SCENIC CONSTRUCTION

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COURSE DETAILS

Module Learning Outcomes
Upon successful completion of this module, a student should be able to demonstrate the ability to: • Display basic knowledge and understanding of scenic construction. • Operate hand and machine tools commonly used in scenic construction in line with Health and Safety procedures. • Display practical knowledge and understanding of the applications of CAD through the generation of technical drawings and ground plans in order to construct scenic units.

As a designer, you should know how to use materials and tools.

- All practical
- Build confidence in tools
- Build confidence in materials

WORKSHOP REMINDERS

- *Workshop appropriate clothing (no leggings).*
- *Hair tied back.*
- *No Jewellery.*
- *Steel-cap boots.*
- *No food or Drink*

MATERIALS AND TOOLS

- *3 x 1 PAR*
  6 x 1 PAR
  2 x 1 PAR
  8 x 1 PAR



- *Plywood 8ft x 4ft*
  2440mm x 1220mm



- *Festool equipment*

- *Wood drills and Metal drills*

WHAT IS 'PAR' WOOD?

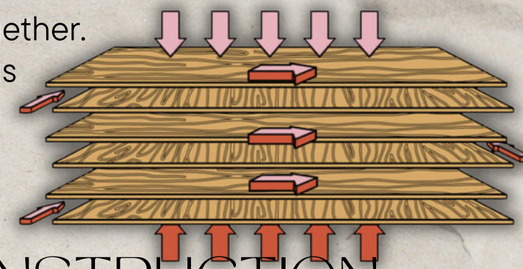
Planed All Round (PAR) means that all of the wood's surfaces have been 'planed' - or brought to a uniform level - and each side is smooth and ready to be worked or presented. (Alem, 2014)

WHY IS 'PAR' GOOD FOR CONSTRUCTION

Planed lumber then again is great for fencing, building frames, manufacturing creature cubbies, and pretty much whatever else which can be produced using wood, is probably going to be seen and is expected for customary use. Most DIY specialists will like to utilise planed all over lumber, as it's satisfying to the eye, however can go any place, is more secure to work with and can be begun chipping away at immediately; without being planed physically.

WHAT IS PLYWOOD?

Plywood is a flat sheet of wood veneers that have been bonded together. They are often bonded in layers, and grain going against grain, this is known as cross-lamination. This is what gives plywood it's strength and durability.
Plywood sheets are often odd-numbered as this ensures that there isn't any warping; as it is properly balanced out.



WHY IS PLYWOOD GOOD FOR CONSTRUCTION

Plywood has become one of the most popular building materials, thanks to its useful properties such as the ability to withstand moisture and high strength. Despite being robust and versatile, plywood remains affordable and durable for small businesses. A glance at the different types of plywood will reveal their importance.
From kitchen cabinets, floorings, and walls to furniture: the entire construction industry revolves around the plywood. The use of plywood will only continue to increase as the global market grows because of the lack of affordable and reliable alternatives. (MP Moran Official Blog, 2016)

FESTOOL TOOLS

+ Study task one



Festool Drill

- Small dimensions
- 12 Torque adjustments
-Everything in green does something
- Setting 1 drills, 2 screws
- Press Green trigger button to start it and add pressure to the back



Drill bits

- the flat drill with the point is for wood
- curved end is for metal,

How did I feel using it?

I enjoyed using the drill it was very lightweight, this is not my first time using a drill, and out of the ones I have used before this has been the nicest cordless one. What I liked is that, it is very lightweight and I feel like no matter position that you are in, you'll be able to drill with ease. What I do find difficult is knowing what torque adjustment to use for drilling, screwing, and unscrewing. But I think I haven't had to use the adjuster as they've always been in the setting we need to use, so I am hoping, over time, I'll have a better understanding of how that works

How do I feel about using it?

I find the rail saw very easy to use, and I think it's a very helpful tool. Apart from the drill, I think this is one of the tools I think I will be using a lot, as it seems very versatile. I find the smoothness of the rail and the saw together very handy. The only issue I find with it is that the extraction tube got caught on the rail a few times, and it's hard to see where you need to cut up to if it needs to be at a certain point.

Rail Saw

- Place saw on rail and hook up to power and dust extractor

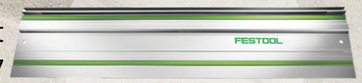
To activate the saw, press the trigger up whilst releasing the main trigger.

- ensure that you stay on the rail
- Push Forward to cut.



Festool rail

Festool Guide rails are available in eight different lengths from 32 inches to 197 inches (800 - 5000 mm



videos used

Festool TS 55 REQ Track Saw - Getting StartedFestool CXS and TXS Cordless Drill Drivers

FESTOOL TOOLS



solid green light- table ready for use

Main power switch

Table Saw

- Wheel on the bottom anti-clockwise reducing the cut depth and clockwise increasing cut depth
- Can also canhe the angle between 0-47 degrees and can reach -2 degrees.
-It as AIM technology (Active Injury Mitigation) - if the blade senses any electrical conducting material the blade disappears and you leave without a scratch

How do I feel about using it?

I don't enjoy using the table saw, I feel like it's very powerful and I find that quite scary. I feel as though I prefer the tools that can turn on and off when I let go of the trigger. I don't like that you need help, especially when you're using a big sheet of wood - you're going to need more than one pair of hands. It also requires a lot of ensuring that the wood stays flush against the side and then having to make sure you're pushing forward, I find this especially difficult when it is a bigger sheet of wood.

How do I feel about using it?

I find the chop saw the nicest tool to use, as I like how smooth it is to use as it doesn't take much brainpower to use, its pretty simple which I like, there isn't really any error for mistakes, and I can solely concentrate on my protection and the cut of the wood.

Chop Saw



- To power saw,engage trigger and trigger lock together
- Pull and push the saw down to cut the wood, there is also a laser to guide where you should cut

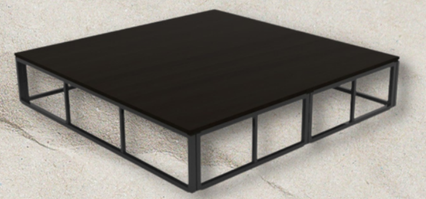
videos used

Festool TKS 80 Sawstop Demo | Havwoods Accessories
Getting started with the KS 120 Kapex Miter Saw

STUDY TASK 2

- ROSTRAS

For many years Rostra of wooden construction has played an important role in Stage presentation and in spite of development in light weight materials for the building trade and other situations, wood still forms the traditional method of construction and from practical experience has been found to stand up to the wear

Types of Rostra	*How is it built?*	*Advantages*	*Disadvantages*	*Example*
The Block Method	- two sheets of 18mm ply on for top of rostra and one to be cut up to form the sides and the supports. - always remember to subtract the thickness of the lid. - you need two long sides, tow short sides and two internal supports for the lid	- Extremely sturdy - Quick to build - Cheap Materials	- As it is quite a solid structue it can be extremely heavy to move. - It cant hold much weight.	
Modular-Steel Rostra	- These are built the exact same way as the block method except they are made out of steel. This ensures that there is a lot more support . They are also fitted with corner sockets.	- Extremely sturdy - Versatile - Durable - Economical (as they have long lives)	- As it is quite a solid structure it can be extremely heavy to move. -Steel is extrmely pricey so it is adviced to hire them instead	
Gate-Leg Rostra	- Constructed from either 25x75mm or 32x75mm Softwood, and built with rostrums. - And there arewooden hinges for support	- they are foldable for easy storage - durable - easy to make	- they cant take a lot of weight and therefore you hhave to keep adding supports - which over time can cost a lot money.	

Dirty Dancing - *Rostras*

Over the Easter holidays, I went to watch a few shows, and Dirty dancing was one of them. I found the set design by, Stephen Brimson Lewis, very minimal, and they only had rosters assets. This set in particular (Baby's cabin) was one of the most used sets and it's only a rostrum. This would be a Block Rostra as it is made out of wood and all the sides are covered. There was also a hidden bed under it (where circled)...I couldn't find any photos but I assume it was on wheels and could be rolled out from the wing side of the tread. I thought it was an amazing bit of ingenuity.

I think they would have built this out of plywood as it is very durable and then can be easily dressed as they have them quite simple so that there isn't too much weight on the rostra. Therefore there is also minimum dressing on the rostra. I think that the reason Lewis used minimal design is so that there was sole concentration on the dancing. There was also this other much larger rostra which I found interesting as it has been left uncovered for aesthetic purposes, but I thought it was interesting as it is such a large scale rostrum.





STUDY TASK 3 - *THEATRE TRUCKS*

Stage trucks are platforms, similar to a low rostra, but on wheels, allowing them to be transported quickly and silently onto the stage. A simple scene can be set up on the truck, equipped with furniture, props, and possibly even some kind of background. If the majority of a play takes place in a single location, a truck can be used to establish a separate area that can be limited with precise lighting. On the main set, it could be hidden behind curtains and brought into place when needed, then hidden again. The wheels on the front of the truck will not be visible, but the wheels on the back should have easy-to-lock brakes to prevent the truck from rolling over.

BACK TO THE FUTURE THE MUSICAL

The fencing seen in this picture is a truck- In the musical, they have a whole dancing routine on the fencing and when I was watching it you could see that the fence was wobbling, but the actors somehow managed to stay balanced on the truck.



Safety:

- Is the actor required to travel on the truck? You have to try and liaise with the director to see if you could potentially change the way they travel on it to reduce the risk if injury...this includes making sure that there is nothing hanging over the top of the. In most cases the director of the show will change the script so that the actor is laying down on the truck whilst travelling on the truck.

-You also have to ensure that there is no obstacle the the trucks way. This does include other actors and staging to ensure that the truck can progress.

Risk assessment template

Company name: Back to the future Musical

Assessment carried out by:

Date of next review:

Date assessment was carried out:

What are the hazards?	Who might be harmed and how?	What are you already doing to control the risks?	What further action do you need to take to control the risks?	Who needs to carry out the action?	When is the action needed by?
Falling off fence truck	Olly Dobson (Marty) Hugh Coles (George)	Multiple traing and practicing on the fence ensuring that the fence is built w/ strong wood	Breaks to be added to reduce movement of truck	Production designer Engineer	For routine Practice
Fence truck Snapping	Olly Dobson Hugh Cole		Do a weigh test before actors try standing on it	Engineer Possibly the Crafts-men	ASAP
Wheels of truck wont get stuck or Jammed	No one but it just ensures the show progresses.	the wheels are oiled up and there isn't anything blocking the tracks	Before each performence that the wheels are working and there isn't anything in the tracks way	SM / General Staff	ASAP

STUDY TASK 5
- INTRESTING SETS

CALL ME BY YOUR NAME

What I find interesting about the Call me by your name set, designed by Samuel Deshors and dressed by Violante Visconti di Modrone is I like how realistic it looks and how it appears to be very much lived in.

I found an interview with Visconti where she talks about her work. "Luca also wanted the villa to feel like a family home that was loved by its owner. I wanted to convey the feeling of time passing, that people were there long before this family. There was a sofa I sourced which he thought was too old and too shabby, and my response was to describe how its age conveyed this feeling of time passing." (Woodward, 2020)

For Call Me by Your Name Violante borrowed a lot of things from her father's home, and some also from friends. I think that added to the sense of things in the house having a life.









EUPHORIA

Production designer Jason Baldwin Stewart recognised both the opportunities and the challenges from the time that he first read the script in early 2020. “This was always going to be the most creative episode but also the hardest to handle,” he told IndieWire in a recent interview. One of the immediate challenges was simply figuring out how authentic to make the staging of the play as a product that could — or could not — realistically be mounted on a high school stage. “What we were trying to figure out right from the start was, ‘Are we going to treat this the way we treat everything else on “Euphoria,” where there’s realism but it’s emotionally driven and not held to the exact standards of real life? Are we going to present this as a real high school play, or go bigger and just have fun with it?’” (Stewart, 2022)

shooting in a real theatre until COVID shut it down

A key component of Lexi’s play is an onstage turntable that enables various set changes, and this had to be taken into account when building the auditorium as well. “We had to be able to remove portions of the set, but also keep it structural enough to integrate the turntable,” Stewart said. Building on a stage also created an elegant solution to the problem of how to link real memories and events with Lexi’s play without cuts or digital stitches: “I took portions of our sets and put them backstage,” Stewart said. Trying to do as much as possible with unbroken camera moves was consistent with Levinson and Rev’s technical methodology, and, according to Stewart, there was an added benefit when it came to performance. “It helps the actors if we’re able to keep the flow of the show going and they don’t have to break up the components of it.” (Stewart, 2022)







Pride & Prejudice*
(*sort of)

What I enjoyed about this set is that it was just a set of stairs and

using the doors under the stairs as ways to leave the stage rather than leaving to the wings, as there were only 5 cast members playing every character in pride and prejudice they had to find interesting was and most of the time it was comedic purposes.

As you can see there are two different types of treads in the picture, and I went to see the one where the stairs curves towards the top. What I have now learnt from researching the treads is that they take a lot of science and engineering to work.



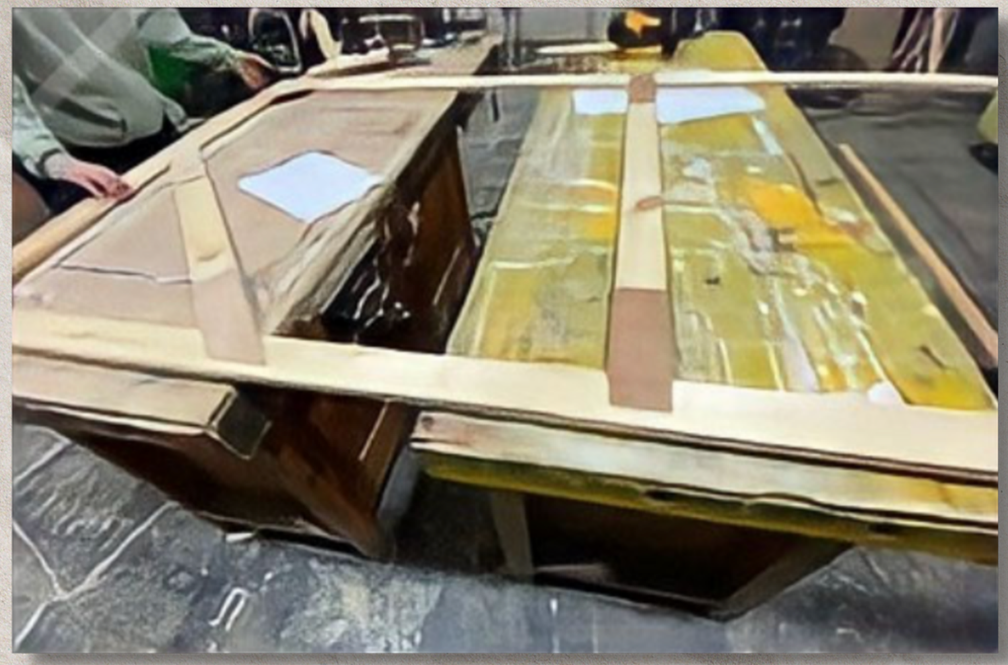




HOLLYWOOD FLATS

We started by picking the right size of wood which is (2 by 1) and had to ensure that the wood wasn't warped or split. To make sure the wood was square, we had to cut fingers thickness off both ends. We then measured all of the pieces of wood we required from the cutting list using the measurements on the sheet. Once we had all of our pieces cut, we set the frame out on the table and did a dry fit to ensure everything was square and the appropriate length.





And then I glued the parts in their proper places, drilled pilot holes in the wood, and screwed them in place. We then took the plywood panel that would go on top of the frame and double-checked that it was square and the correct size.
After that, we marked the frame lines on the plywood and then removed them.
to apply the adhesive and adhere it to the surface Then we drew lines across the wood and securely stapled the plywood sheet to the frame. The glue around the edges was wiped away.

HOLLYWOOD FLATS





The next step in this project was to use plywood to make the connections. We started by cutting the wood into several squares with the table saw. We then cut it into triangles with the chop saw. This was accomplished by turning the chop saw's blade 45 degrees to create the angle required.
We then linked them to the rest of the flat once this was completed.

HOLLYWOOD FLATS

- We also use the plywood to make more joints. These rectangular pieces of wood, on the other hand, would be placed wherever the butterfly staples connected the pieces of wood. The table saw was used to cut these, and the chop saw was used to shorten them. The joints on the angled pieces were also cut at a 45° angle. This was done to ensure that they would fit properly.
These joints were then stapled together, first with wood glue and then with a staple gun.





- The last step was to attach the plywood to the frame. To continue, we applied wood glue to all spots where the ply would come into contact. After that, the plywood was added, assuring that all of the edges were flush. We next used the staple gun to secure the ply board with smaller staples.

EVALUATION

I found the Hollywood flats pretty easy to make; however it did take me a while to understand and come to grips with all of the measurements and the CAD drawings as it has been a while since I have read a CAD design.

What I also enjoyed about building these flats, is that over time, I feel like it'll be very easy to learn and you'd get used to making them.

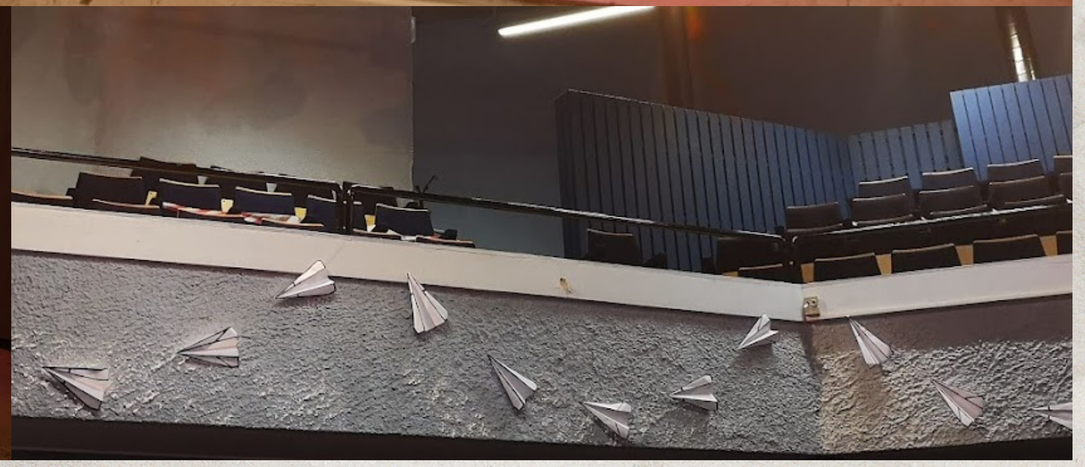
As I do want to get into film design mostly, I remember having to design a few rooms that were built from Hollywood flats; so I think knowing how to construct these will be very helpful in that context too.

EDUCATION! EDUCATION! EDUCATION!

In this third year show called education! education! education! the set was very minimal and I think as they had many locations set in the script and it would have been hard to bring out specific sets for the different locations, so for example what I like is that you understand that you are in school locations for all of these large books with different subjects on it that then show that you're at a school- and then throughout the show, they bring on other props and objects to help portray other areas of the school, like in one scene and whiteboard was brought on to portray and classroom and then a bench to portray the staff room. However I feel like it could have been a bit more accurate because I don't feel like people associate PE benches with staff rooms- so maybe some office chairs being rolled on by the cast could have been more representative. I also liked how the paper plane reinforced that the kids misbehaved and made the audience feel included. The way the set is also black and white gives it and comic feel.







STUDY TASK 6 *-metal*

Benefits

- Stability and Durability

Weight-bearing wood or concrete items are heavier and weaker than structural steel components. Typical weight-bearing steel fabrication is 30% to 50% lighter than a hardwood counterpart. The steel frame structure is significantly more robust and powerful than typical wood-framed options.

- Accessible fabrication in various sizes

Steel studs come in a variety of sizes and can be custom-fabricated. This implies they may be tailored to support specified loads in a wide range of structures.

- Fire Protection

Steel frame constructions are very fire resistant, lowering the chance of a fire and slowing the spread of a fire if one occurs. This feature of structural steel is enhanced by special flame retardant coatings.

- Waterproof and weather resistance

Depending on its carbon content, structural steel can have good moisture resistance. A structural steel component with a hot zinc coating and additional powder treatments for enhanced rust resistance will be even more resistant to the effects of water - a crucial issue for components exposed to the elements.



Les Miserables

In this version of Les Mis, they used metal as the balcony in the ABC Café. I think they used metal in the construction of this as it is more durable as both in the version and the west end version there is a moment where the whole cast stands and stomps on the balcony, so I think this did have a part to play in the durability and strength that the balcony had to be.

I also think using metal is more visually aesthetic to the early 19th century.



RENT

One of my favourite sorts of sets is the one used in RENT; it's a single aspect that changes slowly throughout the show. Simple, but effective, and unobtrusive. I also believe that it is far more crucial for the set to reflect the show's core ideas than to accurately convey WHERE you are. The RENT set, on the other hand, is quite plain, and it appears dirty and runs down, reflecting the conditions in which its inhabitants live. And you can do stuff like that on stage to push your audience to pay attention.



National Theatre: A Streetcar Named Desire

The play is staged "in the round," with tiered bench seating around an open octagonal room. The apartment is located in the centre of the room. The apartment has no physical walls; instead, each room is delimited by a massive cage-like structure made of gunmetal steel struts. This frame is 20 feet long and 10 feet wide, and it takes up the entire raised platform. The solid grey platform is about a foot thick and painted. The platform rotates at varying rates throughout the work, sometimes in one direction and sometimes in the other. During times of tremendous strain, the platform accelerates gradually, almost subtly at first, until the spin becomes noticeable, smooth, and unwavering. The floor of the platform wraps around it.stage is dark. The apartment's only entry is a free-standing gauze screen door on one of the narrow ends. A little porch leads up from the entryway, with a black metal staircase that looks like a fire escape. The stairs crisscross up to a promenade that is level with the theatre auditorium's balcony. When the apartment rotates, the stairwell rotates with it, leaving this walkway disconnected and protruding.

STUDY TASK 8 *- Joining flats*

WAYS TO ATTACH

- Hanging Clamps with Slotted Holes: Used to secure flying wires or hemp lines to flying bars so that the lines cannot slide along the bar. They can also be used inverted as a fixing point on flying bars for small pulleys etc

-Flying Irons: Used for flying heavy scenery when a hanging iron cannot be deployed. The ring is welded inside the fold for extra strength. This fitting must be bolted through the flat.

- Button Pelmet Clip and Socket Made by Flints under licence to Triple E who designed this clever plate several years ago.

- Cleat: A metal bracket used to tie a rope to, or to guide rope down a flat.

- *Throw Line:* A rope used to hold adjacent flats together as one via cleats.

- *Pin Hinges:* Can be screwed to adjacent flats to enable them to be held together securely. To take the scenery down, simply remove the pins.

- *Ratchet Straps*: Although care should be taken to not over-tighten them, these straps can be used on cloth-covered flats to solidly hold them together

ADVANTAGES

- *Hanging clamps*
  - *hold a lot of weight*

- *Throw Line*
  - *Cheap and effective*

- *Pin Hinges:*
  - *Can be hidden and cheap*

- *Ratchet Straps*
  - *Cheap and durable and can hold a lot of weight*

- *Button Pelmet Clip*
  - *versatile and can be easily hidden.*

DISADVANTAGES

- *Hanging clamps*
  - *Costly*

- *Throw Line*
  - *Not long lasting or durable*

- *Pin Hinges:*
  - *Not that durable*

- *Ratchet Straps:*
  - *Cannot hold a lot of weight*

- *Button Pelmet Clip:*
  - *Can only be used on flat surfaces*

STUDY TASK 9 *- Welding and metal sheets*

MIG – GAS METAL ARC WELDING (GMAW)
MIG welding is utilised in the automotive industry to repair automobile exhaust systems, as well as in the construction of homes and structures. It is one of the most common welding techniques. A continuous wire called an electrode is used in this sort of arc welding. You'll also employ a shielding gas to prevent against contamination as it passes through the welding gun.

TIG – GAS TUNGSTEN ARC WELDING (GTAW)TIG welding, like MIG welding, uses an electric arc. TIG welding requires the use of a tungsten electrode. Tungsten is one of the most difficult metals to work with. It will not disintegrate or burn away. Welding can be done using a fusion method that uses or does not use a filler metal. TIG also employs argon or helium as an external gas supply.
TIG welding is also used in the aerospace and automotive industries, as well as other industrial areas.

STICK – SHIELDED METAL ARC WELDING (SMAW)
Stick welding has many advantages, one of which is its portability. Construction, maintenance and repair, undersea pipelines, and industrial fabrication all use stick welding.
You'll utilise shielded metal art welding, also known as Stick welding, for this form of welding. A consumable and protected electrode, or stick, will be used. By creating an arc between a covered metal electrode and the base metal workpiece, the stick softens and mixes metals. The stick's protective layer melts as it melts, shielding the weld region from oxygen and other gases in the air.

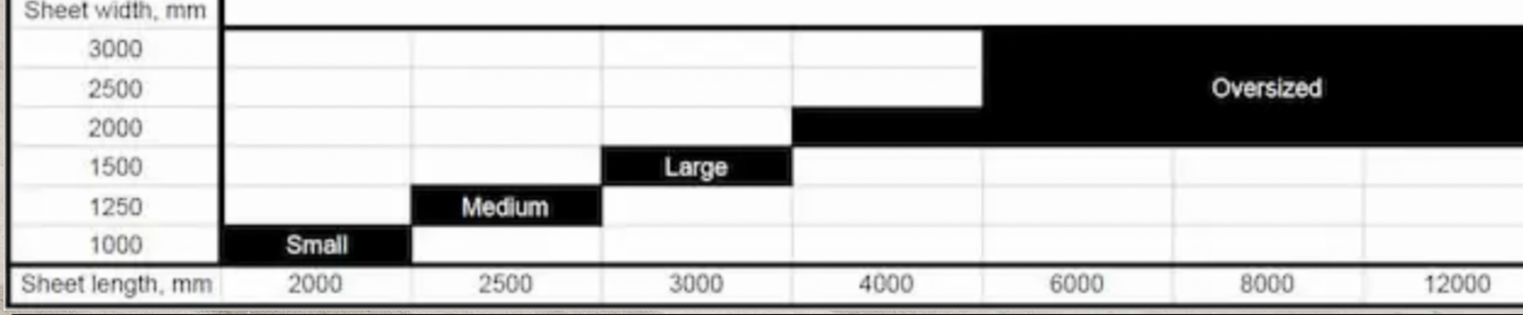
STICK – SHIELDED METAL ARC WELDING (SMAW)
One big positive about Stick welding is that it’s portable. Stick welding is used in construction, maintenance and repair, underwater pipelines, and industrial fabrication.
For this type of welding, you will use a shielded metal art welding or more commonly known as Stick welding. You will use a consumable and protected electrode, or stick. The stick softens and combines metals by heating with an arc between a covered metal electrode and the base metal workpiece. As the stick melts, its protective cover also melts and shields the weld area from oxygen and other gases that may be in the air.

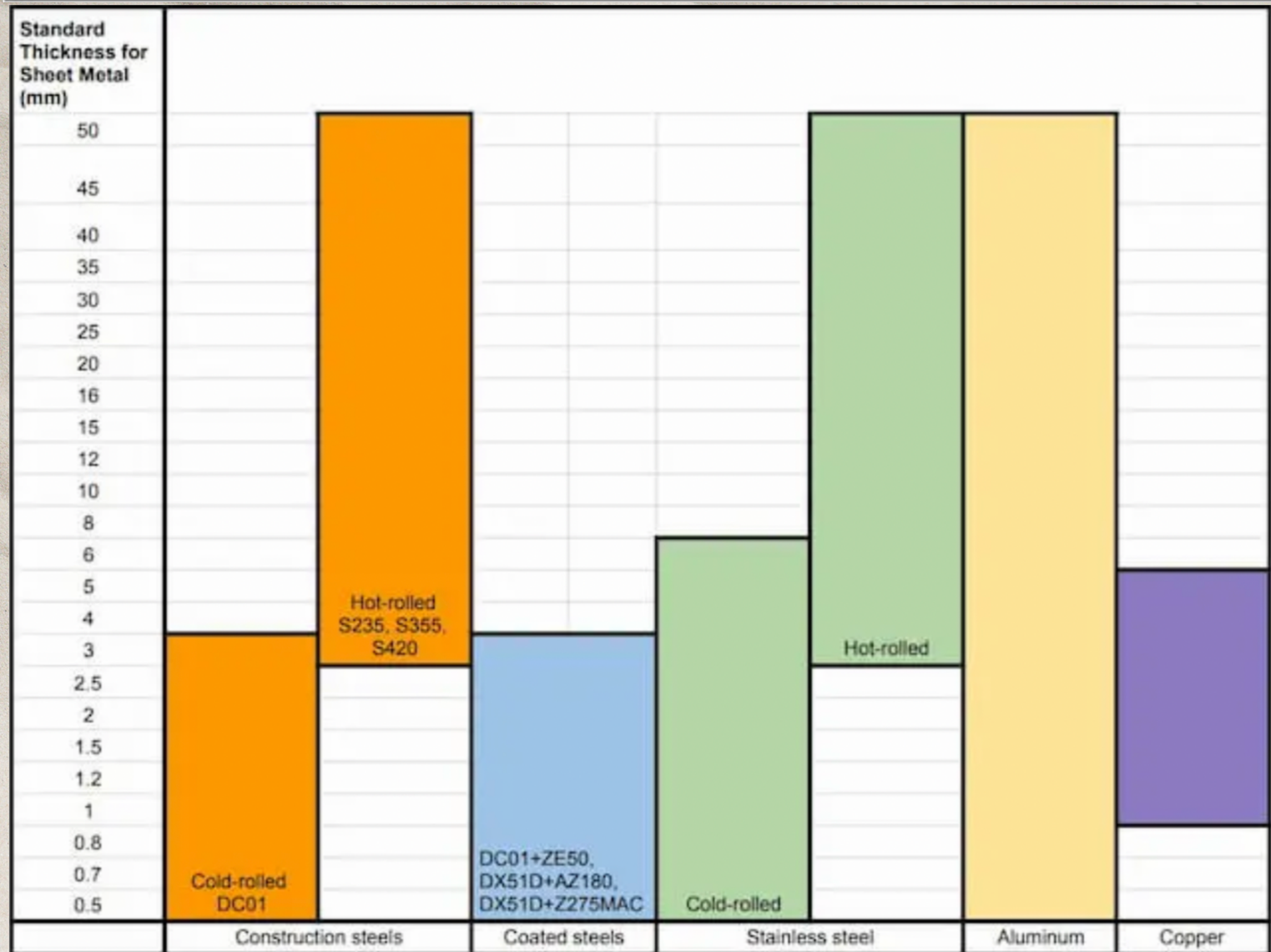
Metal Sheets

Sheet metal is cut, stamped, punched, sheared, shaped, welded, rolled, riveted, drilled, tapped.I Sheet metal components can have hardware inserted into them. Brushing, plating, anodising, powder-coating, spray painting, silk-screening, and other marking options are available for the components. Parts can also be riveted, screwed, or welded together to form complex assemblies.

Sheet metal fabrication, like most other technology, is changing. Materials, equipment, and tooling are now more specialised than they have ever been. To get the most out of sheet metal, make sure you use the right source and manufacturing method for your parts and their application.

Metal is less expensive than wood, with an average cost of £19-£25 per square foot for steel and £20-£35 per square foot for wood. Metal has a cheaper lifespan cost due to near-zero maintenance, and it can be salvaged and sold about 100% of the time if it is ever torn down.





DANCING ROSTRA

With the rostra, we started by measuring the diameter and the circumference with a pencil and then with a jigsaw I cut the half of the semi-circle out and then Seb cut the other half out as it was easier for someone left-handed. After we ensured that the lines were smooths and not wobbly we moved on to prepping the supports of the semi-circle.



We started by prepping the longest length of wood and used any cut-offs of that wood for the rest of the smaller supports to save on the wood.

Once all the pieces had been prepped we stapled the long plank of wood to the base, using a staple gun.

We then screwed the width supports on with wood glue and and stapled across them for extra support.

And then we added more support between them- again, with wood glue, screws and then staples



We then used a thin bit of plywood that means which it is more able to be bent around and bent to the shape that we want it to be. In this case, it is to create the cover of the rostrum.

To do this we got a sheet of plywood and then used a table saw to cut the right length of wood down to ensure that it was accurate to fit around the rostrum. We then split the board in half to allow
for easier application.

To make sure that the plywood and the board stays attached to we used a lot of clamps and wood glue to help apply one half of the plank and then used a staple gun to attach the plank on solidly. We did the same with the other half. Then other people finished it off with the vinyl flooring.



EVALUATION

I found doing the dancing rostrum interesting to do as I felt like I learnt a lot more from doing this than the flats as we were a lot more independent which meant I could make better decisions on what equipment. However the other groups did do a lot of mistakes that we did have to resolve, so it help us with the problem-solving side of

Study Task 10 - *Trees*



In the Back to the Future musical, there is a part where they recreate this scene (to the right) from the film, and the musical actor Hugh Coles is laying on a tree about two/three meters above the stage floor. I couldn't exactly tell how high it was from the view of my seat but it looked pretty high. The illusion was really good, it looked realistic.

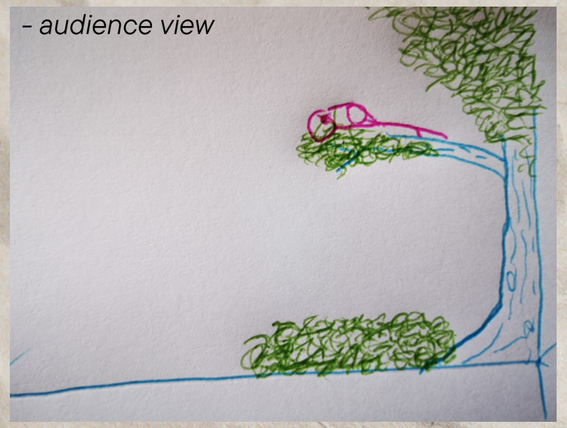


What I enjoyed about this scene specifically was how accurate to the film it was and, I think with all theatre, especially with musicals that have been adapted from films, is how they are going to recreate some specific scenes, and this one was unexpected and I think the pulled it off well.

I couldn't find any pictures of the actual scene from the musical and I looked everywhere for one, but nothing came up, they had pictures of most scenes bar one or two. So in the next slide, you can find my *very very* accurate drawing of how it looked on stage and how I assumed they pulled off this scene.

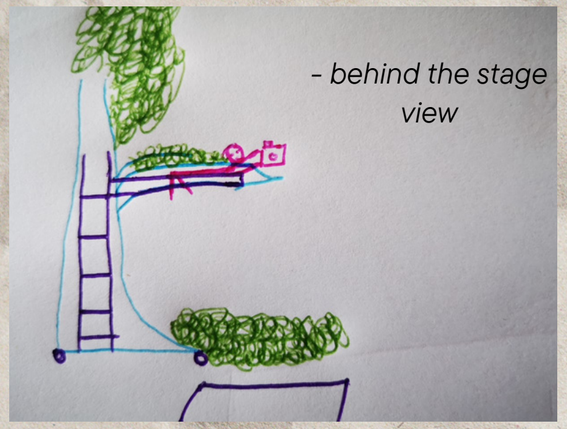
MY THOUGHTS

- audience view



So this is what it looked like as if the audience were looking at it from the main circle.

- behind the stage view



And this I what I assumed would be the way they achieved this, shown by the purple pen: I thought that George Mcfly would climb up the ladder of the trunk and lay on the platform, where he later falls onto the mat to mimic the film. The mat is hidden from the audience.

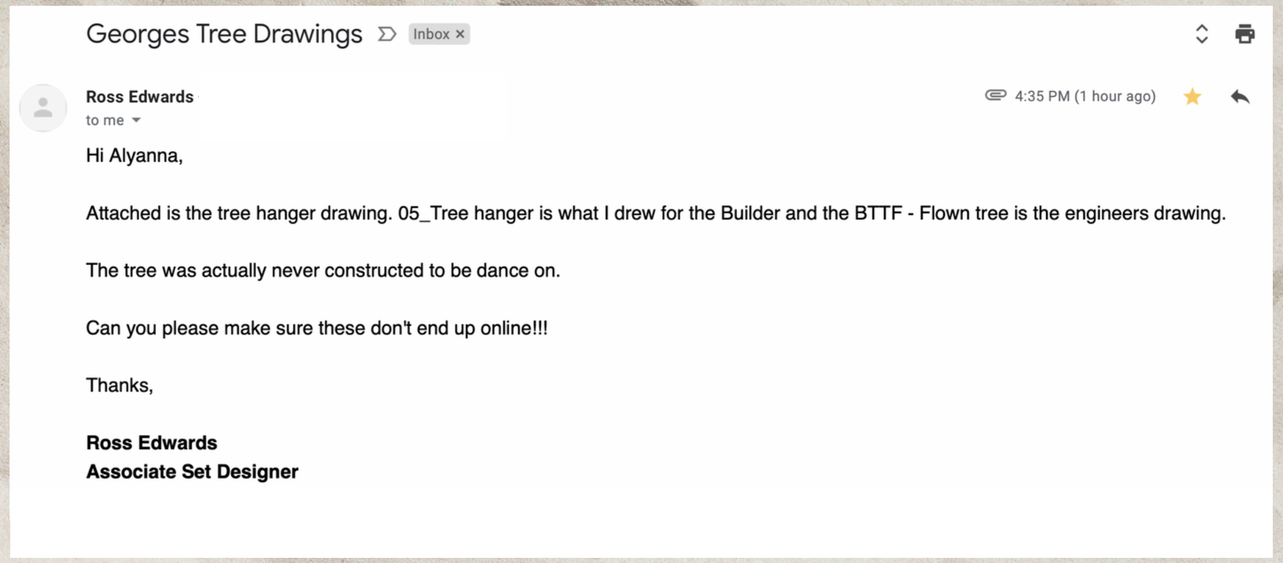


ROSS EDWARDS

Ross Edwards is the Associate Set Designer for Back to the Future and is a frequent collaborator with the Production Designer of BTTF, Tim Hatley.

I decided to get into contact with him to see if he could provide any information on how they constructed the tree. As seen below you can see my Instagram DM to him and he did reply to that asking for my email address. He sent me over his CAD drawing of the tree construction and then the engineers drawing of the tree continued from Ross' design of the tree.



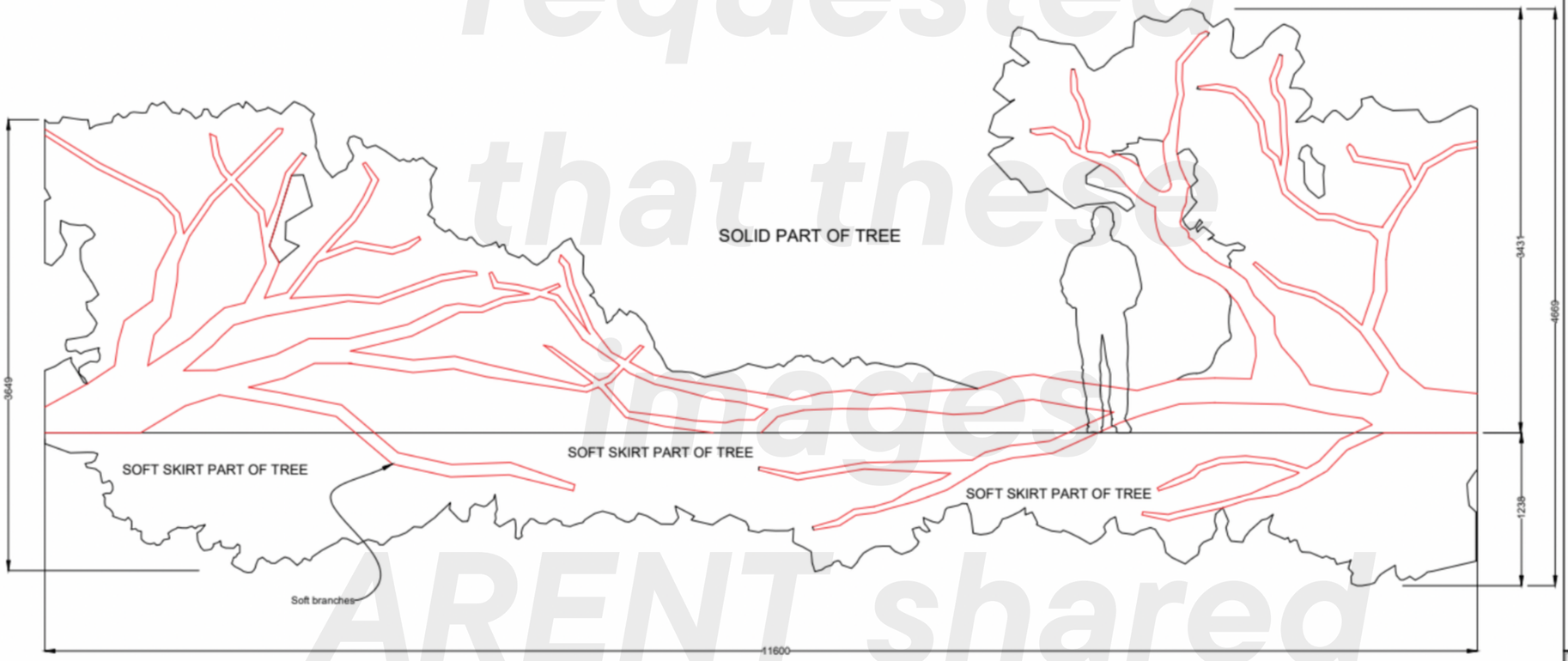


resulting from this drawing, however caused ● This drawing represents visual concepts and construction suggestions only ● The draughtsperson is unqualified to determine structural appropriateness of this design and will not be responsible for improper engineering, construction, rigging, handling or use of this scenery ● If professional advice/ documentation is recommended, it must be sought ● All materials and construction must comply with local fire and safety regulations ● If in doubt...ask!

● All dimensions in mm unless stated otherwise ● Do not scale from this drawing ● Verify all dimensions on site.

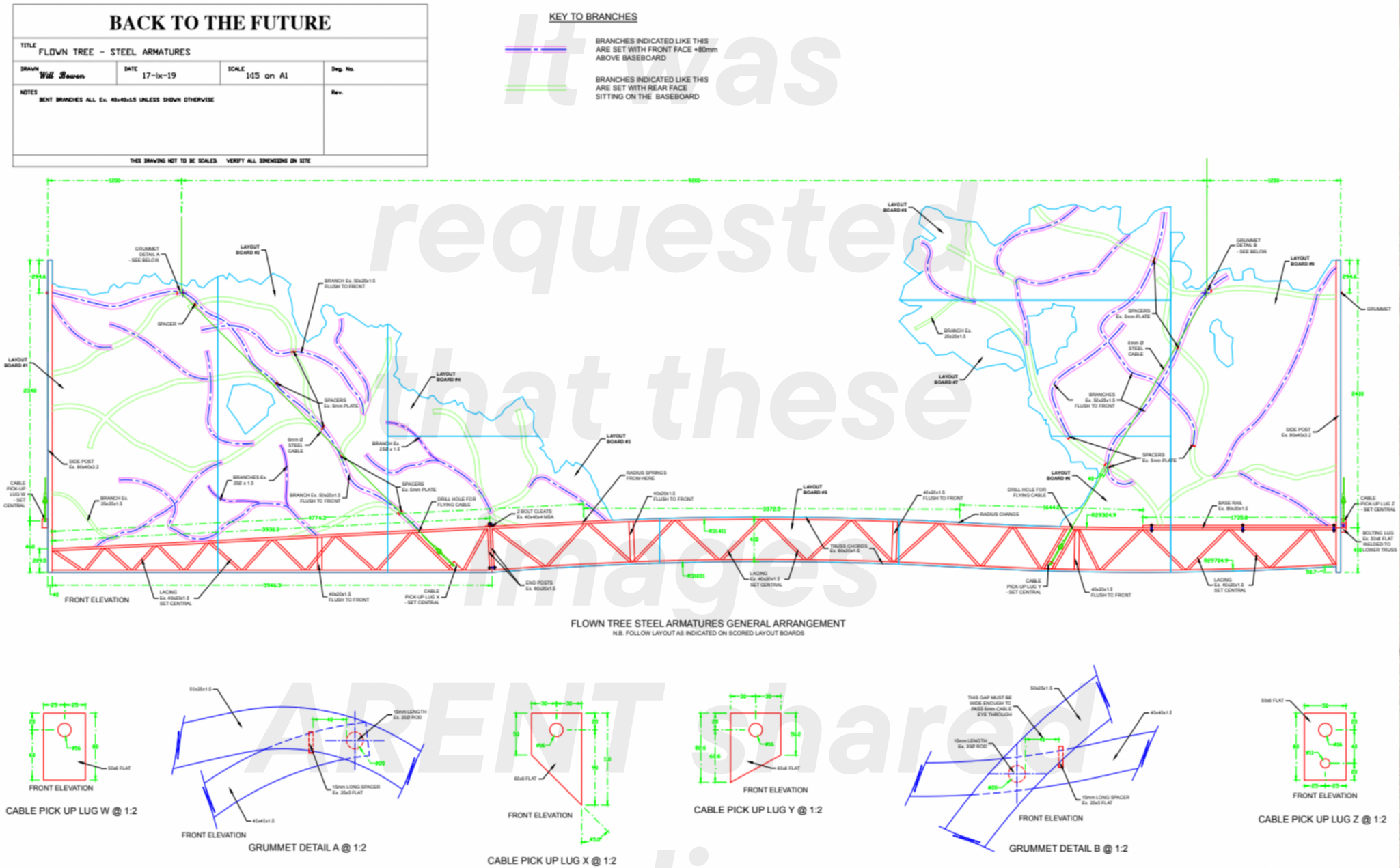
© Tim Hatley ● All rights reserved ● Reproduction in part or whole, without permission, is prohibited.

TREE FRAME WITH APPLIED LEAVES ON TOP - NO FLY LINES IN VIEW



It was requested that these images AREN'T shared online

PRODUCTION: Back To The Future	DIRECTOR: John Rando
DESIGNER: Tim Hatley	LIGHTING DESIGNER: Hugh / Tim
TITLE: Tree Hanger	
SCALE: 1:25 @ A2	DATE: 14/08/2019
DRAWN BY: Ross Edwards rossalexedwards@hotmail.com	DWG NO: 05.



It was requested that these images ARENT shared online

As you can see from the images I wasn't exactly too far from how they did it. As you can see from both the engineer's and Edward's drawings there are a lot more steel supports to deal with the weight of the cast and the pull on the branches. I also didn't notice from watching it that the branch George lays on is a fly and comes down to connect to the trunk of the tree.

STUDY TASK 12

In its most common use, cladding refers to the outer skin applied to a building to improve thermal energy efficiency and/or aesthetics without compromising weather resistance. The cladding is non-load bearing, which means it is not physically attached to the building.

Cladding can be added to an existing traditional masonry structure or used into the design of a new structure.

Wooden Cladding

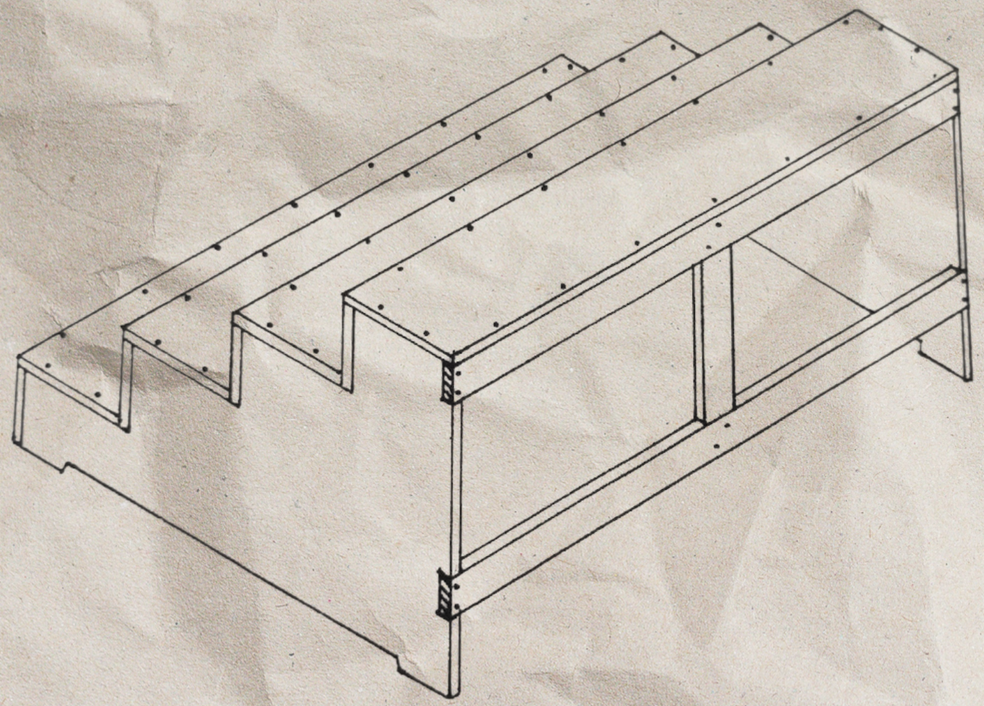
Decorative finish
Environment-friendly
Insulation against heat
Adjustable length, design, and texture

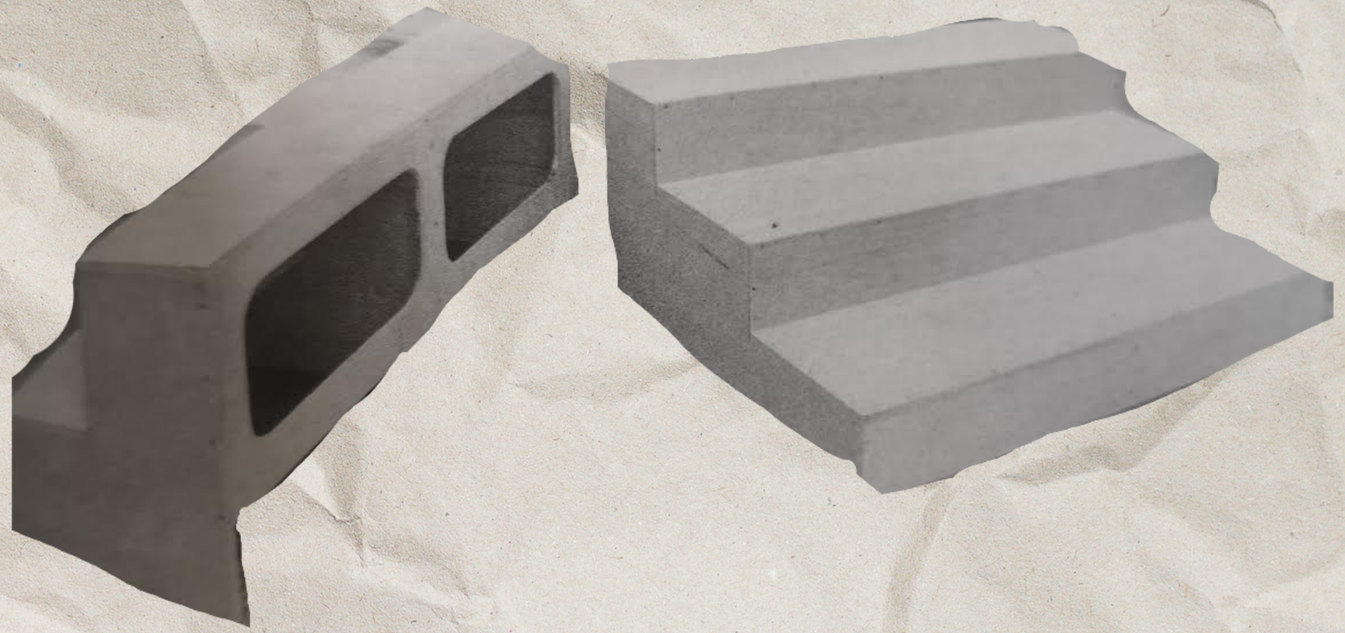
Metal Cladding

Weather-proof
Maintenance is minimised.
Low moisture content and absorption
Avoids humidity
Low-weight
Easy to recycle and environmentally friendly
Arches are simple to create.

STUDY TASK 4 *- Treads*

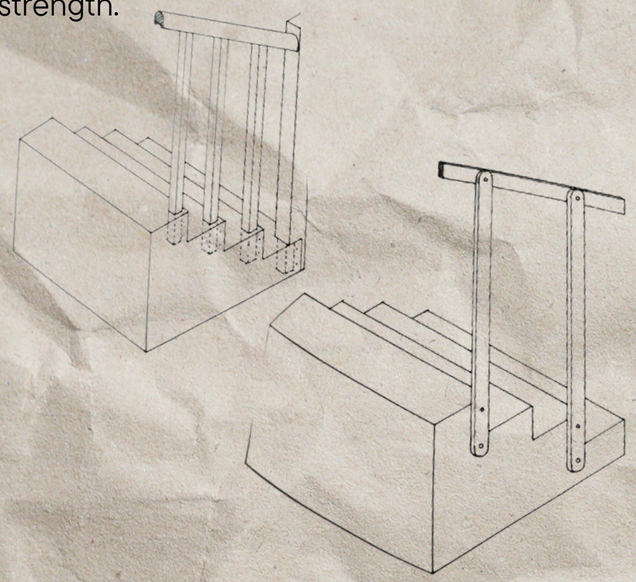
It is required to conduct a simple survey to determine the real dimensions of the treads. To begin, determine the total height of the rostrum or staging from which the treads must ascend. Ensure there is plenty of room offstage for the treads to run, so all that's needed is to divide the height into reasonable tread intervals. Keep in mind that the standard tread height is 175mm. Continue to mark out the treads and risers in order until you reach the final tread, when you will need to subtract. Continue to mark out the treads and risers in order until you reach the final tread, when you will need to subtract.





Handrails

Two techniques of attaching a handrail to a set of treads are shown in the diagram below. With a massive newel post and spindles, the railing at the lower left is more architectural. To generate rigidity and a sense of substantial construction, the handrail is rebated underneath to take the spindles, and the uprights are all enclosed in the treads. It's a good idea to incorporate the handrail into the newel post for added strength.



A variety of mouldings can be attached to a set of treads to give them a more finished look that's structurally correct Few stairs are built in the way described above in real life, but by adding a bull-nose moulding to the front edge or a decorative moulding like torus or astragal (two easily available mouldings), the treads become instantly more interesting. A variety of mouldings are fitted in such a way as to provide a more substantial finish in the diagram (left). To prevent them from being kicked off when in use, glue all mouldings in place and, if possible, set the bull-nose slightly below the level of the tread. Take note of the simple addition of panel moulding to the sides of the treads to produce a more ornate appearance by merely breaking up the tread lines.

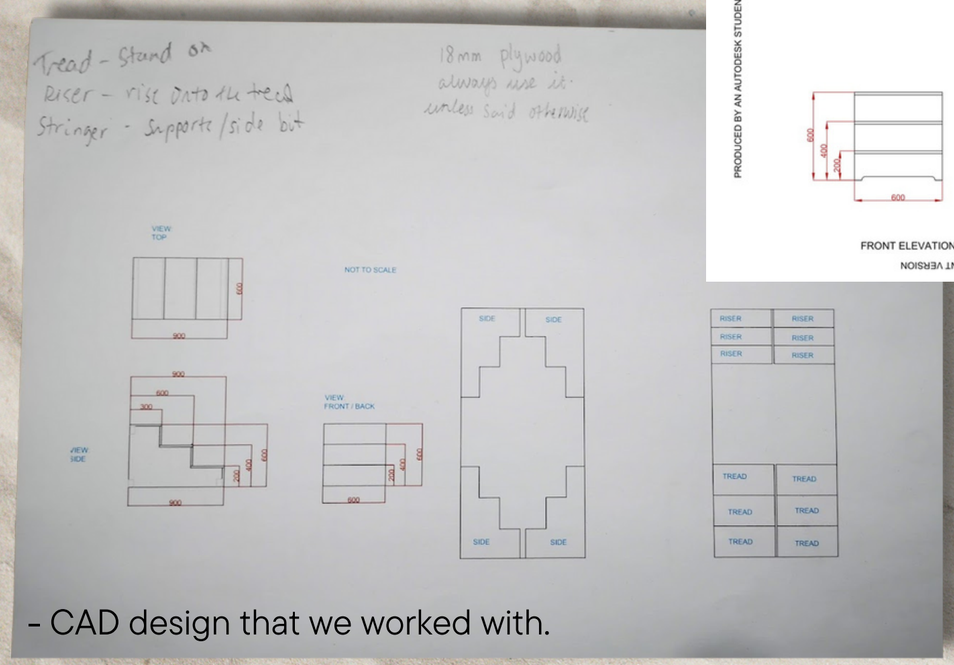
A STREETCAR NAMED DESIRE

I found these stairs pretty interesting as they are very open and don't have any risers. this was done for the sole purpose of aesthetics and historical accuracy but, also there seems to be a lot more support for the middle of the tread. Unlike the ones we built.

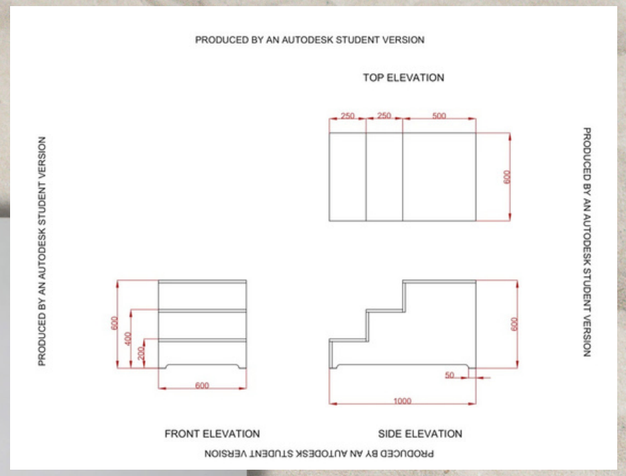
There are also two different types of handrails. the right side has been moulded into the stairs and on the left side, a metal pole is attached to another pillar.



TREADS



- CAD design that we worked with.







THINGS TO KNOW BEFORE YOU START

- Tread = Stand on
- Riser = Rise onto the the tread
- Stringer = Support/side bits
- Use 18mm thickness plywood = unless said anything as you may need to use thinner thickness of wood as it could be used as a prop that needs to be smashed; but if it is only to be stood on than 18mm or thicker is able to support the weight of someone.

To start the tread project we were given a CAD drawing of the measurement of the treads we are going to make. We were also given some plywood. We created a grid on the wood so that we could easily mark the measurement of the sides easier on the wood.

As you can see from the far image on the right we used a rail saw to cut out the bigger sides of the sides, and where it was trickier to cut with the rail saw- we used a jigsaw instead as we could be more accurate with the cutting.





Once we had the sides cut out and we had ensured that the cutting of the side was the same and there weren't any size discrepancies we went on to add these support bars to the right angle and the front of the tread.

We did this by cutting a 2x1 piece of wood at 600mm and then placing the three pieces between them.

We used wood glue and then screwed some screws in to make it more structurally sound, we ensure that everything was straight and at a right angle, by using a set square.

After all the supports were in we cut out the risers and the treads with spare offcuts and placed them onto the sides. We, as always, used wood glue on all the edges and stapled gun all the risers and treads in.



TREAD OUTCOME

I like how the treads turned out, I think we all worked as a team well and communicated everything well. Which then allowed us to create the tread well and make sure everything was perfect!

I think that in previous projects we didn't have the greatest of wood and a lot of it was bowing or we didn't have the best knowledge and practice in the tools, but in this, I think our skills were optimised because we had the better wood and knew how the tools worked better.



POLYCUTTER

We got introduced to the polycutter, which is a tool that heats a wire either 8mm thick or 3mm (you could have other sizes I reckon) but these were the ones we used. So because it heats this wire a lot- if you touch polystyrene, or anything with a low melting point. What this allows is for you to do is add texture and depth to your set if you have used a material you can do this on.







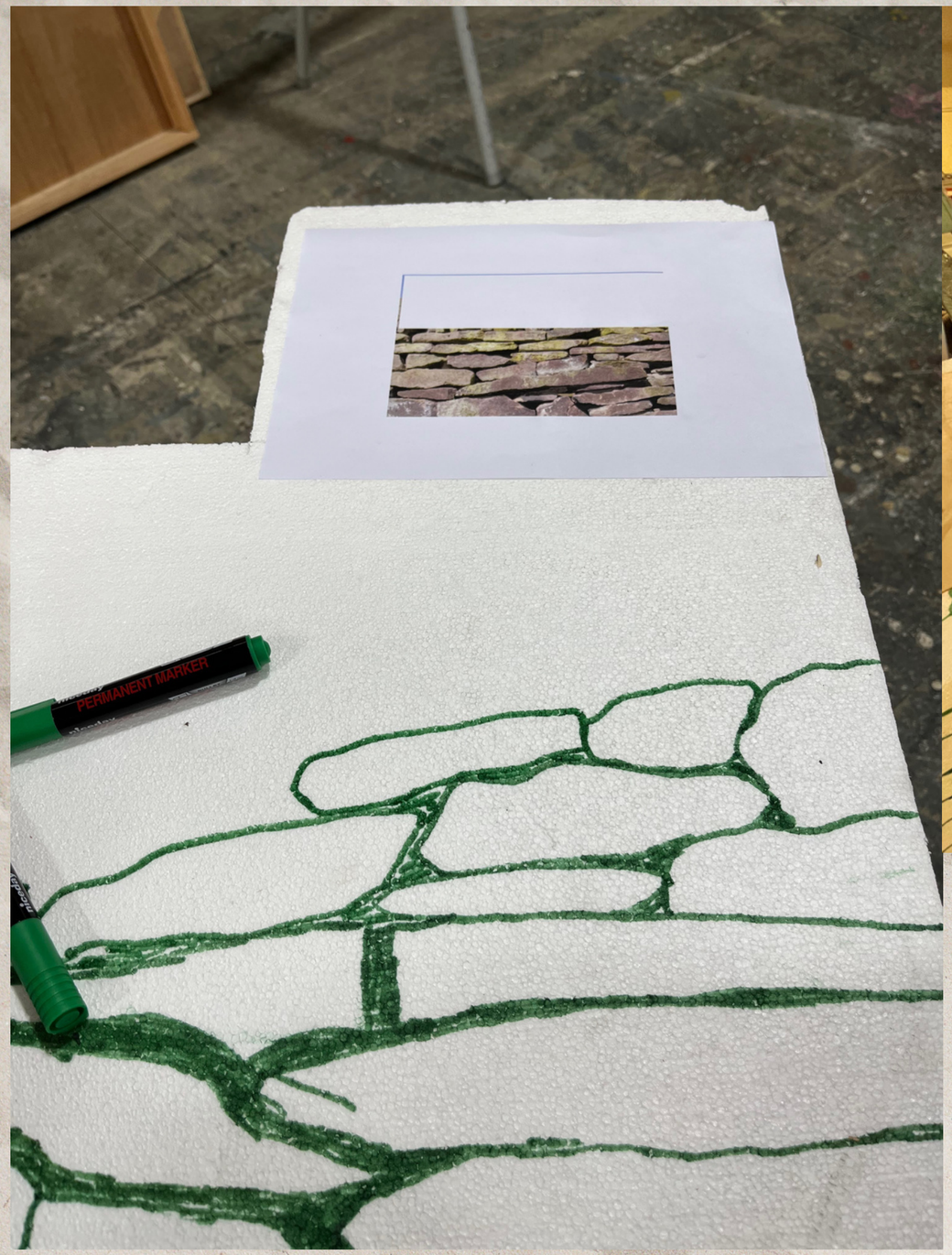
THEATRE PRODUCTION

The Barter Theatre in Abingdon, Virginia developed this piece for a production of The Hound of the Baskervilles. I like this set as they mixed the use of polycutter and other tools but it's such a great scale that- I find it amazing and it looks like real stone and caves.











We used it on our treads to create a cobblestone effect on the treads.

We started with a few reference photos of different cobblestone walls, used a permanent marker and started withdrawing random but thought through shapes to the styrofoam.

Once we were happy with the sketch we took the thickest wire and started adding the depth and never got to finish the treads. But it was very fun to do and I had much satisfaction doing it.

BACK TO THE FUTURE THE MUSICAL

I wanted to talk about Back to the future and their set design because I have seen a few musicals in the last year and these sets were the best sets I've ever seen! A lot of the sets were on trucks and they were constantly changing, the longest there was a set on stage was about 4-5 minutes and only when there was a song. So you can imagine the number of different sets there were. Considering that BTTF is a film originally and has a lot of filming locations- the set designers did a good job to include as many of them as they could.

There were things in the musical that were missing and I feel as though they managed to adapt to that- such as the scene where Biff crashes into the manure- was changed to them at school and Biff falls into a washing trolley thing. So the sets did have a massive play into the script and the storytelling.

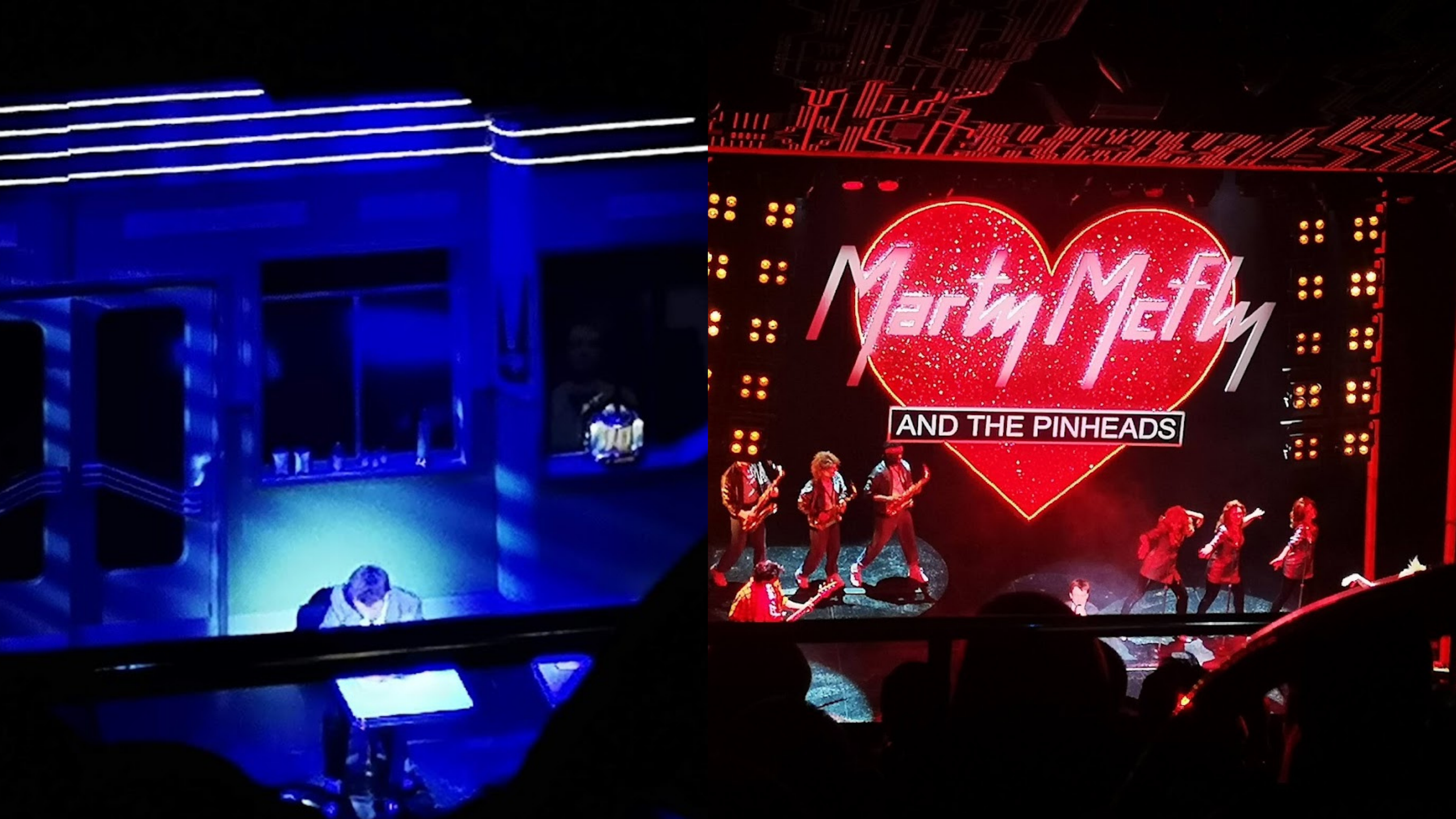
As there were so many sets, I imagine they were kept in the wings. As you could see on the stage loads of different tracks came from downstage to upstage and vice versa and from wing to wing. So the change of sets was seamless.

The level of detail in the sets was incredible- and it made you, as all sets should, feel like you were in the areas/rooms with them... no matter how far away from the stage you were, it felt like they included you.

I was a little cheeky and did take some pictures of the sets, not only for memories, but they were just so incredible I had to include them in my process workbook, so here are some pictures of the sets they had.






Martin Mcfly
AND THE PINHEADS

BAR SET COLUMNS

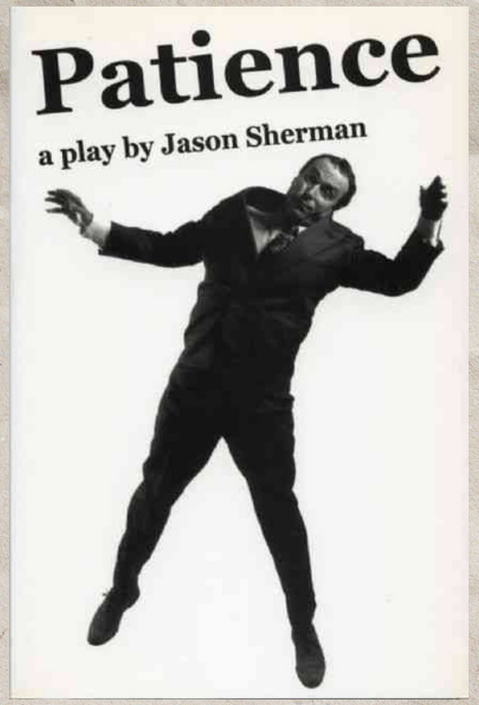


Our most recent project was making the back wall of this bar set for *"Patience"*.

Jason Sherman's play Patience was written and published in 1998. It's about Reuben, who loses everything one day.

Cathrine and I were put into a team and were asked to make some of these columns.



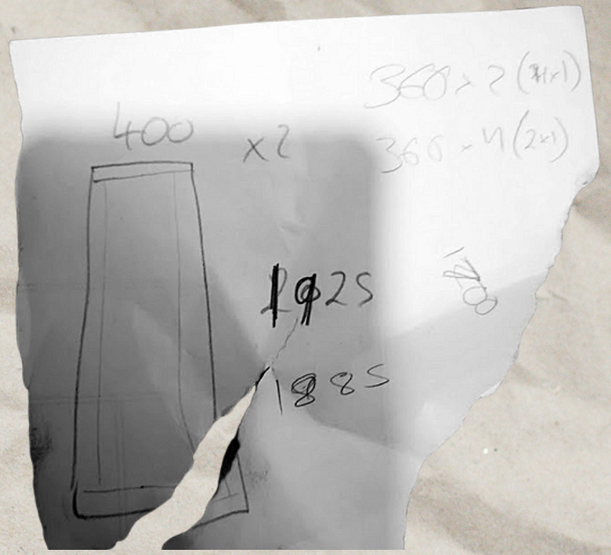








We didn't have the best selection of 2x1 wood to work with as nearly every piece we had was bowing.



And we probably picked the worst bit of wood- and we didn't think it would affect the construction of the frame, but it did and made the whole process a lot harder as it made it difficult for us to attach the rest of the wood. But we started with our sketch of Dave told us we had to create.

Looking at my notes on that paper now- I have no idea what I wrote or what it means now but it made sense at the time. But we had to create a 400x1885mm frame, we got the wood-trimmed off a finger width of wood on the chop saw- to make sure that everything was square. We then made sure everything was square and started glueing and screwing with the drill. When it came to the bit of wood that was severely bowing we had to use a clamp to keep it relatively square. So we did the usual and glued and screwed but when we took the clamp off you could see that the wood was still bowing and it made everything else go a tad weird but was told that it was okay. After we had built two of the frames- the second one being better than the first as
we didn't have bowing wood.





In the next session, we had to finish sorting out the panels for the bar and this just was making sure the back panels had extra support as they're going to have to take the weight of different bottles. We proceeded onto cutting the wooden cladding. We had a pre-painted sheet of thin plywood and traced the frame around the sheet and added 50mm to each side of the wood so that when we had stapled the sheet onto the frame to allow whoever cuts the sheet- to be able to cut it to size.



AUTO CAD

WHAT IS AUTOCAD?

AutoCAD is the original CAD software that millions of people use all over the world. It is used to make accurate 2D and 3D drawings and models, as well as electrical diagrams and building drawings.

WHY USE AUTOCAD?

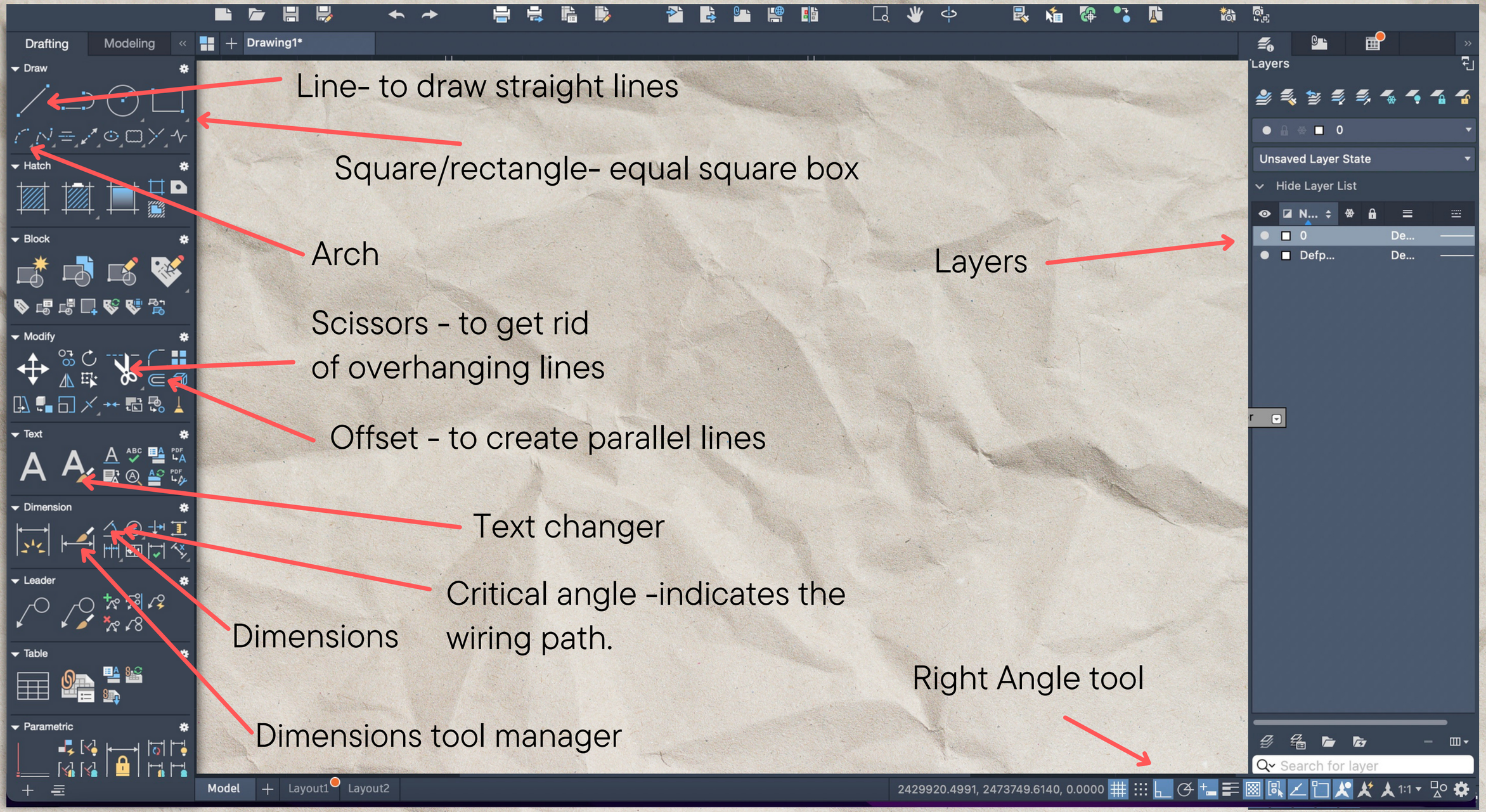
-Using AutoCAD will save you valuable design time
-Accurate and Reduces Errors
-Easier Data Transfer
- Calculate Mass, Area, volume, Center of Gravity
- Industry standard program

HOW IS IT USED IN SET DESIGN?

Autodesk delivers cutting-edge tools to assist with the entire thing, from design to modelling to prototyping using 3D printing to manufacturing. It also can provide as a blueprint on how you would want the set to be built.

AUTO CAD

From our lesson these are the tools I feel like I used the most for the different things I designed on CAD

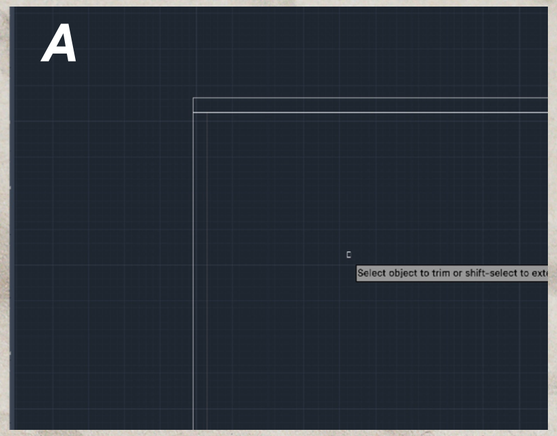


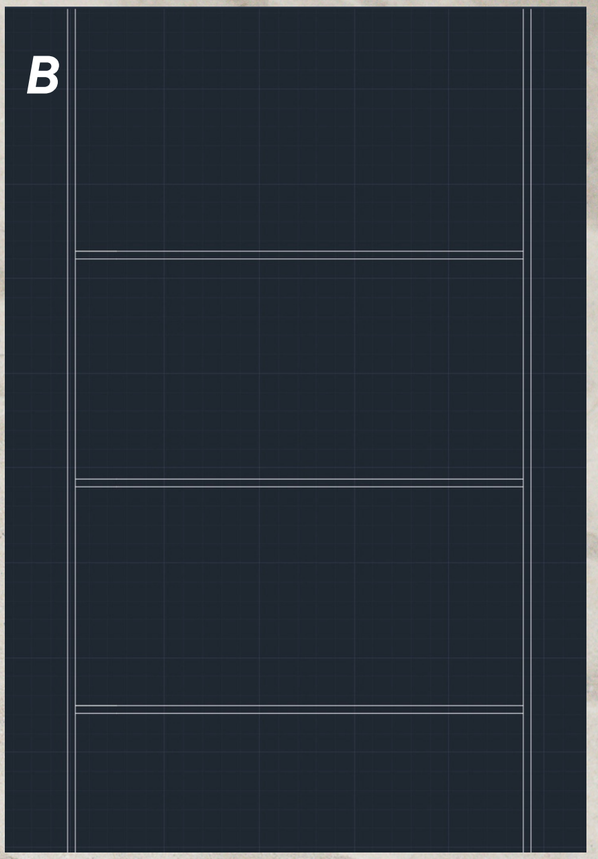
HOLLYWOOD FLATS ON CAD

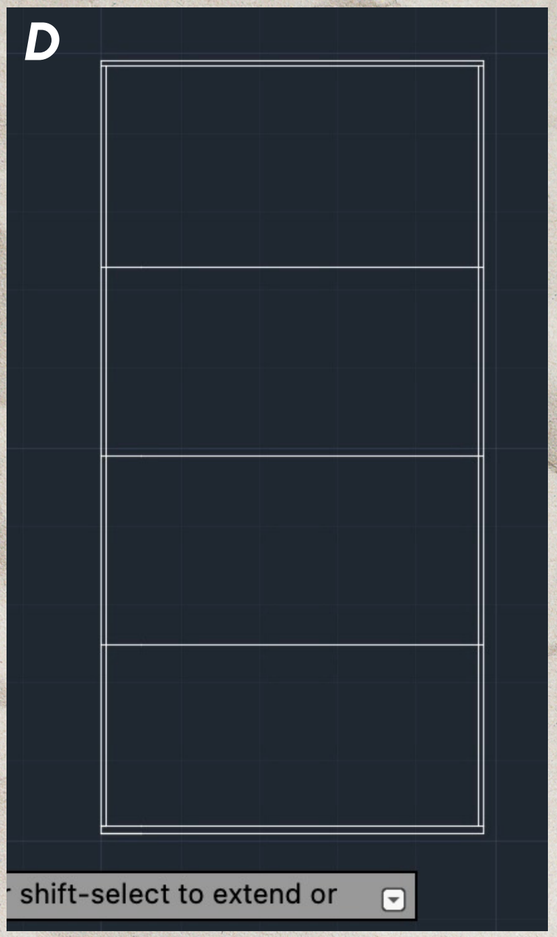
With this task, we initially started with drawing the lines in mm. The measurements we used were 2440x 1220 mm, on AutoCAD, it is quite easy to add the measurements as there is a little box where you can add your desired measurement (photo A).

After I had created the shell of the frame- we had to think about the width of the wood as well. So with the offset tool, it asks you to input what you'd like the measurement to be and I entered in 20. This then gave me accurate parallel lines. We then created the middle bars 600mm apart and then again used the offset tool to create the width. I then followed this up by using the scissor tool to clean up any overhanging/unessacary lines (B)

I then added another layer (C) to be able to show off what the dimensions are to ensure that the designer knows what size it needs to be built at. So I chose the colour Green as that is bright on the black swell as on white if printed out. I added the dimensions on and they were nearly accurate, but regardless they are still useable measurements (D)









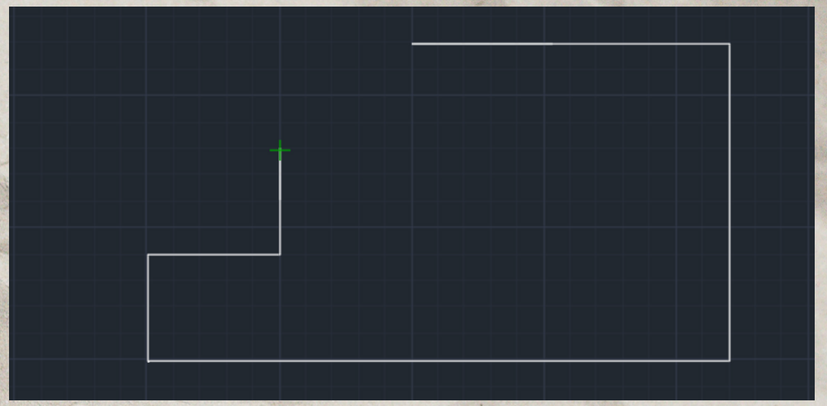
TREADS ON CAD

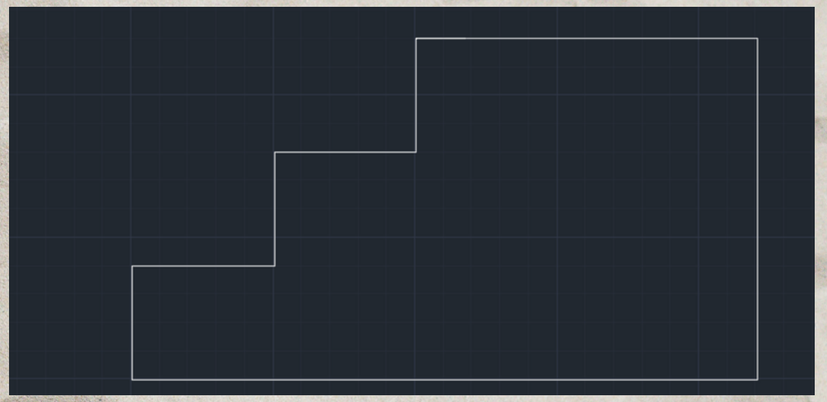
With this task, we create a CAD design of the treads we built.

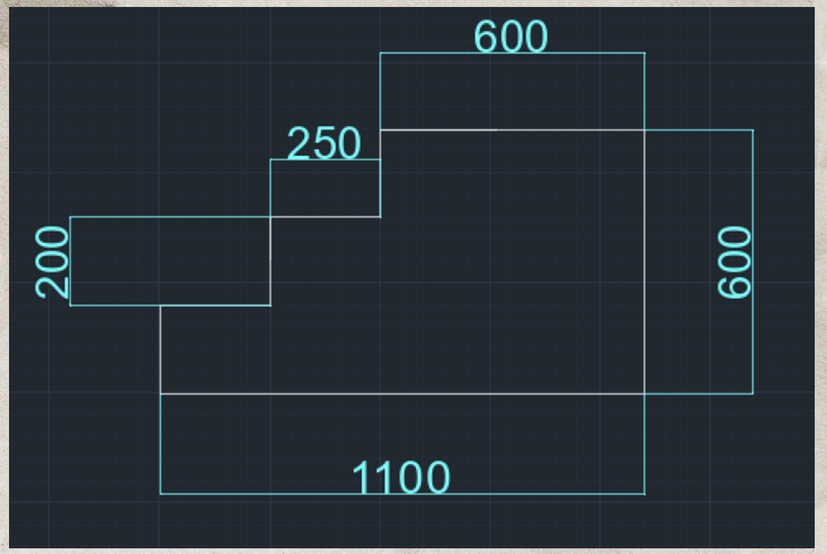
I started by using the line tool and entering the measurement of the base (1100mm) - doing this makes the line the right length for you. I did this for the risers (200mm) and the treads (250mm) and the height (600mm).

After I designed the side view of the tread, I created a new layer and labelled it as "*dimensions*" and changed the colour so that its easy to see- although if you were to print this out on white paper, cyan isn't that obvious on it, so make sure you do a darker colour such as magenta, or dark blue etc- but solely for this presentation, I did a bright colour, as you can see the dimensions on the black background. I then used the dimension tool to provide the measurements of the treads on the CAD design.

I somehow lost the screenshots of my original tread CAD design which had the critical angle on it- but I tried doing it again with the same tool- and it just wasn't working, so I ended up googling it and followed the said steps, but again it wasn't working but, I remember the angle had to be 39° and on my first run of it ended up only being 37 but I believe that was okay as well.

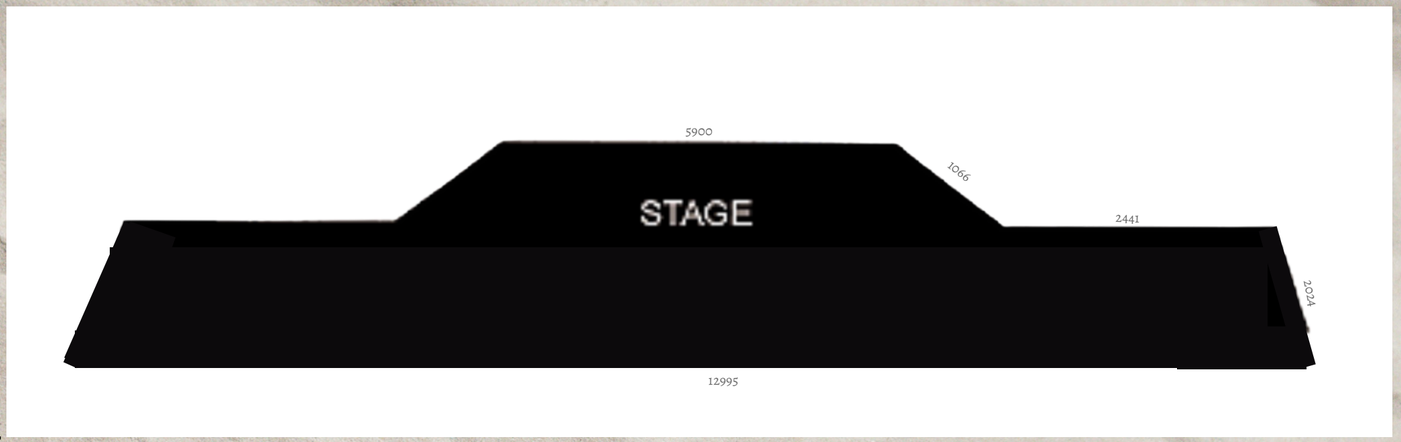






THE BARBICAN STAGE

- Task 11

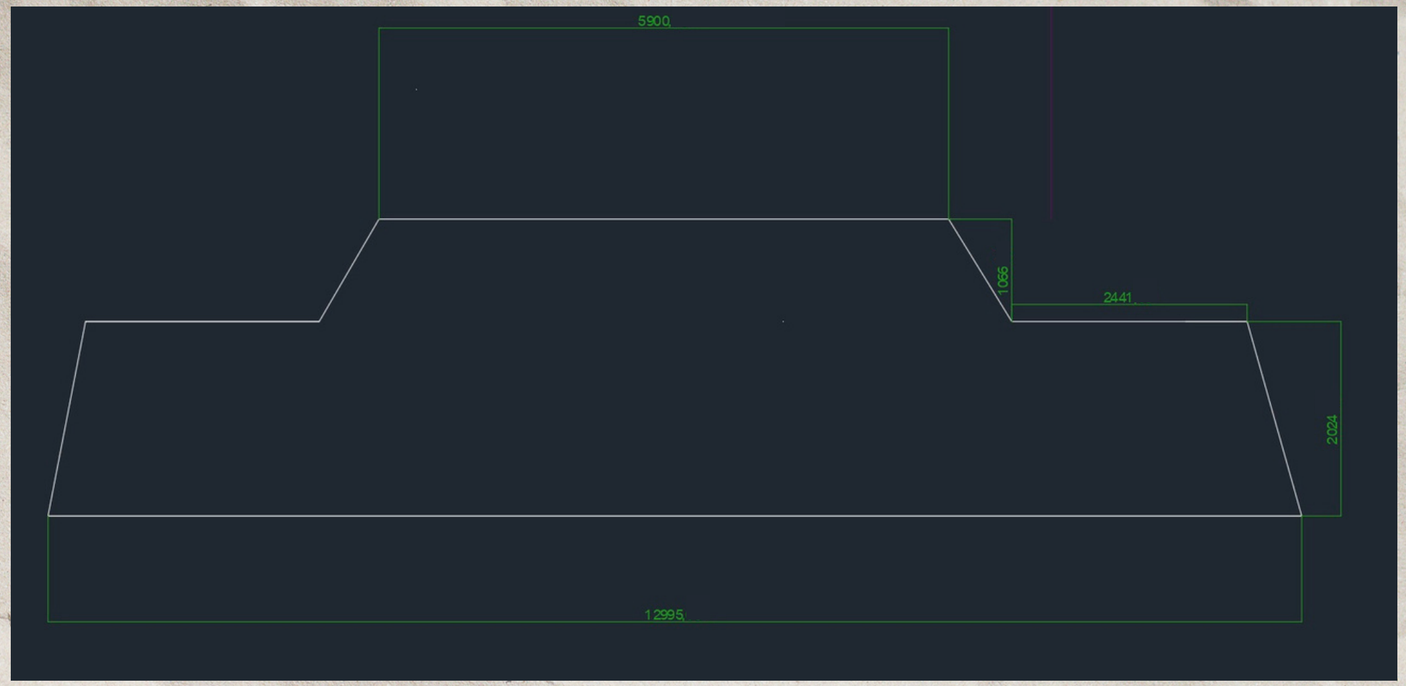


As a little more practice I wanted to create one of my favourite stages in London- The Barbican.

I have seen a few concerts in this venue, so I thought that I could do a practice CAD drawing.

The top image is one that I found online- of the concert hall in the barbican and it had measurements- but after I recreated the stage on CAD, and compared it with the example- they didn't come out the same- so I don't know if I went wrong somewhere or not but my CAD example came out a lot wider on some parts.

However, it was still nice to have some extra practice on just getting used to how the tools worked etc.



THE BARBICAN

The Barbican Centre was built over ten years and initially opened to the public in 1982, marking the beginning of a 35-year journey into London's cultural hub. Chamberlin, Powell, and Bon, architects, designed the building as a utopian vision. The three visionary designers had high aspirations for the city's future and created the one-of-a-kind and revolutionary design as part of what they regarded as a turning point in the city's architectural future following World War 2.



(Bloomfield, n.d.)

barbican

Barbican Hall
Stalls Floor, Level minus 1

Capacity
total 1943 (36 wheelchair spaces)

Facilities
- free delegate WiFi
- raked seating across 3 levels
- integrated sound system
- lighting options from fixed and moving light rigs
- up to 21 dressing rooms
- shower rooms
- adjacent to Level G and Level Minus 1 Foyers
- accessible via passenger lifts, stairs and goods lift

Stage dimensions

area	199.4m² (2147 sq.ft)
width front	20.1m (66')
width rear	9.8m (32'5")
depth	12.4m (40'9")
stage height	0.91m (3')
clearance front	10.3m (33'10")
clearance rear	6.7m (22')

Tabs & flooring
Stage and walls are wood with mechanical risers on the rear half of the stage.
Black drapes and Black Marley flooring is available with price available upon request.

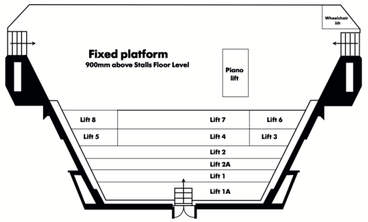
Weight loading
Weight loading of 488kg per meter squared (100lbs/sq. Ft).

Access
- side steps from auditorium
- doors centre backstage - high and low level, each approx. 1.06m wide x 1.98m high (3'6" x 6'6")
- stage lift: 1.83m x 3.05m (6' x 10')
- piano lift - goods only
- sets, through front of house doors 1.45m wide x 2.06m high - 2.53m diagonal (4'9" x 6'9" - 8'4").
- length - almost unlimited

Plan to be used as guide only.
Each grid square represents 1m² approx.

Barbican Hall
Technical spec

Barbican Centre
Silk Street
London EC2Y 8DS
Tel +44 (0) 7382 7043
business.events@barbican.org.uk
www.barbican.org.uk



Sound System Main PA
The main PA system consists of three clusters, Left, Centre and Right, together with fills, and flown Sub bass cabinets provide full and even coverage throughout the whole auditorium. All elements of the system are EQ'd and time aligned. The system has been set up with particular emphasis on good articulation of speech to every seat.

Control Equipment:
Sound can be controlled from either the Hall control rooms or with a desk situated at the rear of the Stalls. The Hall control room houses a DiGiCo SD9 digital mixing desk, to be operated only by Barbican technicians in the sound booth.
The standard front of house desk is a DiGiCo SD7 digital mixing desk c/w a standard 56 input 24 output digital Optocore rack is available only by prior arrangement and at additional package cost.

Recording
Most standard formats for record and playback; price available upon request.

Microphones
Table, lectern, handheld, clip lapel and cabled microphones are available from our extensive selection of mics including Audio Technica, Sennheiser, Beyer, Shure, DPA, Neumann, Shure handheld and lapel UHF radio systems. Please speak to your Event Manager for costs.

Show Comms headsets
Up to 4 radio headsets and/or multiple wired headsets; price available on request. (NB will work within Hall auditorium only)

Standard Production Lighting
The standard FOH rig comprises a selection of Robert Juliat 611SX Profile's and ADB Warp/M. These Robert Juliat profiles can be coloured and focussed as required but cannot be re-rigged or moved to different positions in the Hall. ADB Warp/Ms are automated profiles, with remote control of pan, tilt, zoom, shutter control and iris. These lanterns are to be used in open-white only and cannot be coloured-up.

Moving Light Rig
The moving light rig comprises Clay Paky K10 B-eye and K20 B-eye, Martin VIPER profiles, Robe POINTEs and Robe DLSs profiles. These units are only available by prior arrangement and at additional cost.

The main lighting desk in the Concert Hall is a grandMA2 and is controlled only by Barbican staff from the Hall control room, however the control desk can be re-positioned at the rear of the Stalls for client use, after prior arrangement.

Screen
Available screens 8m or 6m wide fast fold in 16:9 or 4x3 format; cost available upon request.

Stage furniture
Lecterns, top tables, armchairs available for use on Hall stage available at no additional cost subject to availability

Interpretation/closed booths
3 Booths for simultaneous interpretation are located at the back of the stalls area. Suitable for client technical/production teams with tie lines and audio show relay available

Projection
Range of projectors available, including - 20K Panasonic HD (PT-DZ21K, WUXGA, 16:9 native and/or 10K Panasonic HD (PT- DZ110X, WUXGA, 16:9 native. Please speak to your Event Manager for costs.

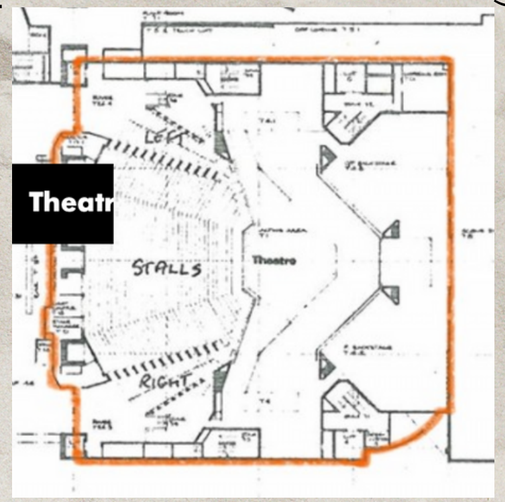
Power
Variety of options available including 13-amp power on stage and 3 phase power; price available upon request.

Staffing
2 dedicated stage and 2 technical crew are included within your hire. Any additional staffing available at cost. Please discuss requirements with your Event Manager.

Client sourced technical/ production elements
Clients or their technical/production companies may bring their own equipment and/or staff onto site with prior agreement from the Barbican Event Management team, but remain fully responsible for set up, operation and management and break down of said equipment.

Please speak to your Event Manager for additional information on the technical services we can provide

<----- this here is a PDF of what the facilites are in the barbican stage hall. I thought it was interesting as it has pretty much everything a set/stage manager would need to know



Barbican Hall
Stalls Floor, Level minus 1

Capacity
total 1943 (36 wheelchair spaces)

Facilities
- free delegate WiFi
- raked seating across 3 levels
- integrated sound system
- lighting options from fixed and moving light rigs
- up to 21 dressing rooms
- shower rooms
- adjacent to Level G and Level Minus 1 Foyers
- accessible via passenger lifts, stairs and goods lift

Stage dimensions

area	199.4m² (2147 sq.ft)
width front	20.1m (66')
width rear	9.8m (32'5")
depth	12.4m (40'9")
stage height	0.91m (3')
clearance front	10.3m (33'10")
clearance rear	6.7m (22')

Tabs & flooring
Stage and walls are wood with mechanical risers on the rear half of the stage.
Black drapes and Black Marley flooring is available with price available upon request.

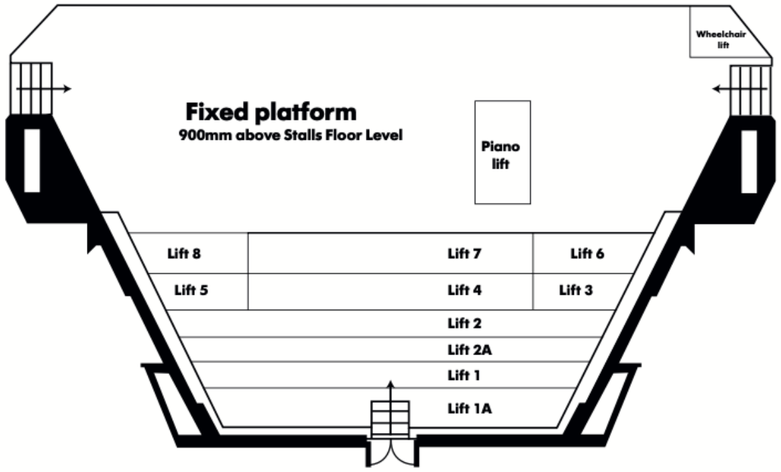
Weight loading
Weight loading of 488kg per meter squared (100lbs/sq. Ft).

Access
- side steps from auditorium
- doors centre backstage - high and low level, each approx. 1.06m wide x 1.98m high (3'6" x 6'6")
- stage lift: 1.83m x 3.05m (6' x 10')
- piano lift - goods only
- sets, through front of house doors 1.45m wide x 2.06m high - 2.53m diagonal (4'9" x 6'9" - 8'4").
- length - almost unlimited

Plan to be used as guide only.
Each grid square represents 1m² approx.

Barbican Hall
Technical spec

Barbican Centre
Silk Street
London EC2Y 8DS
Tel +44 (0) 7382 7043
business.events@barbican.org.uk
www.barbican.org.uk



Sound System Main PA
The main PA system consists of three clusters, Left, Centre and Right, together with fills, and flown Sub bass cabinets provide full and even coverage throughout the whole auditorium. All elements of the system are EQ'd and time aligned. The system has been set up with particular emphasis on good articulation of speech to every seat.

Control Equipment:
Sound can be controlled from either the Hall control rooms or with a desk situated at the rear of the Stalls. The Hall control room houses a DiGiCo SD9 digital mixing desk, to be operated only by Barbican technicians in the sound booth.
The standard front of house desk is a DiGiCo SD7 digital mixing desk c/w a standard 56 input 24 output digital Optocore rack is available only by prior arrangement and at additional package cost.

Recording
Most standard formats for record and playback; price available upon request.

Microphones
Table, lectern, handheld, clip lapel and cabled microphones are available from our extensive selection of mics including Audio Technica, Sennheiser, Beyer, Shure, DPA, Neumann, Shure handheld and lapel UHF radio systems. Please speak to your Event Manager for costs.

Show Comms headsets
Up to 4 radio headsets and/or multiple wired headsets; price available on request. (NB will work within Hall auditorium only)

Standard Production Lighting
The standard FOH rig comprises a selection of Robert Juliat 611SX Profile's and ADB Warp/M. These Robert Juliat profiles can be coloured and focussed as required but cannot be re-rigged or moved to different positions in the Hall. ADB Warp/Ms are automated profiles, with remote control of pan, tilt, zoom, shutter control and iris. These lanterns are to be used in open-white only and cannot be coloured-up.

Moving Light Rig
The moving light rig comprises Clay Paky K10 B-eye and K20 B-eye, Martin VIPER profiles, Robe POINTEs and Robe DLSs profiles. These units are only available by prior arrangement and at additional cost.

The main lighting desk in the Concert Hall is a grandMA2 and is controlled only by Barbican staff from the Hall control room, however the control desk can be re-positioned at the rear of the Stalls for client use, after prior arrangement.

Screen
Available screens 8m or 6m wide fast fold in 16x9 or 4x3 format; cost available upon request.

Stage furniture
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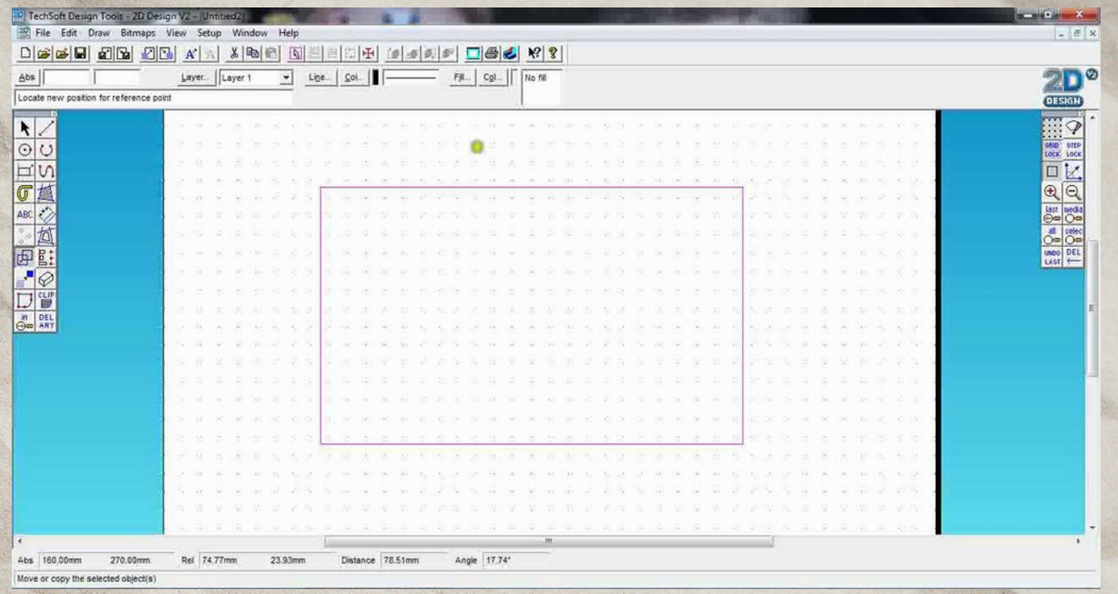
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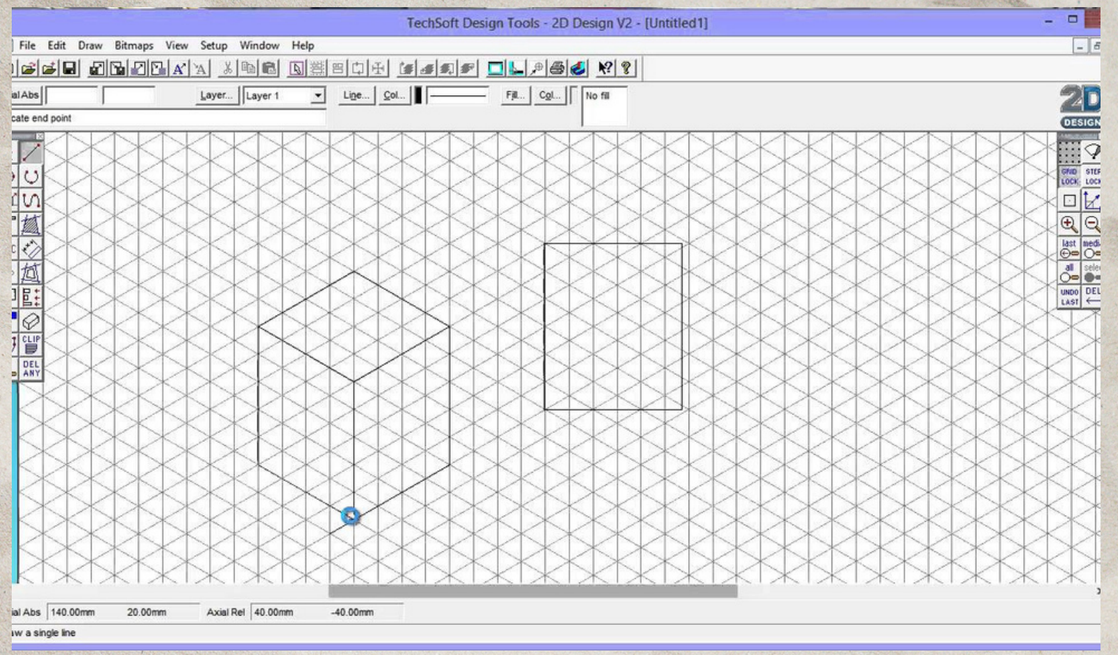
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OVERALL EXPERIENCE WITH AUTOCAD

In my GCSEs, one of my chosen subjects was Design and Technology- I'll be honest and say that I didn't enjoy it and felt unsupported by my teacher as I was the only girl in the class and he supported my male peers more, and ultimately that lead to me giving up and coming out of that with a grade 3 (D). We did however do some very basic CAD design on software called Techsoft Design 2D. So I sort of knew the very very basics but AutoCAD is just so much more advance I felt very overwhelmed at first as it is a lot more professional and there were a lot more tools. So, that's what I believe was why I struggled at first, but after doing the treads and then the Barbican stage, I understood a lot more about how it worked. I also did have an issue where I did make everything giant-sized because I didn't know how to see the dimensions.





WORKING ON YR AMGUEDDFA

Before the Easter holidays, I was very lucky and managed to get an opportunity for some work experience working in the art department for the S4C- on a show called "*Yr Amgueddfa*". It was only for a day and we didn't do anything specific to designing or building. We did only pack a van with some of the props and set decor that they used on the show (as it was the last day of shooting. However, it was interesting learning about how to effectively pack a van and optimise the space so that you can minimise the risk of having to make multiple journeys transporting the decor and props.

I also extremely appreciated that we met some amazing people and managed to get some amazing insight into how Kizy (Set Designer for the show) got into the industry. We also managed to get a lot of contacts which is helpful for us as they're able to contact us if they need any help again.













HEATHERS PRO-SHOOT

HEATHERS THE MUSICAL

I was very lucky and won tickets to see the pro shoot of the Heathers musical. It was a very fun experience. However I was so shocked to see the stage and how small it was, and I have no knowledge of the product before so I had no idea of how the set design staging worked. But in the photo, you see this set of treads that then split apart and turned into two treads and if you spun the truck around or opened the flat up I am assuming some hinges allowed for there to be another clad of would with a different wall. I thought that as it was such a small stage this is such a good idea- they also bought props and other trucks during the interval and they were kept behind the lockers there that were also pulled out and added to the sets.



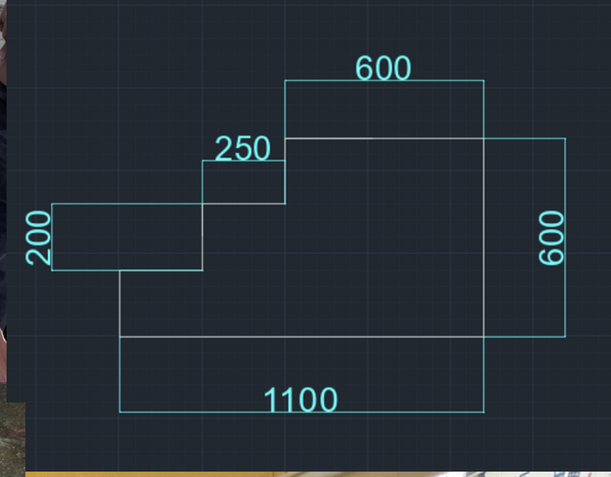
CONCLUSION

I have enjoyed the construction module as I have found it both challenging and fun at the same time.

I think, as always, learning new things is always going to be a challenge, and I did find certain things, like reading the CAD design and working out what measurement needs to be taken off which measurement very difficult. I am not the best with maths and calculations- so whenever there are things that need to be worked out it does take me a minute.
Regardless, having to learn about all the new tools and how to use them, has been very beneficial definitely and I have found it so very fun to learn and something I want to be taken into my practice as a set designer also thinks for just general DIY in the future when I want to renovate my house: I'll have the basic knowledge on how to measure and what tools are best for the job I want to do.
So ultimately this has been a very fun few months.
However, I do wish we had more opportunity to finish the treads and create something on the flat, but time flies and being new it's been hard for me to wrap my head around things.

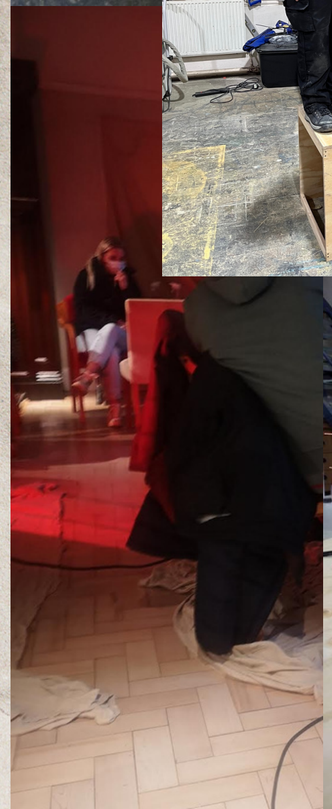
















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