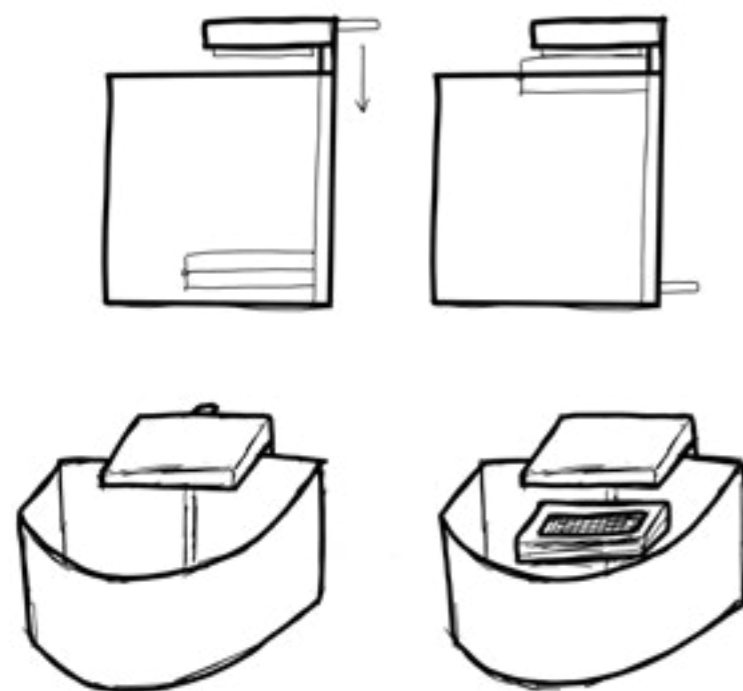


Fig 2 shows a sketch of the proposed mechanism for lifting the mould and deckle, and a rough idea behind form for the tub. This idea was not fluid enough at all and presented far too many problems in construction, use, and cleaning.

Fig 2: mechanism sketch and form study.

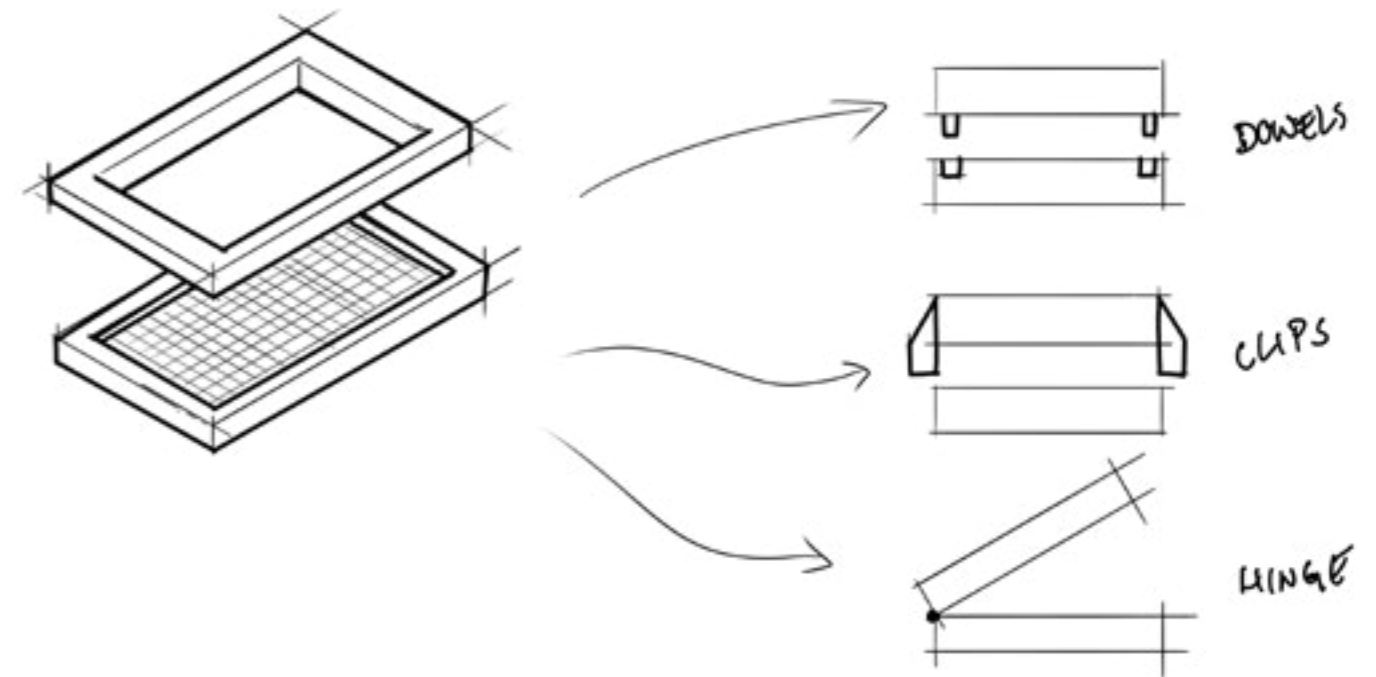
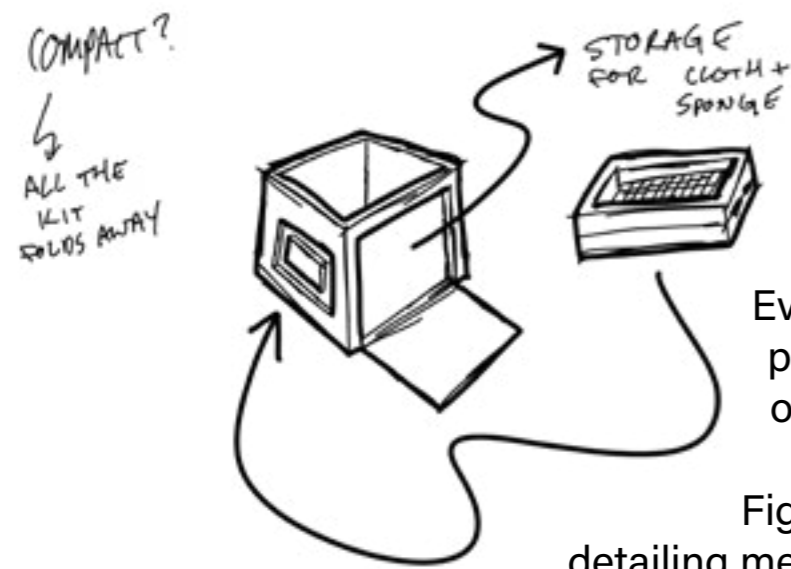


Fig 3: Sketches outlining a though process behind the mould and deckle.

Methods of connecting the mould and deckle to ensure a perfect fit every time were pondered and are displayed above. The three methods involve a set of dowel plugs and holes to snap the two together, a set of overhanging clips or rims to allow the deckle to be slotted into the mould, and a hinge that connects the two on the long side.

The hinge was the preferred option as it is firstly the most simple and easy to implement method, and secondly it means the mould and deckle are effectively one "piece" of the product and can be stored together easier without the fear of losing either half.



Eventually the idea of having clever mechanics was scrapped in favour of good design. The idea now was to centre everything around the water tub that holds the pulp water mix. Every other part essential to the product would be able to be stored on or in the tub.

Fig 5 shows a preliminary sketch detailing methods of storage for the mould and deckle, and an opening for other

Fig 5.

paraphernalia such as the sponge and cloth strips.

Fig 6 and 7 show the thought process behind form. The tub must be square in order to make square pieces of paper, however additions such as storage and drawers can be experimented with.

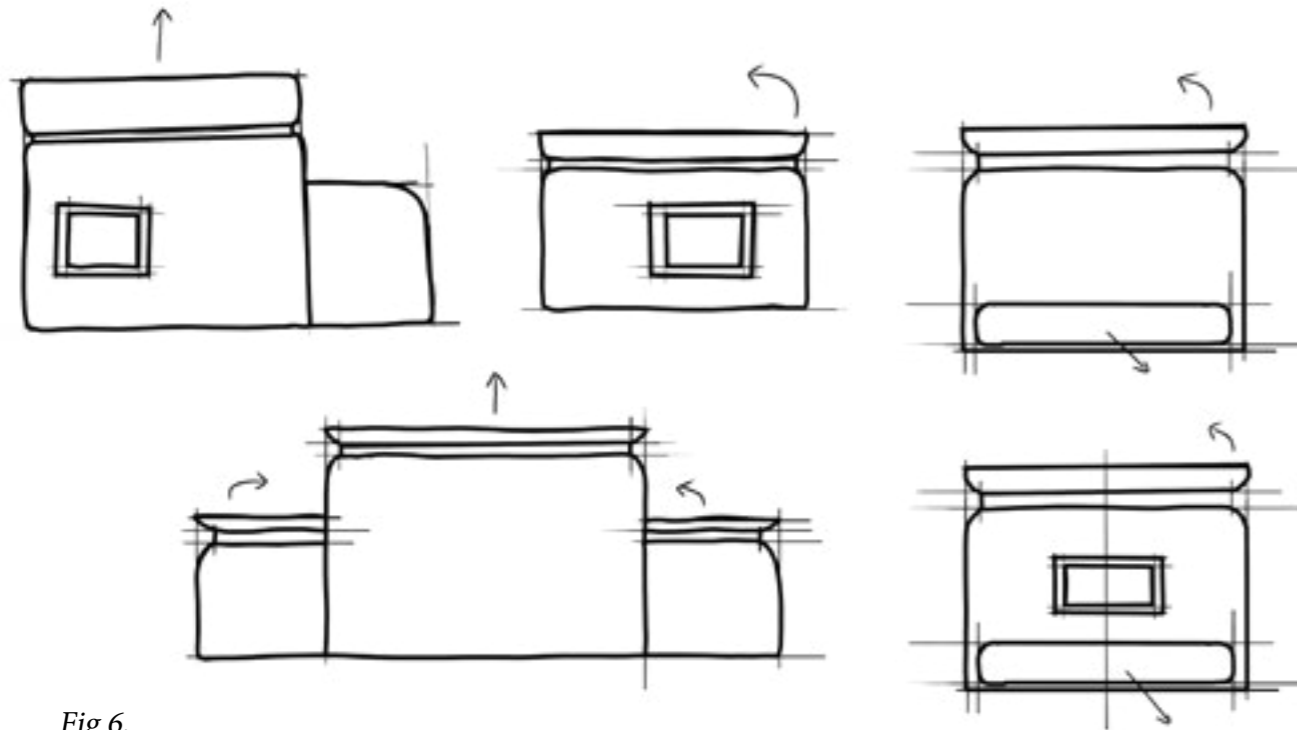


Fig 6.

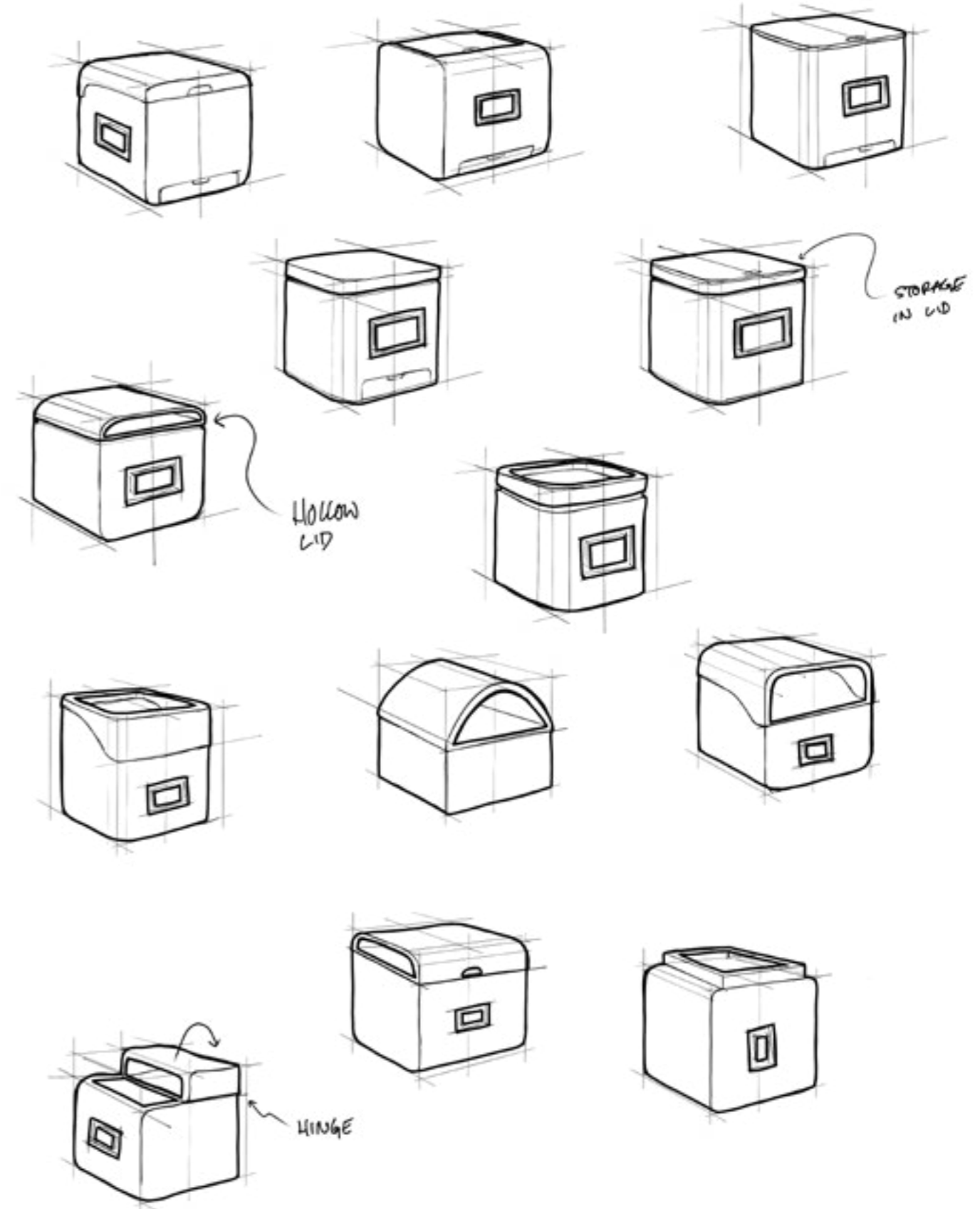
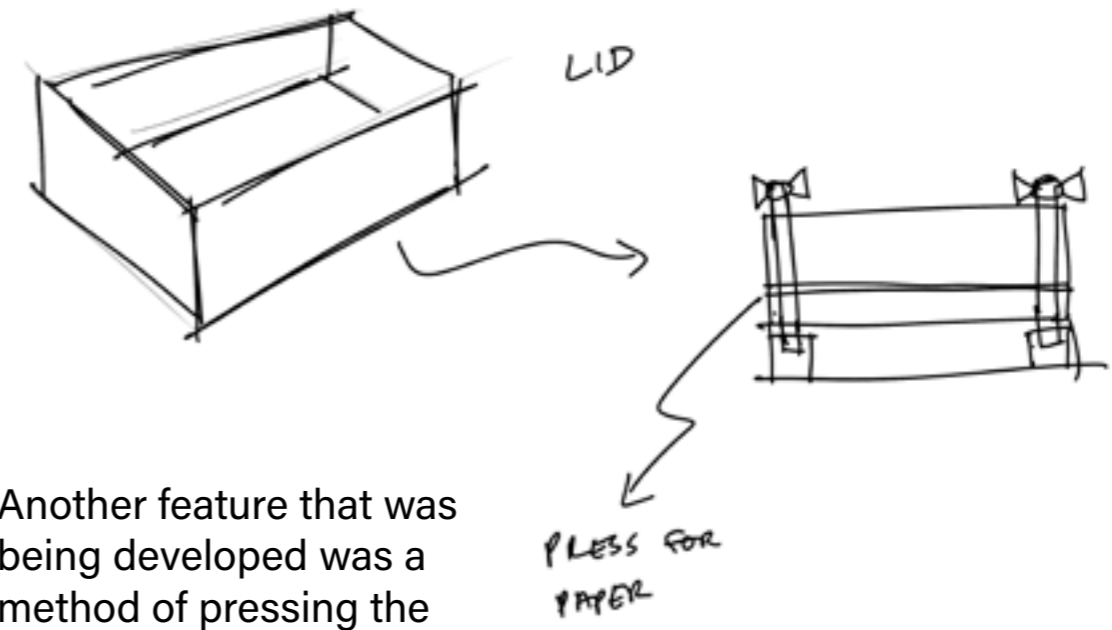
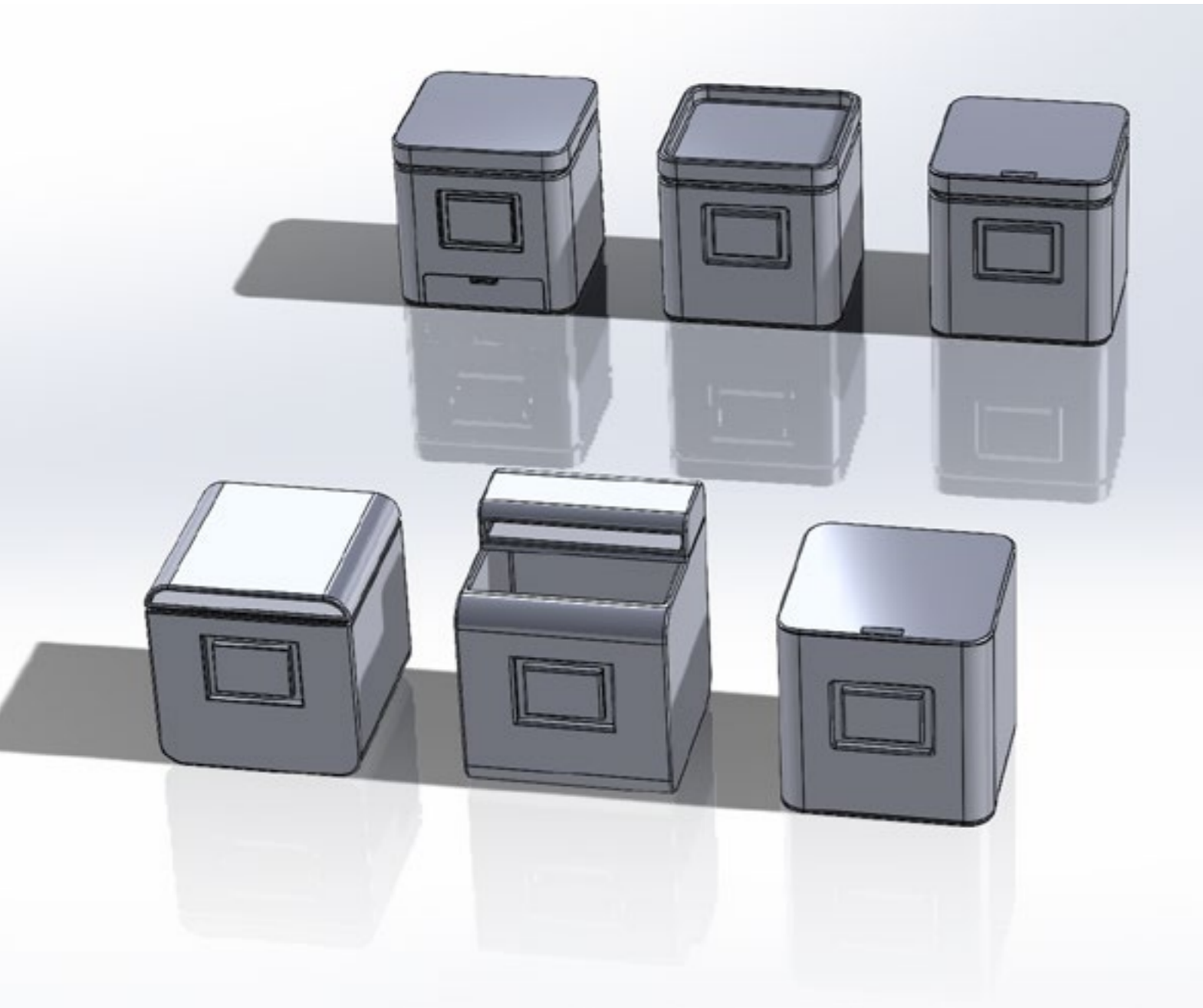


Fig 7.

100 Consumers were asked which form they thought followed the design language best, and the top six designs were taken into CAD to see how they would feel in 3D.

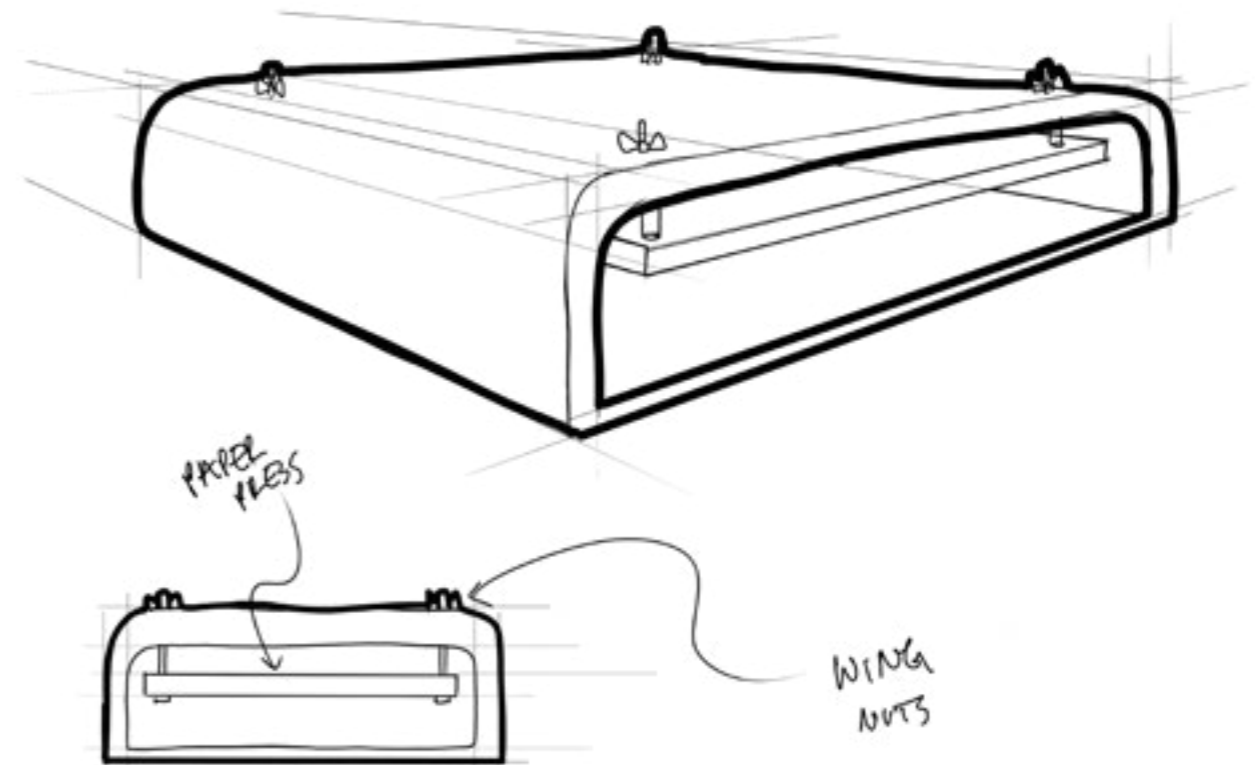
The main difference between these designs is the method of storage for the accessories as the main body has to be a specific shape.

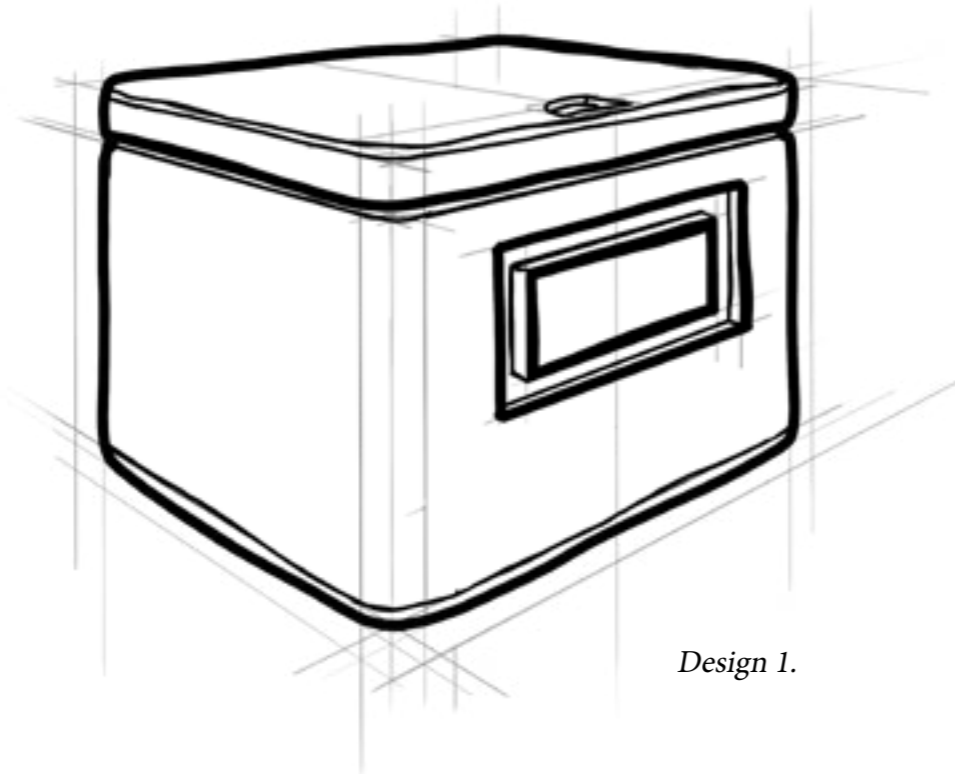


Another feature that was being developed was a method of pressing the dried paper to flatten it and form the right density.

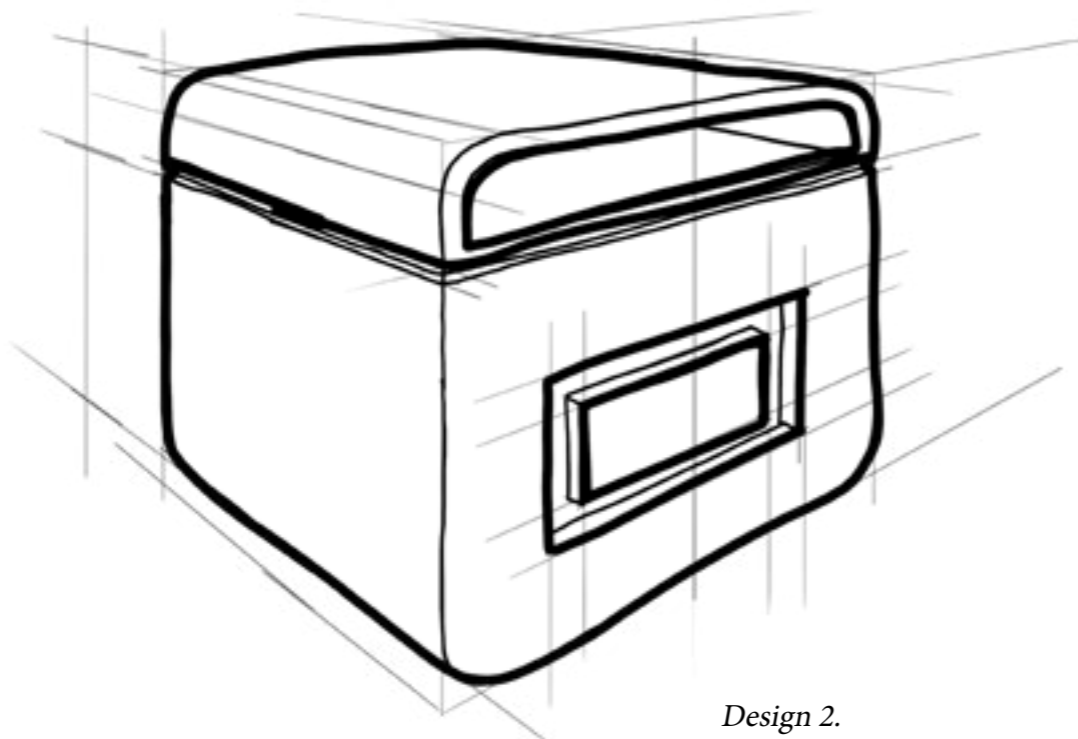
It was decided implementing this press into the storage area would make most sense.

The press would imitate an old flower press, with butterfly screws on all corners of two panels. This way the top panel forms the base of the storage area so as little space is wasted as possible.

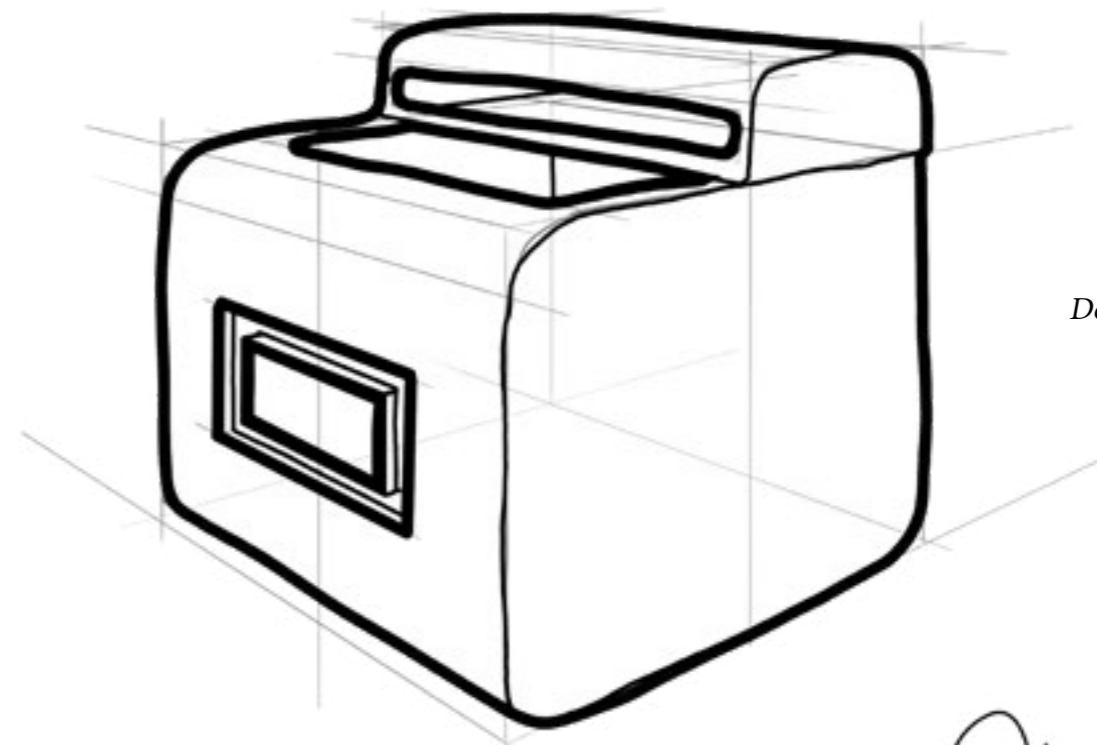




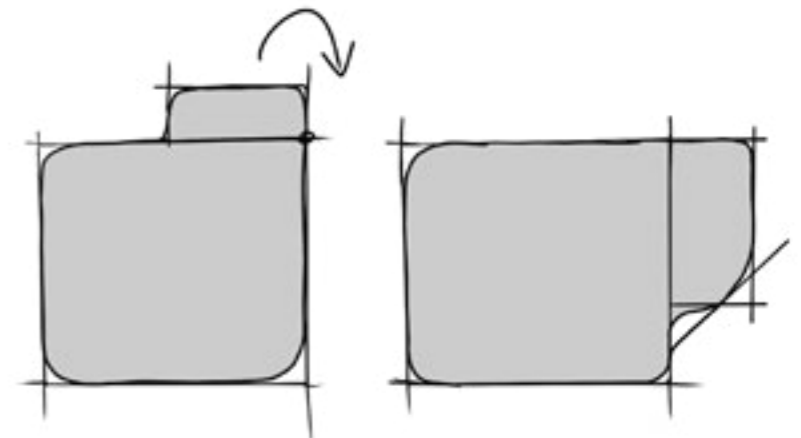
Design 1.



Design 2.



Design 3.

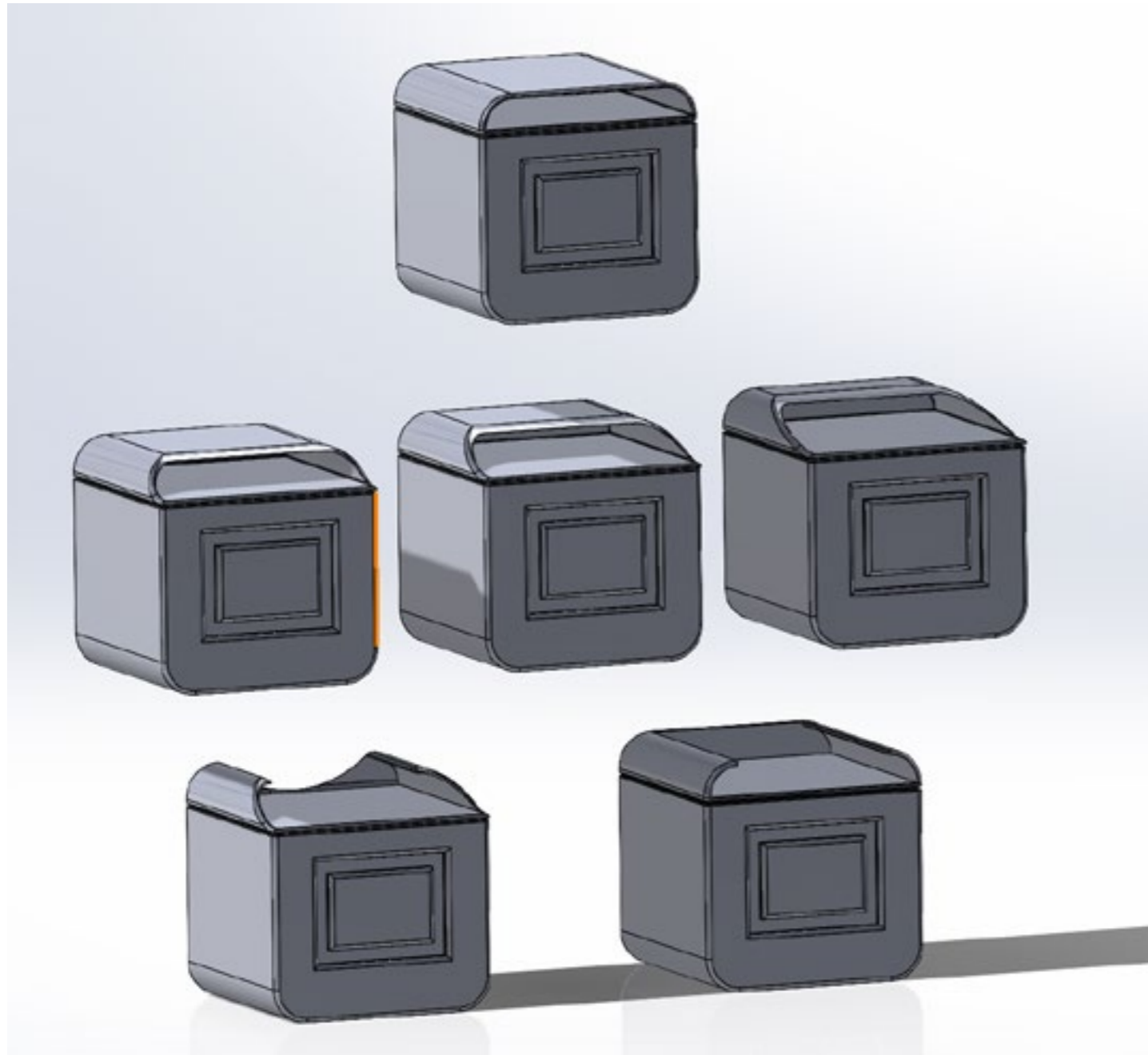


The top 3 designs from the CAD development were taken and analysed further.

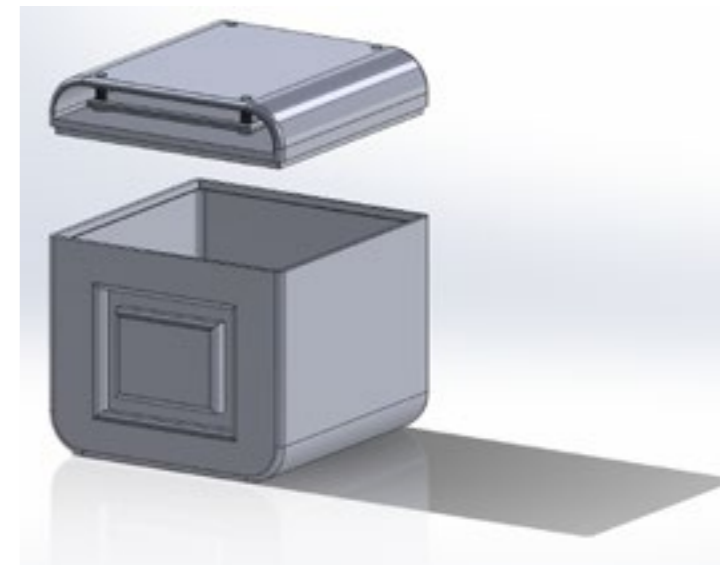
The idea of having a lid over the water tub to hold most of the equipment was highly favoured due to the ease of use and functionality.

After more consumer research it was found that design 2 was by far the most favourable, so this was taken into CAD again for further development.

Final Concept.....



A number of different modifications were made to the original design's lid, however the original design seemed to fit the chosen aesthetic of natural fresh better with its rounded corners and less complex design. The original design also allowed for the press to be hidden under the top of the lid rather than be on the bottom of the lid where it could cause storage issues, and also would be far easier to manufacture due to its lack of dynamic curves and awkward angles. It can simply be injection moulded using a three piece mould.



The press was modelled roughly in Solidworks to find the maximum length of the bolts used to tighten the base panel onto the lid. Butterfly screws would be used to tighten each of the four bolts.

It was argued that the screws and butterfly bolts would take away from the sleek style of the product, however having something manual and in a way old styled gives the product a more personal and artistic feel.

Mechanical parts and electronics

were avoided all together for this product due to the fact that water plays a huge part in the paper making process, but also because the whole process of making paper is very hands on and taking anything away from this removes a large part of the personal feel from the activity.

Additionally, with the right materials, the screws and butterfly bolts would add an interesting element to the product as a whole.

Material/Colour Testing....

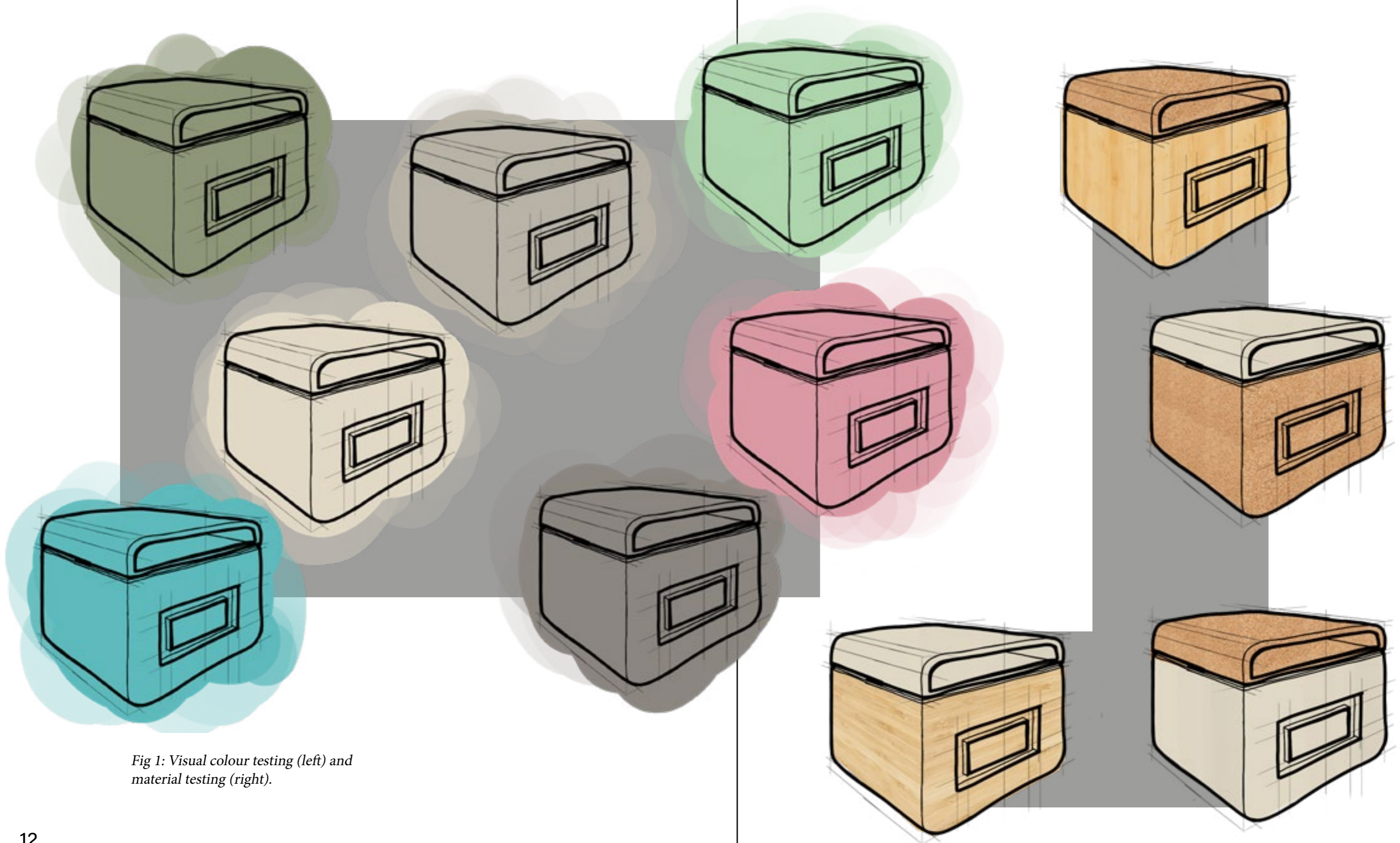


Fig 1: Visual colour testing (left) and material testing (right).

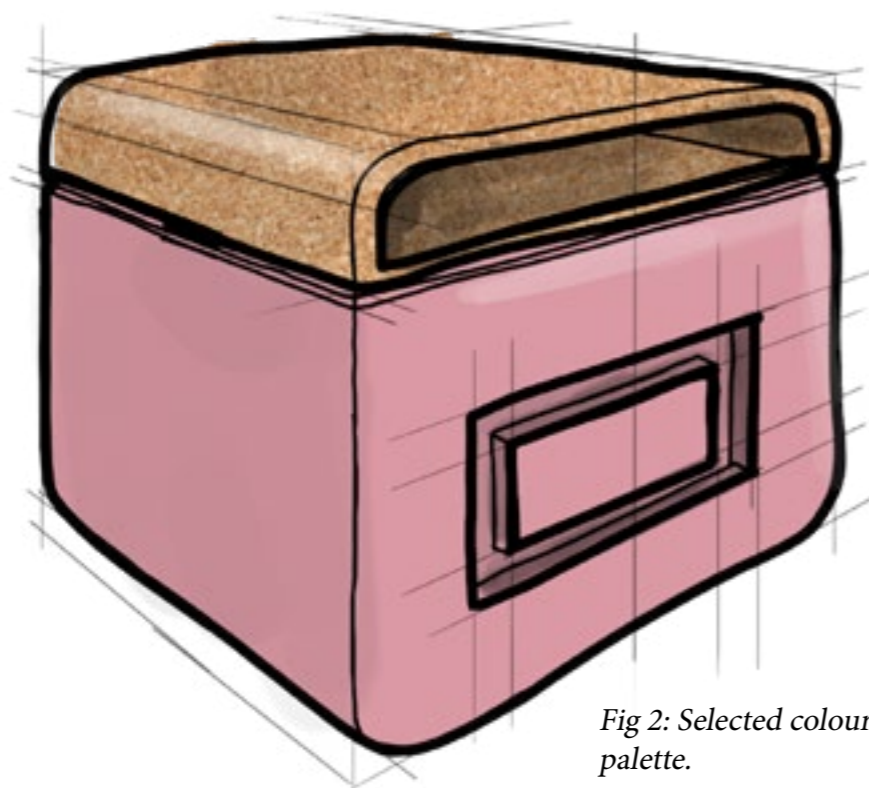
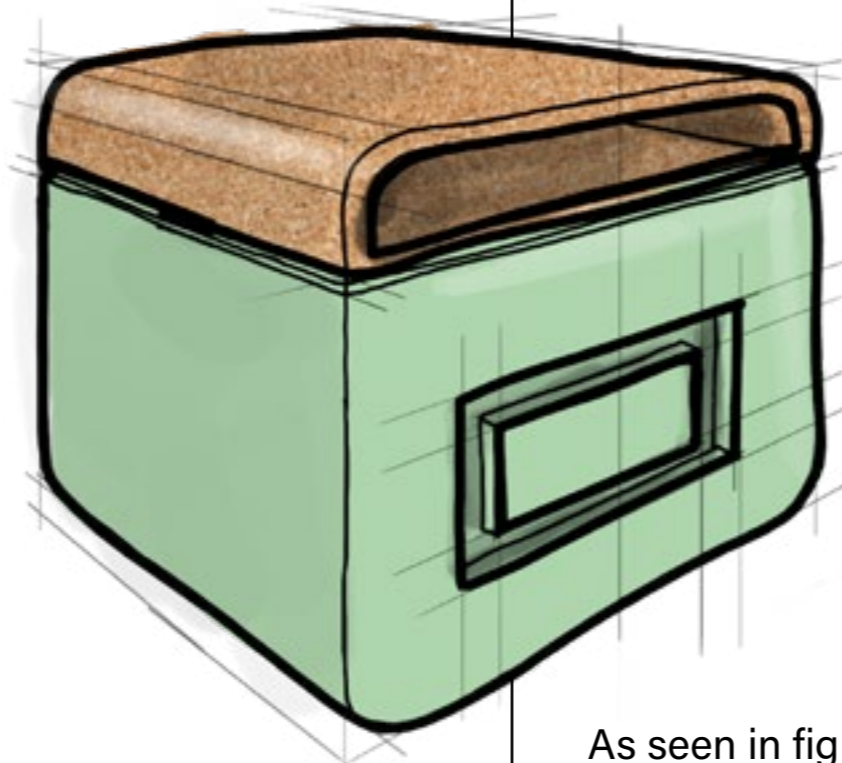
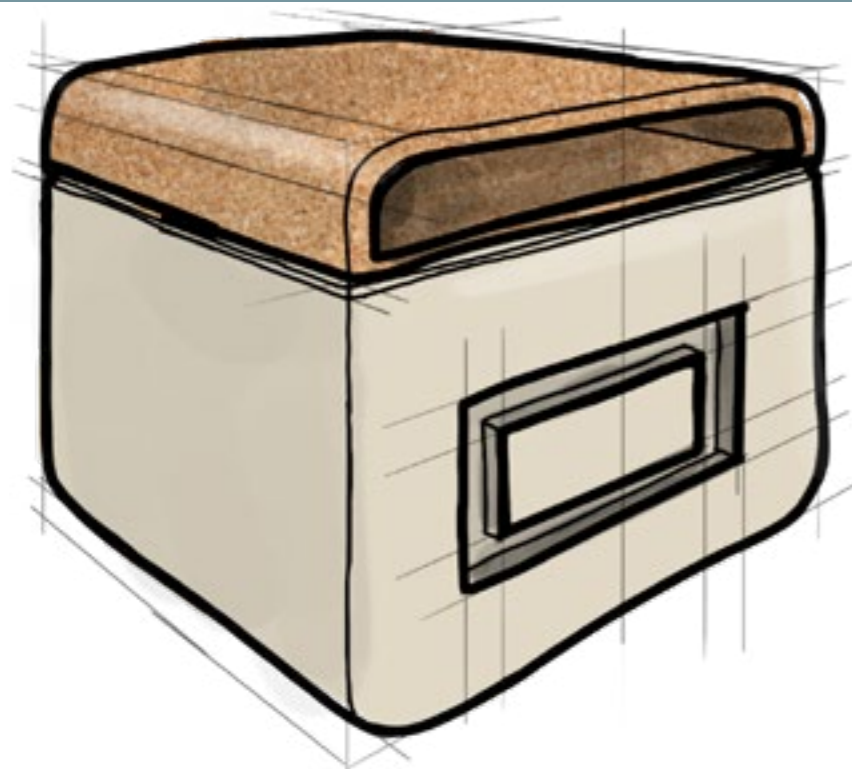


Fig 2: Selected colour and material palette.

Cork & Cellulose Based Bio-Plastic.

As seen in fig 1 each colour and material spoken about previously was tested visually sketches of the product.

The selected materials are a cellulose based bioplastic as the base material, with a cork lining on the lid section and the selected colours are flamingo, oyster, and celadon as these colours provide the most energy and vibrancy which panders to the target market nicely.

Three colours were selected to give consumers a choice to blend the product with multiple different colour palettes, as the colours are very vibrant therefore easily stand out.

The material choices were important as they are cheap enough to produce and process to allow for the product

to remain in the retail price range of £10-£30 as stated by consumers in the questionnaire.

This palette of colours and materials follows the "Natural Fresh" mood board laid out previously as it features light colours and natural materials with the cork and cellulose plastic, and also is in no way aggressive in its design.



Fig 3: Virtual renders of chosen colour and material palette.

Branding.....

Mulch

Re-Paper

PaperSpread

Pulp

WasteWonder

MakeSheet

The most important start to branding was to come up with a name for the product.

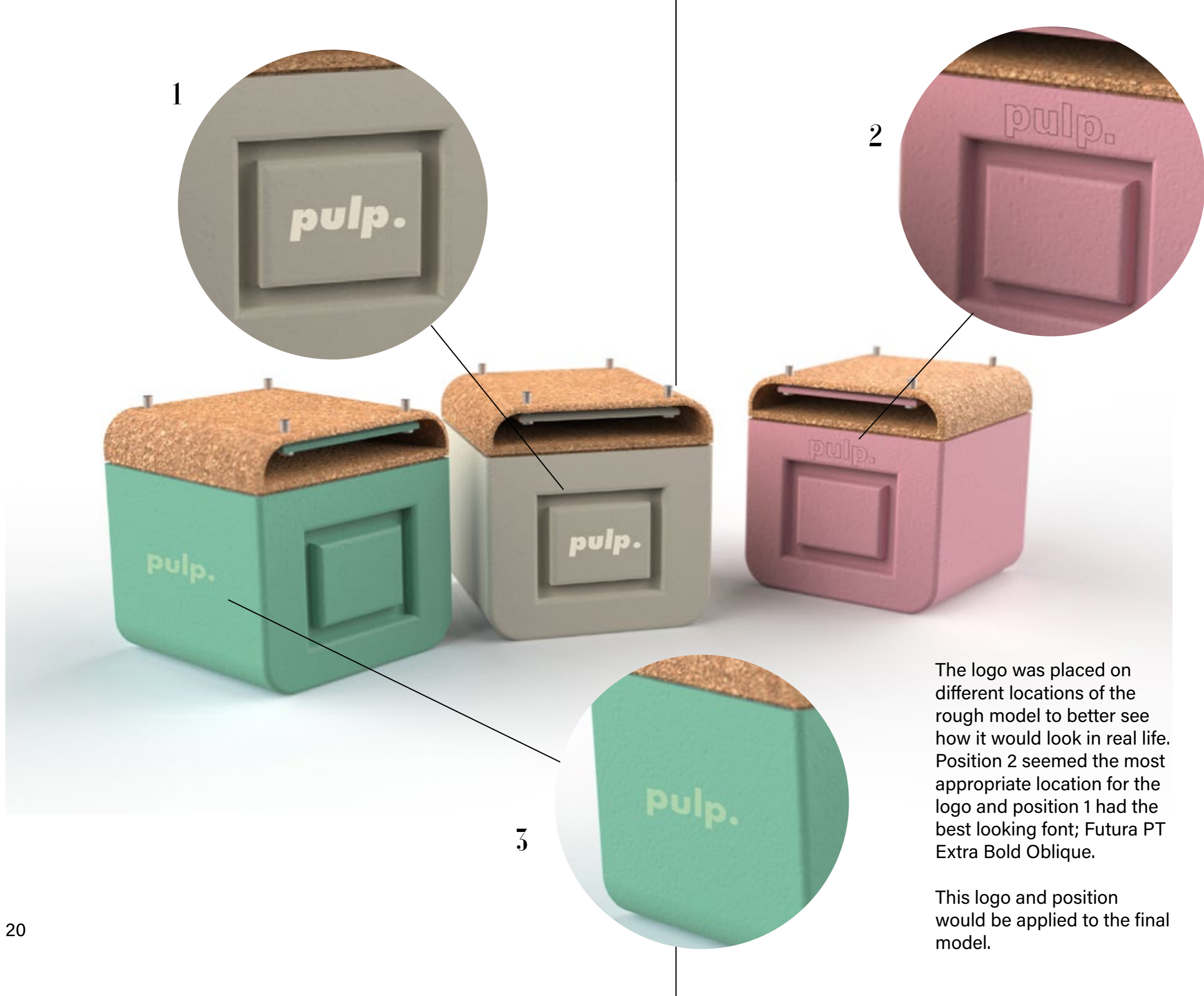
A list of names were thought up that relate to what the product does and how it works, as the name needed to be relatively descriptive and relevant.

The most popular name was Pulp as it gave a nod to the most important step in the process, was easy to remember, was short and therefore easy to turn into a logo, and fit the smooth shape of the product due to it consisting of rounded letters.

The chosen name was then planned out in multiple different fonts and each time in the three chosen colours of the brand; oyster, celadon, and flamingo.

It was decided that a thicker logo was far more interesting and suitable to the design, and also allowed for an embossing onto the product.

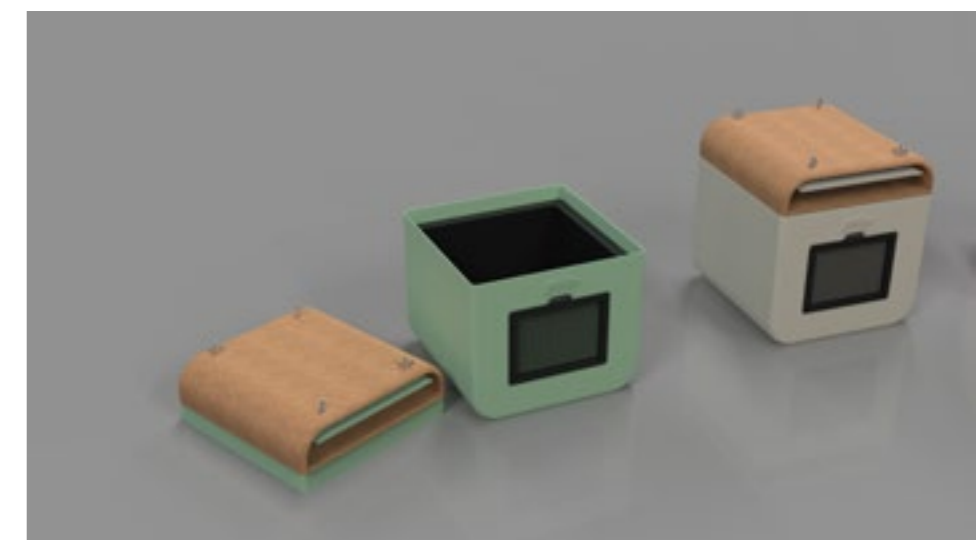
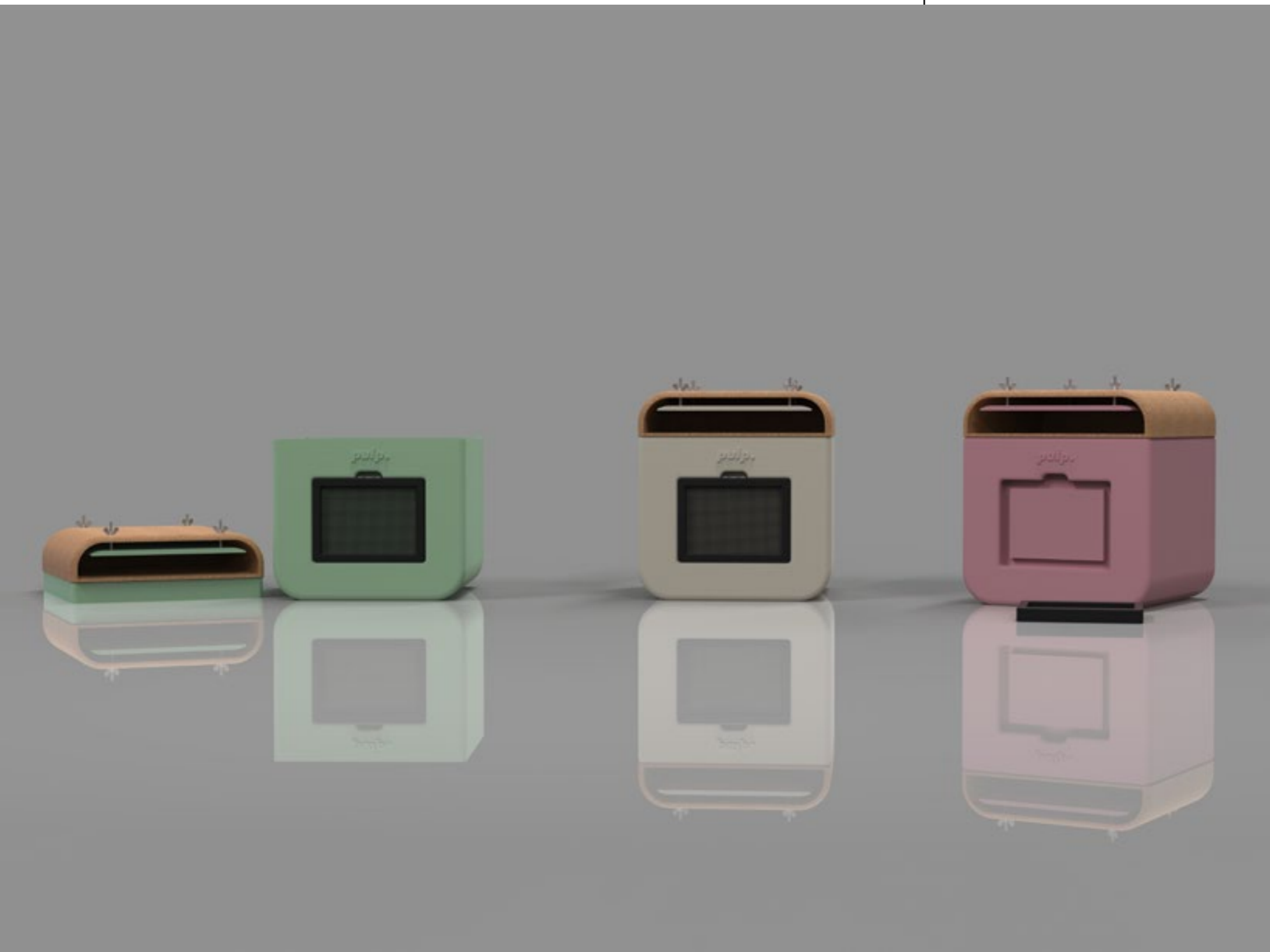




The logo was placed on different locations of the rough model to better see how it would look in real life. Position 2 seemed the most appropriate location for the logo and position 1 had the best looking font; Futura PT Extra Bold Oblique.

This logo and position would be applied to the final model.

Final Model.....



The final model can be seen here complete with mould and deckle, as well as removable lid and working press.

A second tub inside the coloured outer tub had to be added to allow for ribs and workings within that increase strength and stability.

The main tub was also modelled in two parts to allow for injection moulding. All parts snap together removing any need for glues or screws.



Renders showing the completed model of Pulp, with focus on the logo embossed onto the front.



Renders showing all the components of Pulp exploded outwards.



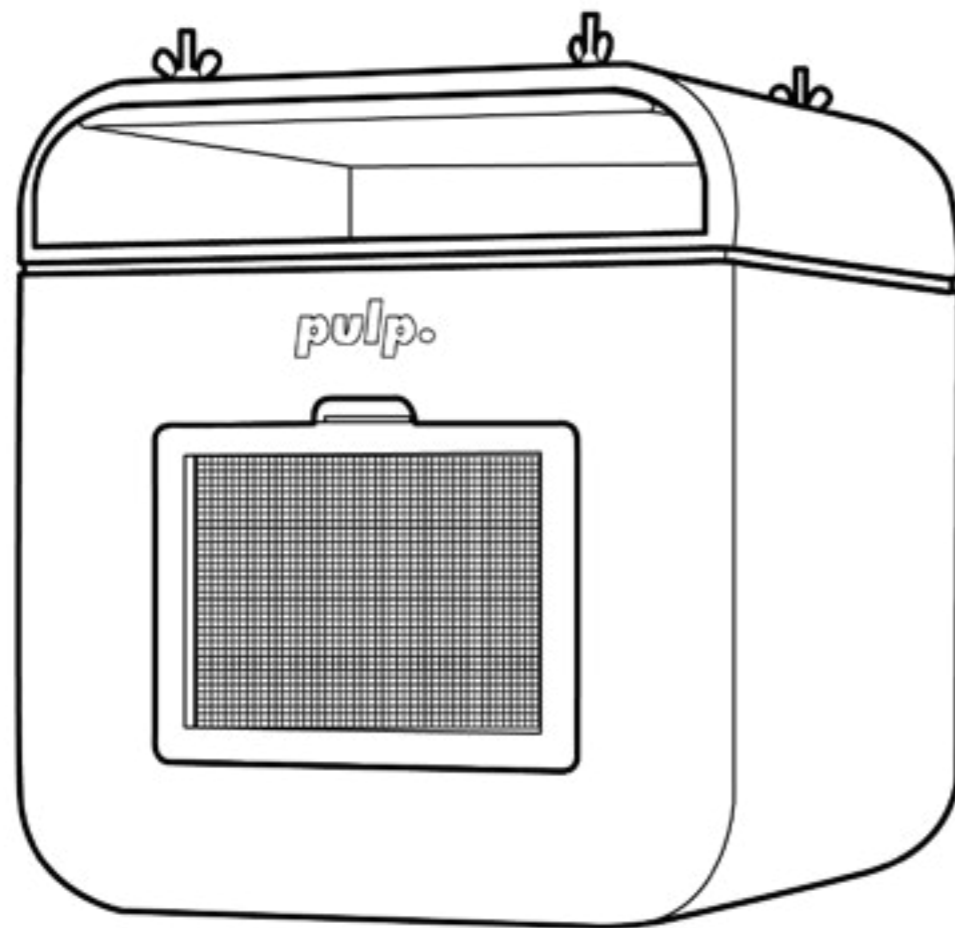
Packaging.....



pulp.

At-home paper making kit.

£25



The Start of a Better Future.

Oyster.

In order to reflect the environmentally friendly ethos of the product, the packaging was designed as minimally as possible to avoid the use of lots of harmful inks. The front of the packaging features two colours, Black for the linework and text, and either oyster, celadon, or flamingo, depending on which colour of Pulp is being packaged. This, along with the large linework print of the product on the front, allows consumers to quickly identify what it is they are looking at and what colour of product is inside.

No unnecessary information was used on the front of the packaging to further push the instant recognisability of the product and what it does. The aim of the front of the packaging is to draw the consumer in and interest them in the product. The back of the packaging is then used to provide information and instructions.

A line drawing was selected to be used on the front of the packaging for a number of reasons; Firstly to reduce the printing price and amount of ink used on the

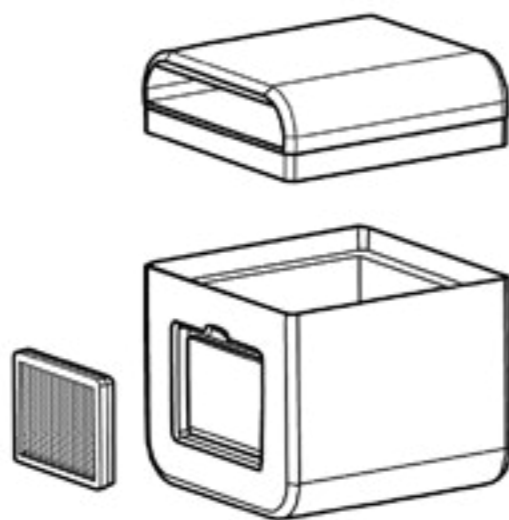
packaging, but also to give a very artistic, uncomplicated view of the product, similar to IKEA's packaging and instruction manuals.



Pulp is a paper recycling kit for the person who aspires to better the world by taking recycling to the next level.

Pulp works by using mulched paper and water to form new sheets of paper.

Ideal for artists and creatives, you will never run out of sketch paper, and can even use the recycled paper to make your own sketchbooks! (Instructions inside).



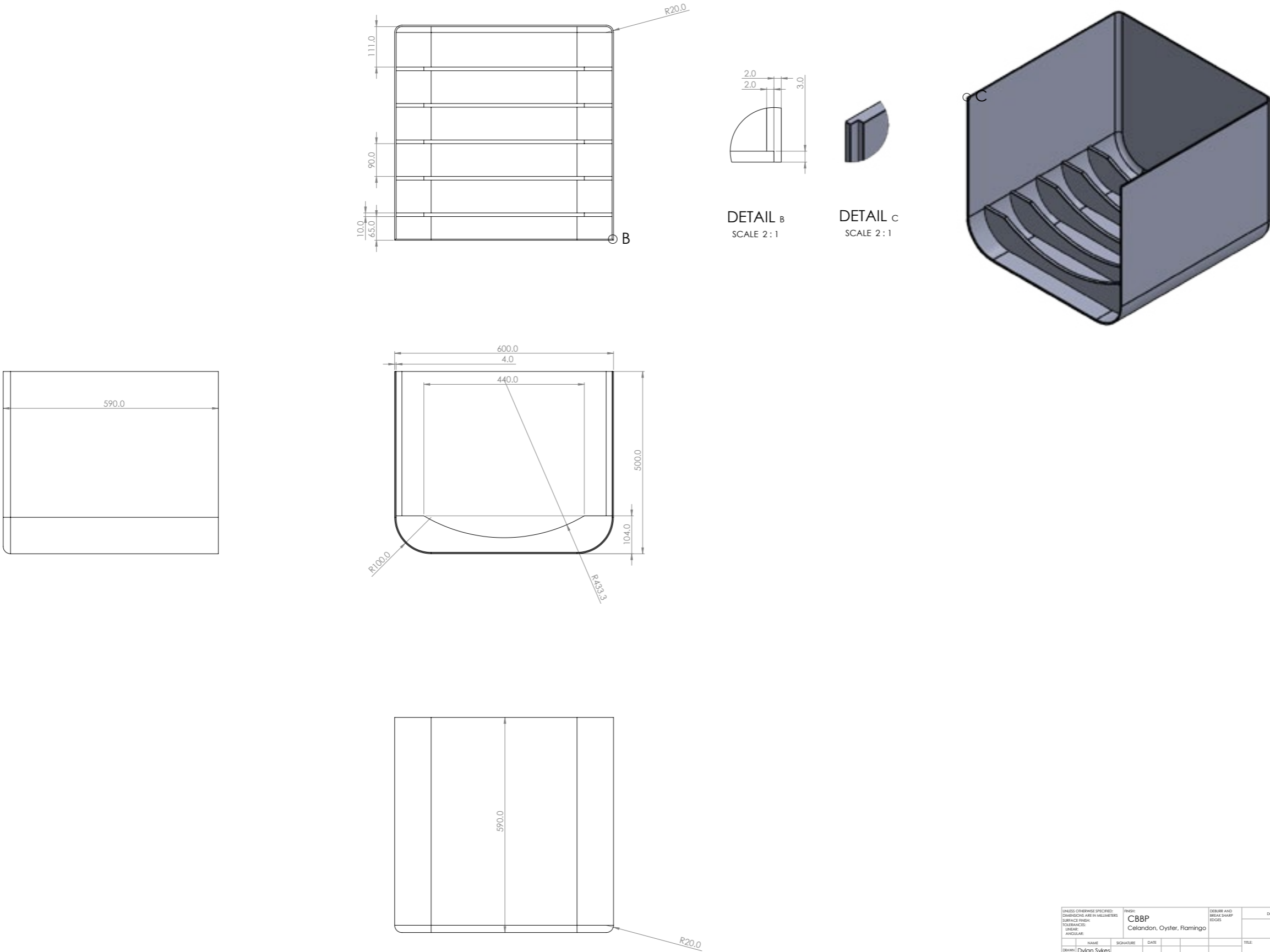
The back of the packaging contains all the information needed to understand the product and how it works further.

A linework image of Pulp exploded outwards is featured to show the consumer what the moving parts are, and a small rendered image is placed above to better indicate what the product looks like, which parts are coloured, and what materials/textures are used.

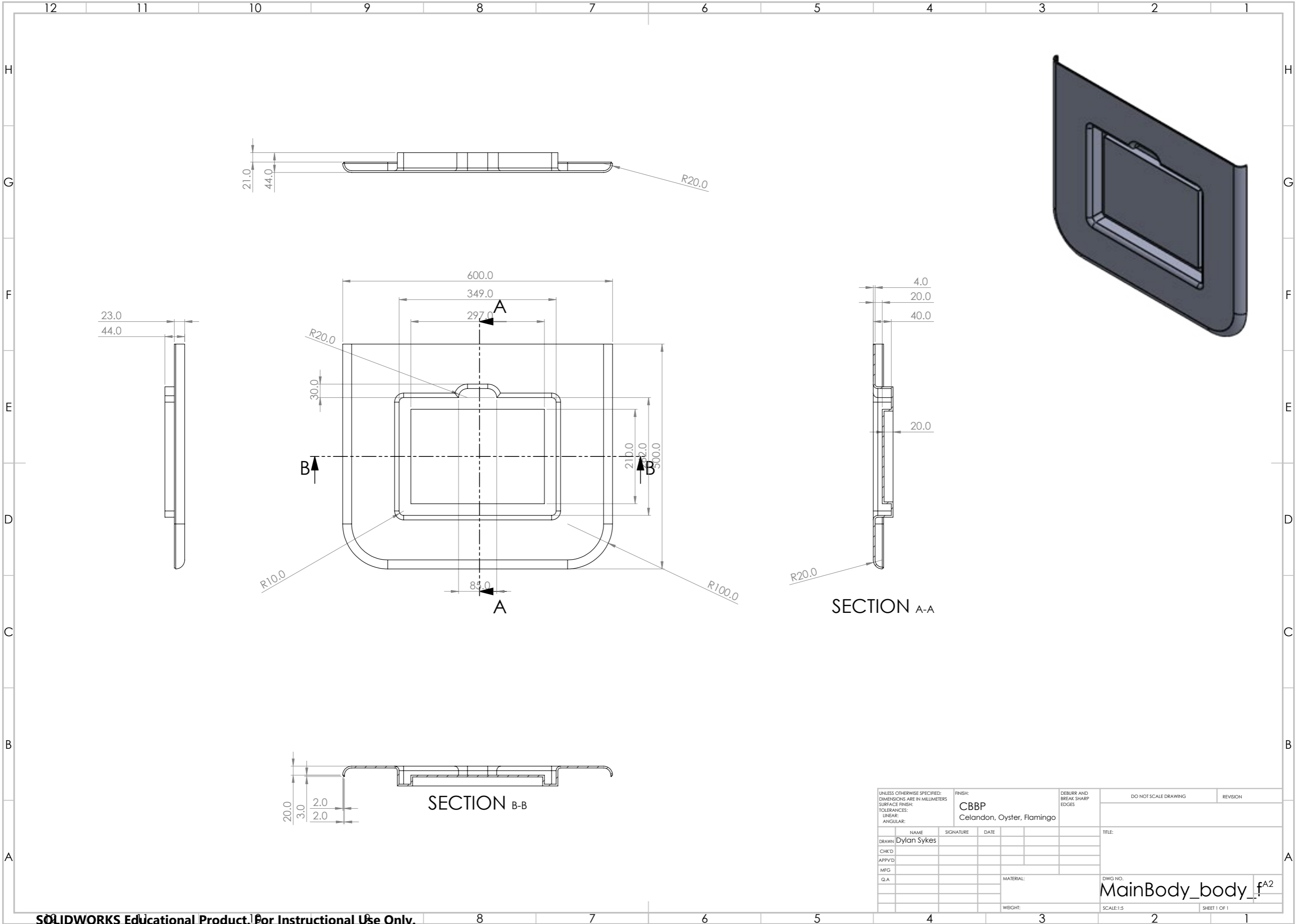
In order for this rendered image to fit with the rest of the packaging better it has been outlined in thick black lining. This gives a more sketchy feel to the photo, but also allows it to show what it is meant to be uninterrupted.

A small piece of text explains what the product does, and who it is targeted at. It also states a use for the recycled paper and explains that instructions are included for how to use Pulp, but also how to make a sketchbook with the recycled paper.

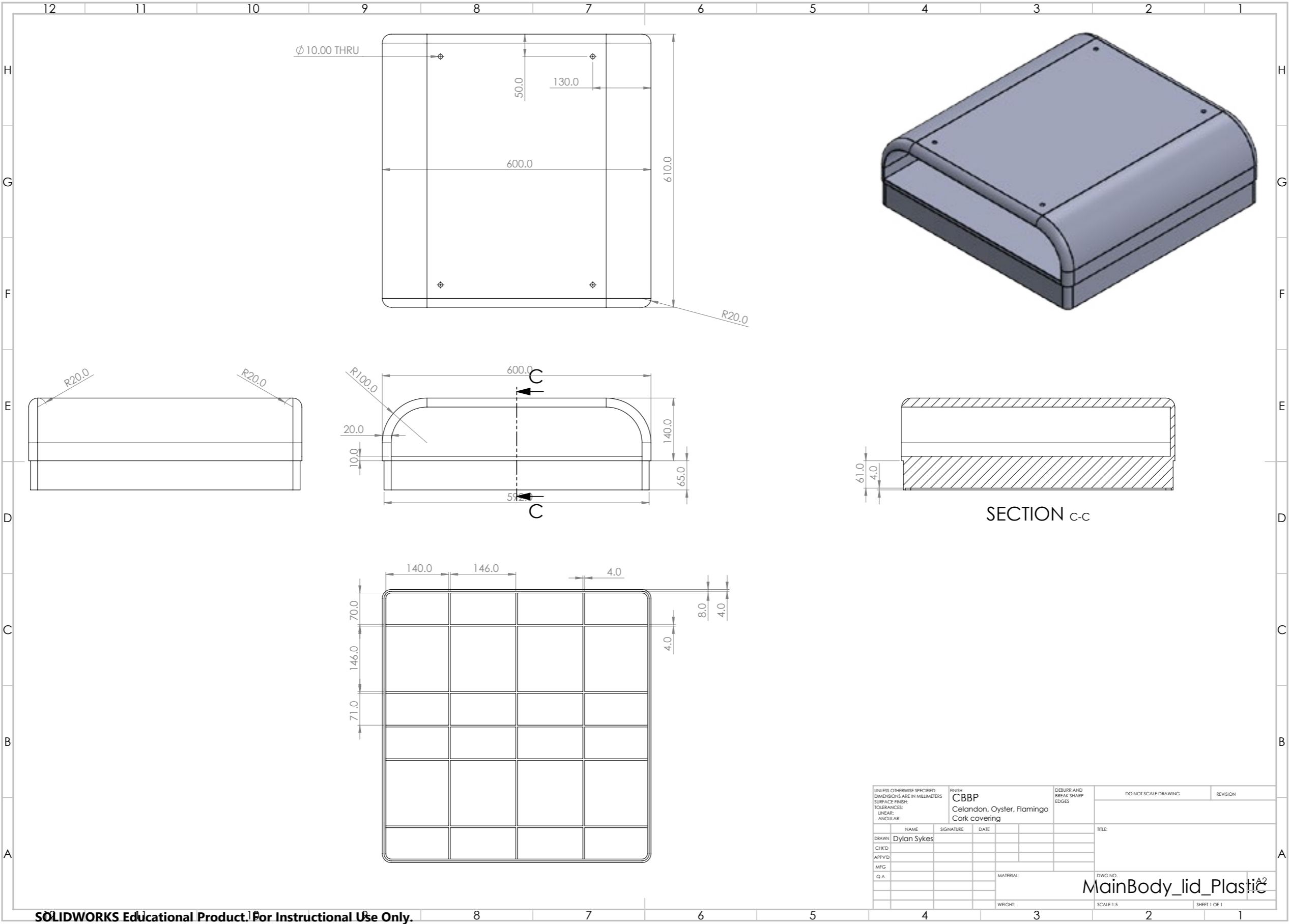
Technical Drawings.....

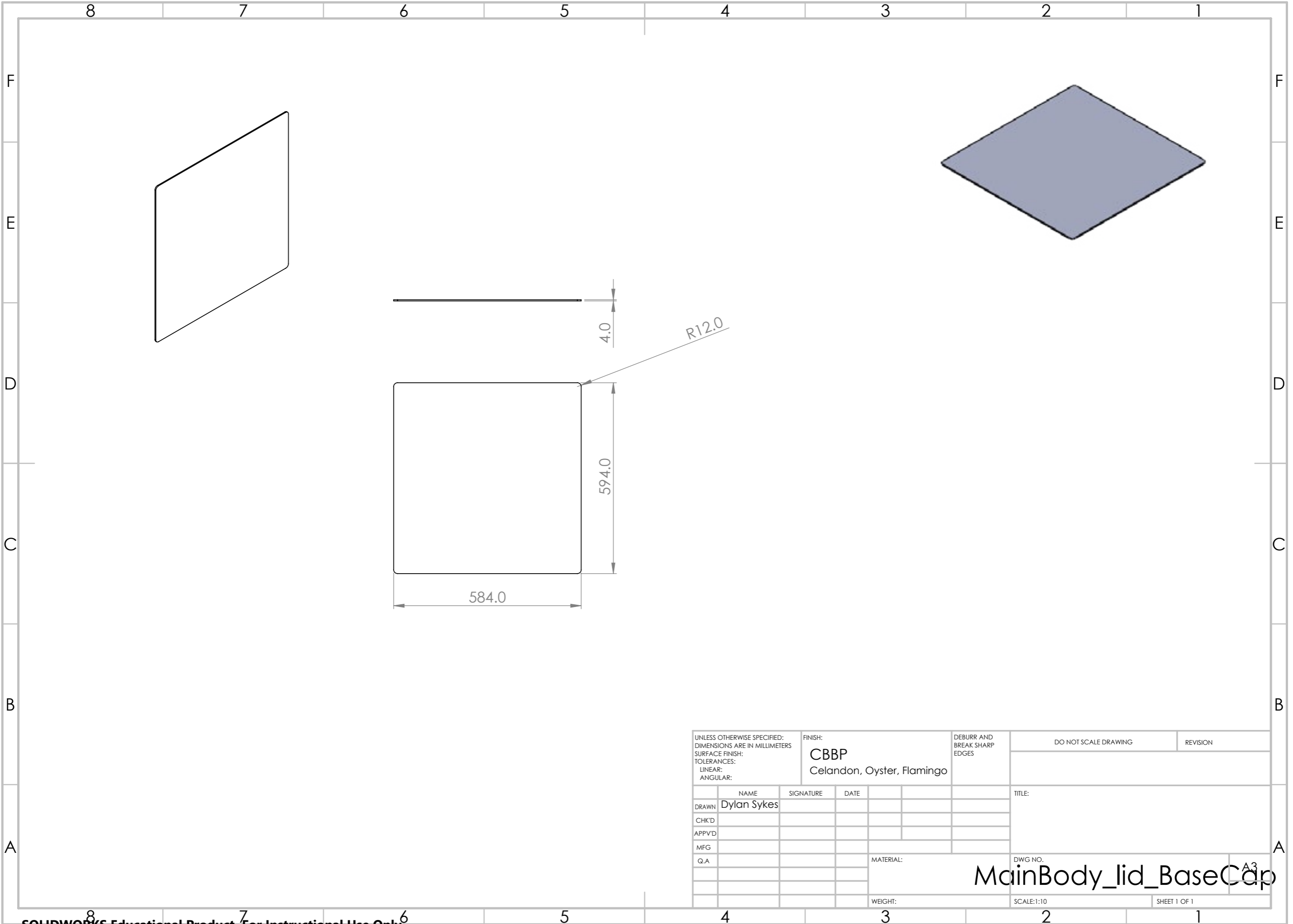


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