

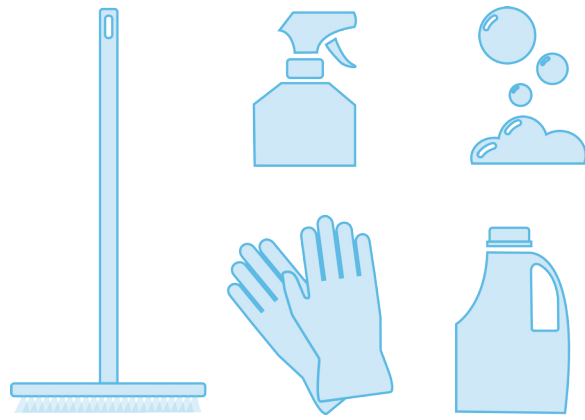
step + store

who



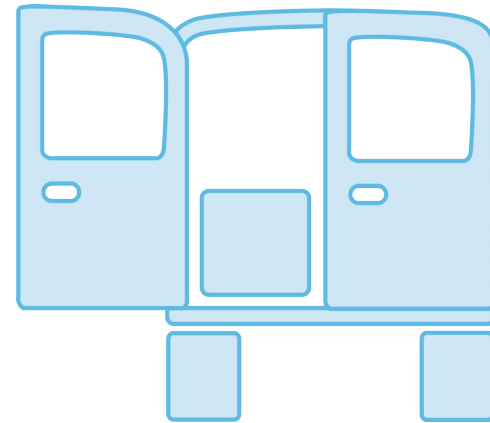
We chose to design a workstation for people who work in the household cleaning industry. These individuals lead active lifestyles– they travel throughout the workday to reach all of their clients, and they perform physically exerting tasks while on the job.

## what



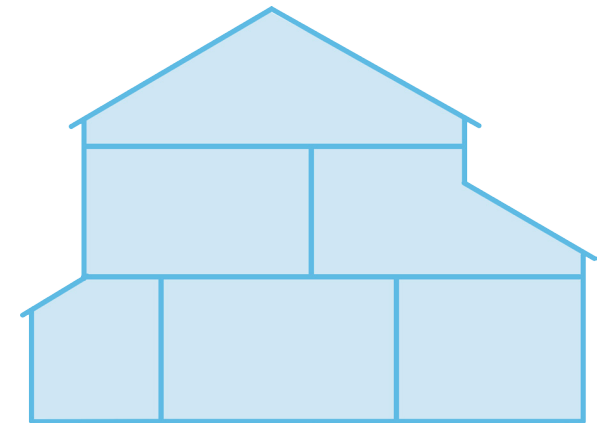
People who clean residential homes tend to use a small, concentrated number of supplies. These supplies include liquid cleaners (like solutions for counter tops, windows, and floors) and hand held tools (such as sponges, rags, and gloves). There are also a few larger tools, like mops and vacuums— these bulkier items are sometimes provided by the homeowner.

## how



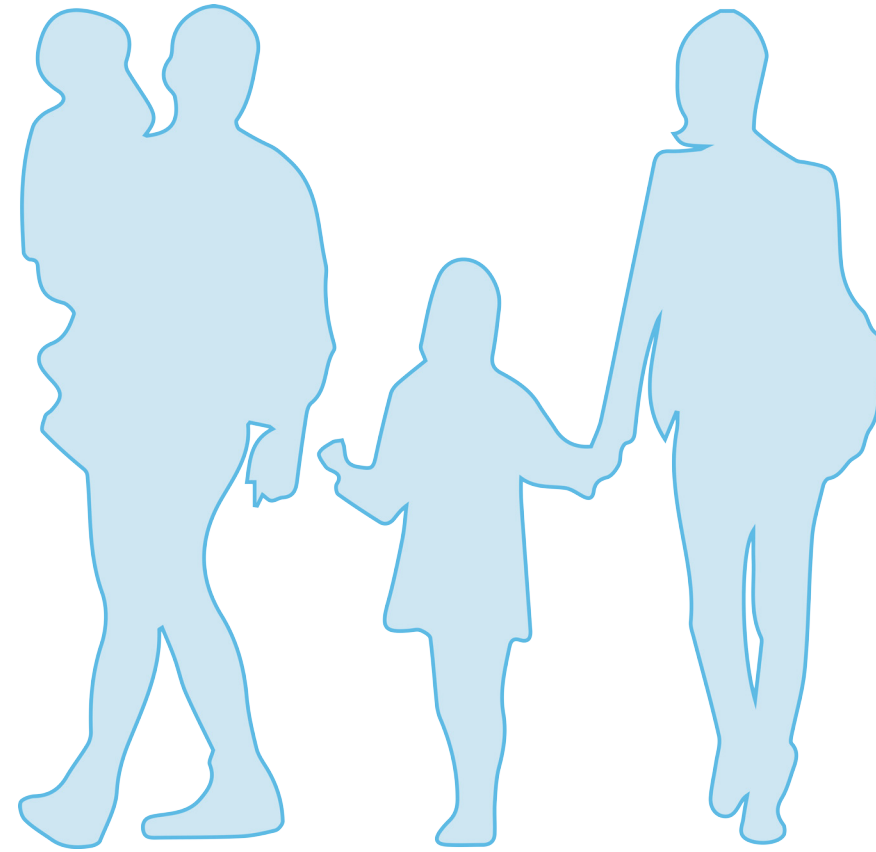
Teams of two or three workers load all their supplies into a car and head out to the work site. Supplies are distributed to workers upon arrival. This can sometimes be a messy process— there aren't currently storage solutions that cater to this type of mobile work. Workers often resort to storing supplies in a variety of bags, buckets, and bins that can be difficult and messy to carry.

## where



Every home is different. When workers arrive at a house, they may face multiple flights of stairs, narrow hallways, high ceilings, or tight spaces. Cleaning crews have to be able to adapt to new environments quickly. It's important that their supplies are able to adapt, too. If workers are loaded down with disorganized tools, it can hard to move quickly between work sites.

## who else?



The client also plays a key role in the cleaning process. Many clients are concerned about the way that their home is treated– visits from cleaning staff can sometimes become a point of anxiety and frustration rather than a relief. Some clients are bothered by the fact that workers will stand on chairs or other pieces of furniture to clean hard-to-reach spaces. Other clients end up feeling displaced and uncomfortable in their own home while workers are cleaning– it can be disconcerting to see messy supplies scattered around the house during the cleaning process, and it can make clients feel unpleasant and unwelcome.

## existing solutions



Currently, the storage solutions for cleaning supplies on the market are built on an industrial scale. Existing carts are large – they’re meant to carry large amounts of supplies throughout spacious buildings like hotels and offices. These carts work well in large buildings, but are bulky to carry throughout a home.

There aren’t currently any portable, mid-size solutions for making cleaning supplies mobile. Users resort to carrying their supplies in a variety of bags, baskets, and buckets. This is inconvenient for both workers and clients.

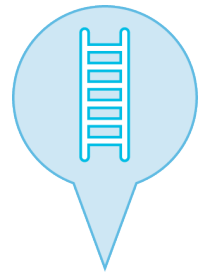
## our design goals



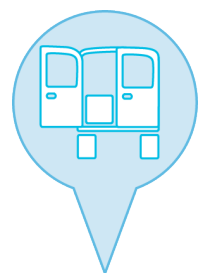
The product should feel clean and friendly– it should feel like it truly belongs in a residential space.



Cleaning supplies should all be stored in one space and be easy to carry from room to room. This way, supplies won't end up littered around the house and will be less likely to be lost or left behind.



The product should allow workers to reach high up places without standing on client furniture or causing any disturbances.



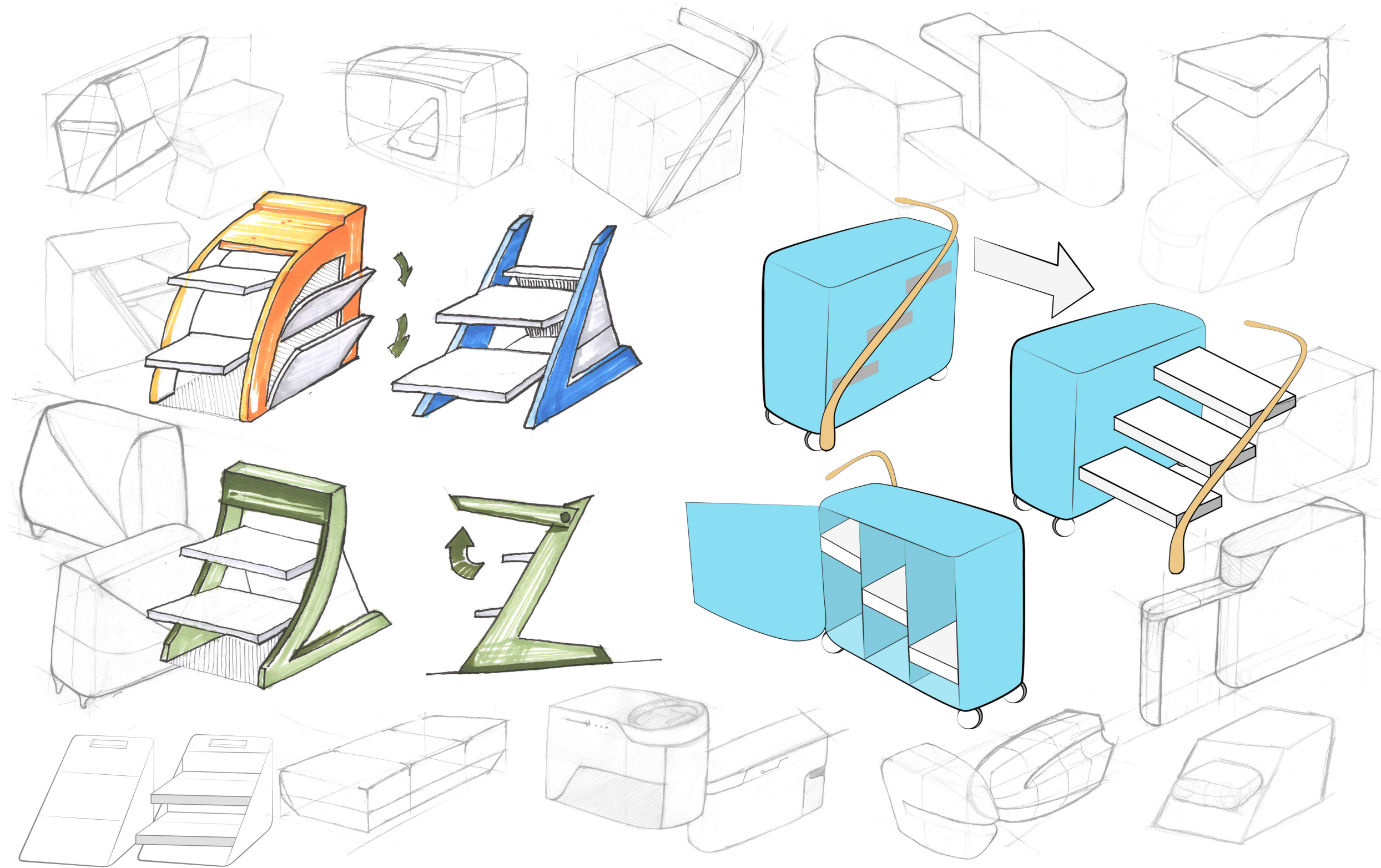
The work station should be easy to transport throughout homes and to and from cars. It should also be able to carry the right amount of supplies for cleaning a residential home.

## our inspiration



our work station was inspired by functional products built with pure geometries and clean lines. our design intent was for clients to feel that the product was a modern element that fit naturally in their home.

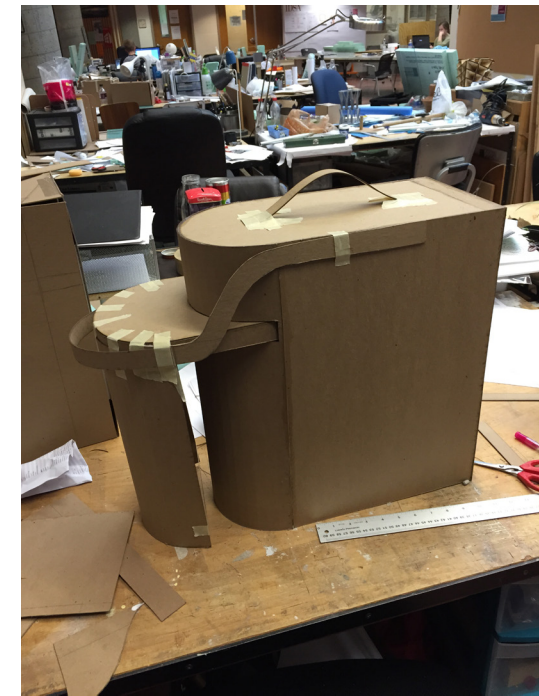
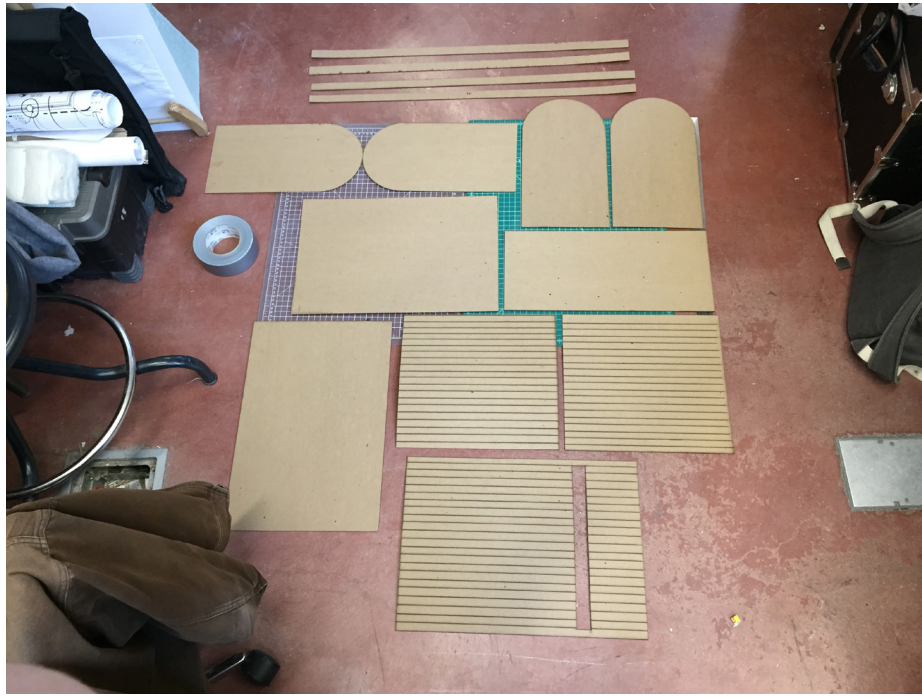
## concept development



after researching our users and determining our primary design goals, we began to sketch concepts for work stations that functioned both as storage units and step ladders.

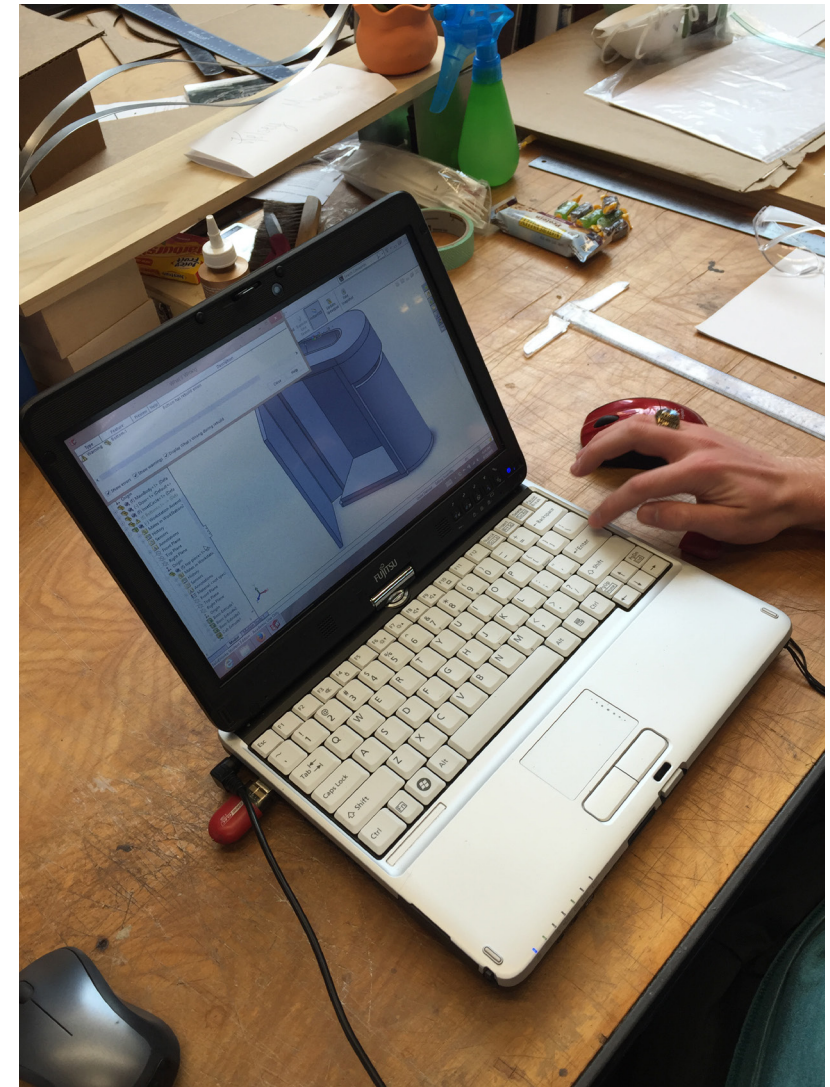
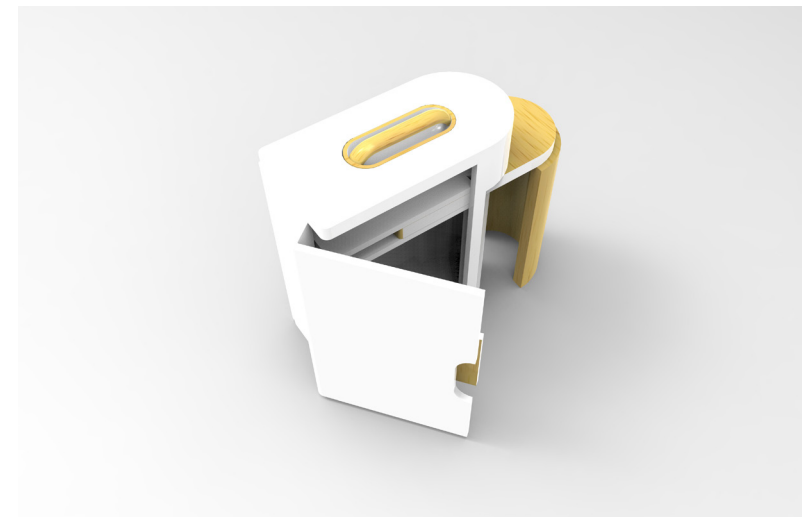


## proof of principle model



After sketching our concepts for a work station that included a step stool and storage, we began building rough proof of principle models. These cardboard models helped us to make decisions with regards to overall dimensions and form.

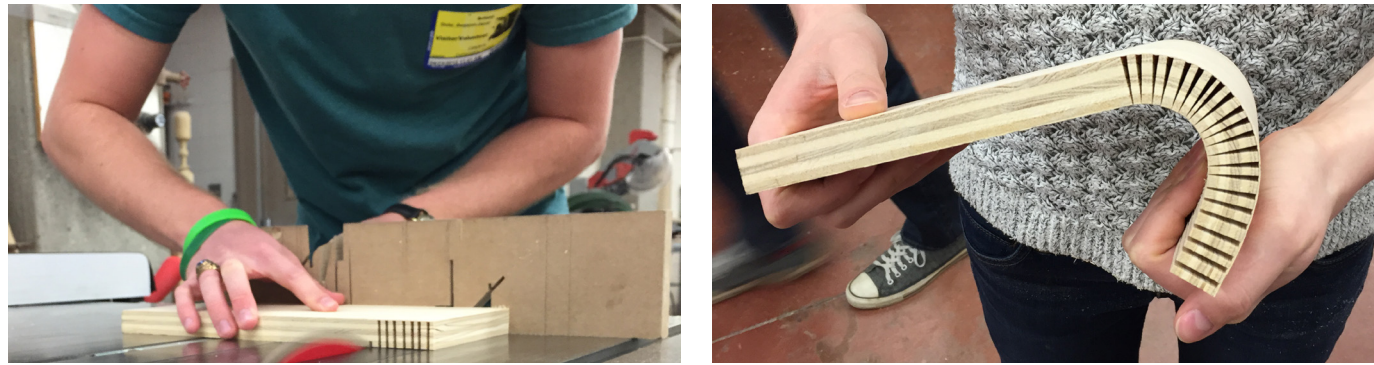
## cad model



We used SolidWorks to translate our model into something with more real world value. We began to think about what methods we could use to construct the final prototype and what kinds of materials would be most appropriate for the project.

## design process

1



In order to achieve the curved wood surface, we decided to use a cutting method called kerfing. This process cuts away most of the wood, allowing the top veneer surface to become highly flexible.

2



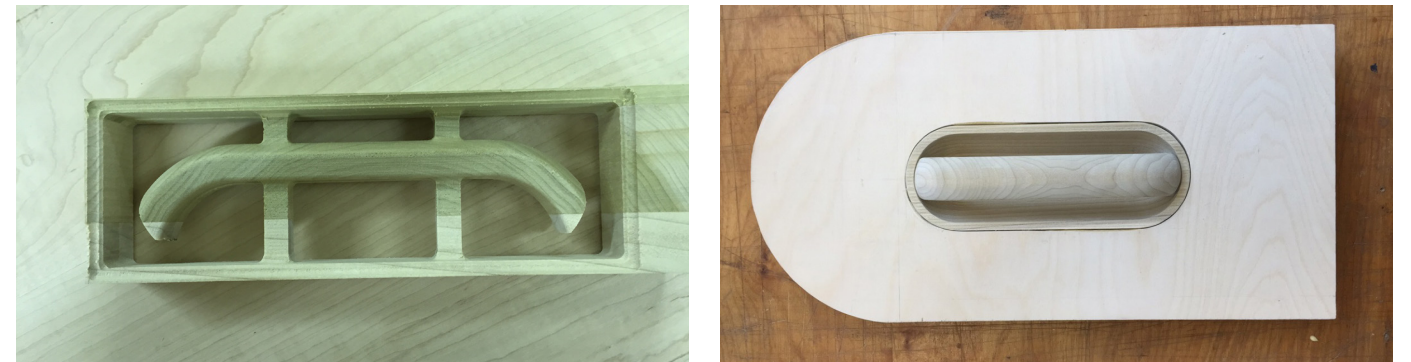
The cut pieces were then clamped around rounded templates to create the appropriate size curves. After clamping the pieces, we poured glue inside of the cuts until they filled and dried in place.

3



While kerfing was successful for some pieces, we found that it failed for others. the vertical step support needed to be redone in order to become lighter and more precise. We created a ribbed wooden frame the second time around.

4



The handle was cut by a CNC mill so that pure angles and curves could be achieved. The holder that the handle fits into was also milled. We cut the corresponding shape into the lid by hand so that the pieces could be fit together.

## final product



our final model was built from plywood and poplar and is fully functional.



