Process workbook

Scenic construction and drawing

Use of AI statement

I confirm that I have not used any AI tools in the research and creation of this assignment. I confirm that I have not presented any AI generated materials as my own work. I confirm I have copies of my drafts, notes, and other resources I used, which I may be asked to provide in evidence.





Using drills

Impact screwdrivers;
There are two operating settings of using the screwdrivers; option 1 is to screw, option 2 is to drill.
There are different detachable drill bits, ranging sizes and purposes - each depicted by their shape and material, drill bits for wood are shaped at a single point, and metal and plastic have a ‘house’ shape.
Using the screwdriver for more than 10 minutes can cause carpal tunnel due to the vibrations.





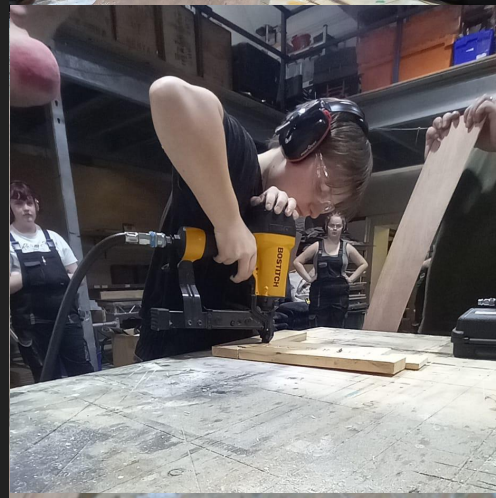




Using staple guns

Nail guns are either reloaded with wiggle pins or Brad nails, they're operated by connecting the air pressure hose to the base and pressing the trigger, this cannot be done without pressure on the nozzle of the tool as a safety feature. Two hands are required; one placed on the trigger and the other as pressure on the base to prevent multiple pins releasing.









Using jigsaws

Before using a jigsaw you need to ensure the correct blade is inserted; the size of the blade changes in accordance to the material cut, some of the materials you can cut are wood, metal and foam.
The base of the jigsaw must be attached to a power source and vacuum.







Using a cut saw

Cut saws have to be used along a rail to make a precise cut the rails have rubber strips on the bottom to prevent the rail from slipping as you cut.
You can adjust the depth of the cut along the front of the tool dependent on the thickness to the material you're cutting.
There are handles at the centre and base if the machine to operate it.









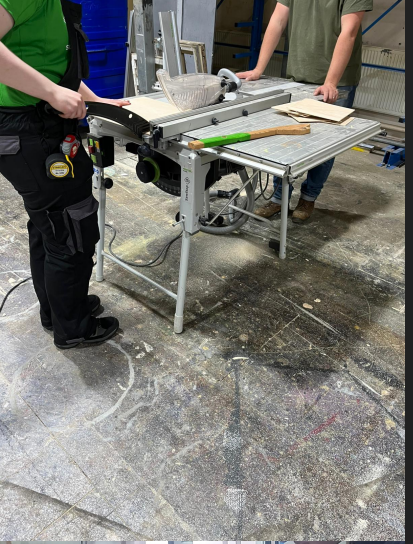


Using a miter saw

Miter saws are useful for making precise cuts through thicker slats of wood, you can make up to 60° cuts and a tilt angle of up to 47° for bevel cuts.
The rotating blade is lifted by the small green lever on the right then can be pulled down by the handle on top. Additionally there is a red laser indicating the width of the blade so you can plan where to cut without cutting into your lengths of wood.









Using a chop saw

Chop saws are essentially a spinning blade emerging from a table- the height of the blade is adjustable to allow for different thicknesses of wood and there is a protective plastic sheath for added safety. The machine needs to be operated by two hands but to prevent fingers getting too close to the blade a stick is used to secure the wood as its cut. This saw also has the capacity to cut angles into the wood. This is convenient when cutting down an angle longwase along a length of wood.












Building gravestones

Split into 3 groups of threes, Aisling Sophie and I were inspired by 19th century gravestones with intricately designed ridges. We started with a 3mm plywood rectangle base which we cut curves into using a jigsaw. We then created a secondary face which we attached together with 70mm thick planks of wood to give it depth.

Expanding foam

To fill the curved top of the gravestone we used expanding foam; usually utilised by builders for insulation, soundproofing, filling holes, ect. However, is a useful technique for filling in difficulty shaped gaps in set design. We waited for the foam to expand overnight then carved away at it until we got the shape we wanted.









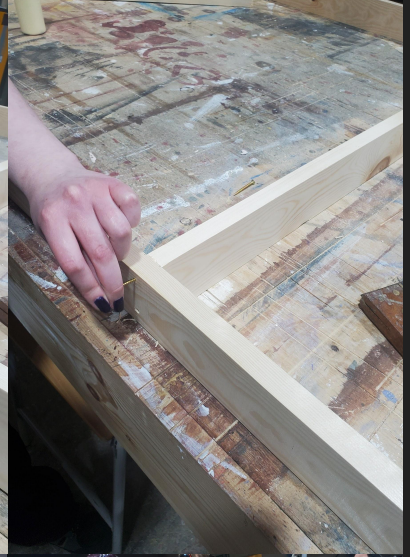


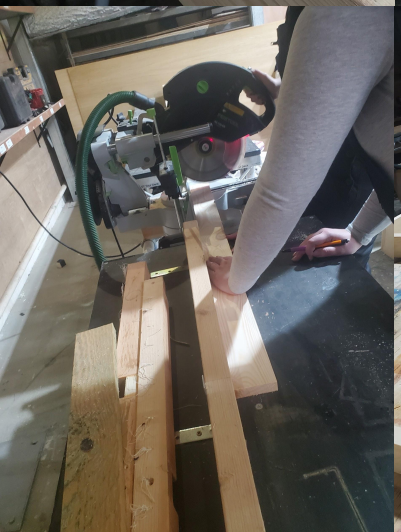


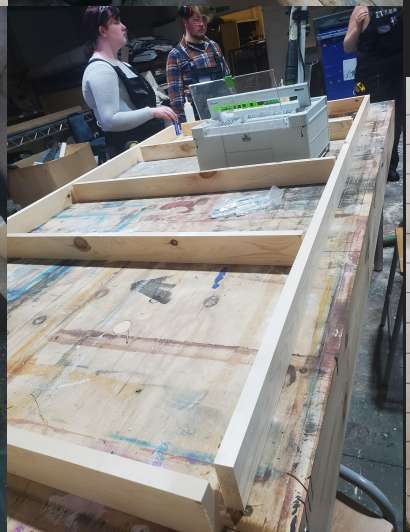
Building Hollywood flats

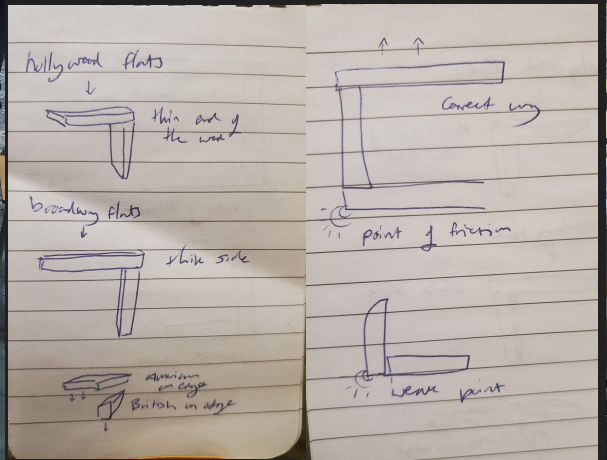
In our groups we were tasked to construct four Hollywood flats. Working 3000mm by 1000mm on 3mm plywood we used screws, glue and staples to attach the lengths of wood to the plywood. We checked for bowing, twisting and bending to ensure they Married nicely.







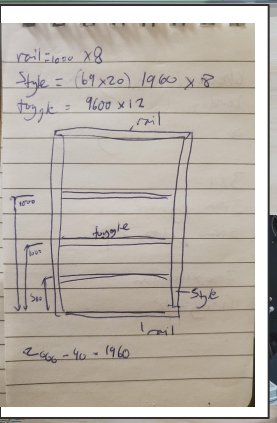














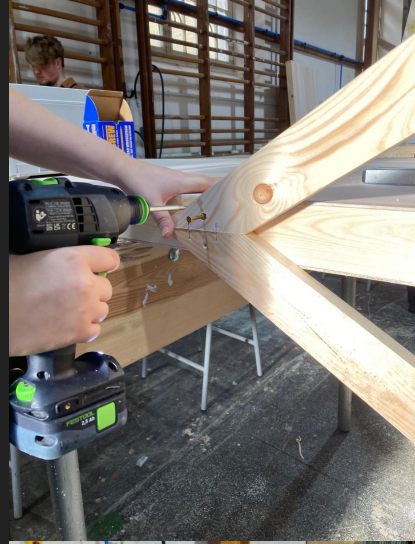
Construction

We began by measuring and cutting the two faces of the flat using a rail saw, ensuring the measurements were precisely 3000mm by 1000mm and each corner was a right angle before we began constructing the frame and three rails to sit within the flat. The first time we attempted to construct the flat we came across a slight difficulty; the side we cut from was not straight; which meant the face we cut would fit the frame. To rectify this we had to cut a new face, however, this plywood didn't go to waste and was reused.





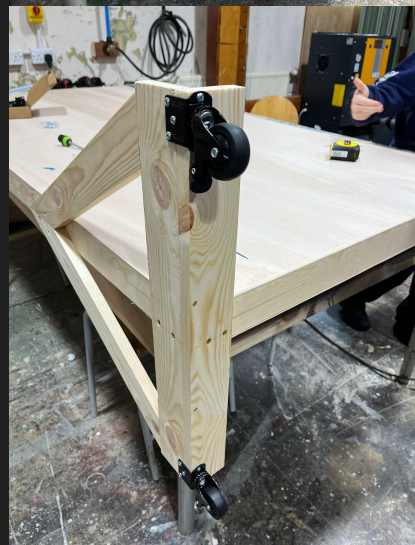




Attaching the legs

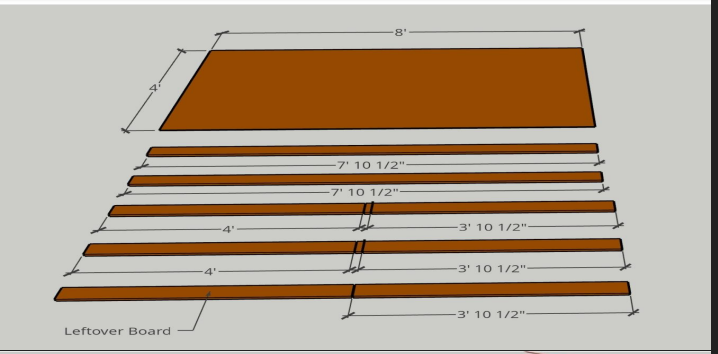
To put the flats on wheels to make them easier to transfer, we had to first create frames by cutting two strips of wood with the angles 31° and 60° so that they sat flush and made an isosceles triangular frame which we then attached dead centre to the flat and attached wheels last thing. We then attached small rubber wheels to the base of the frame to provide easy movement and transfer across different sites. These wheels are fitted with breaks and were screwed in manually with screws and a tiny screwdriver.

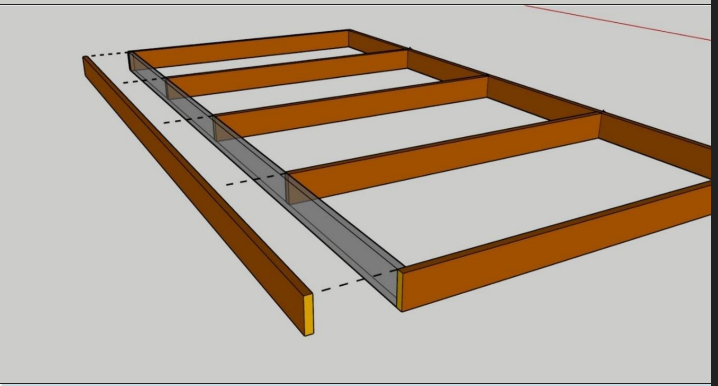


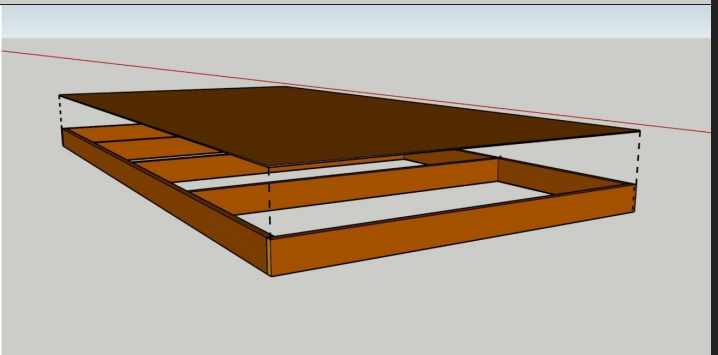


Finished Hollywood flat









Hollywood flats

Construction: Built with a wooden frame and covered with a hard, solid material such as plywood.

Appearance: Creates a more realistic, wall-like appearance, as the frame and the rigid facing are on the same plane.

Characteristics: More durable, strong, and can support more weight, making them suitable for use on camera or in robust stage productions.

Use: Commonly used for walls, doors, and windows that need to be sturdy or for sets that require a more realistic finish.

They're typically called Hollywood flats because they're used more commonly in film productions than theatre.

However, they take up more room and are harder to store due to their extra size.

Broadway flats

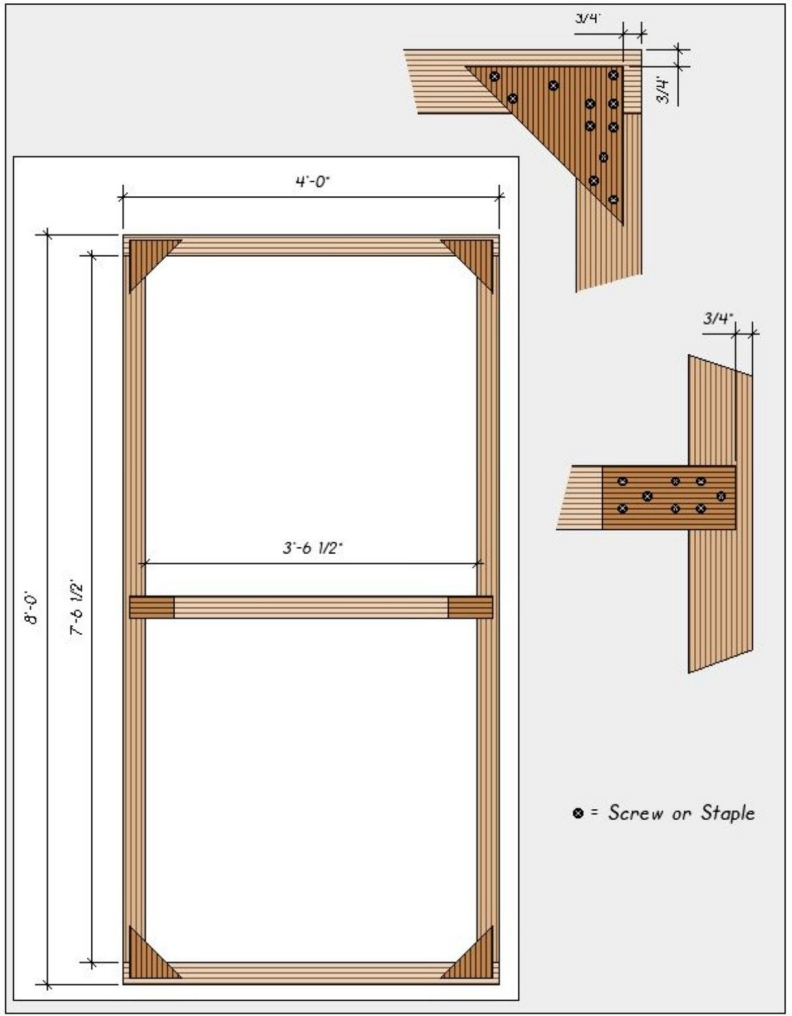
Construction: A lighter frame, typically made of 1x3 or 1x4 lumber, is covered with a stretched piece of fabric, such as canvas.

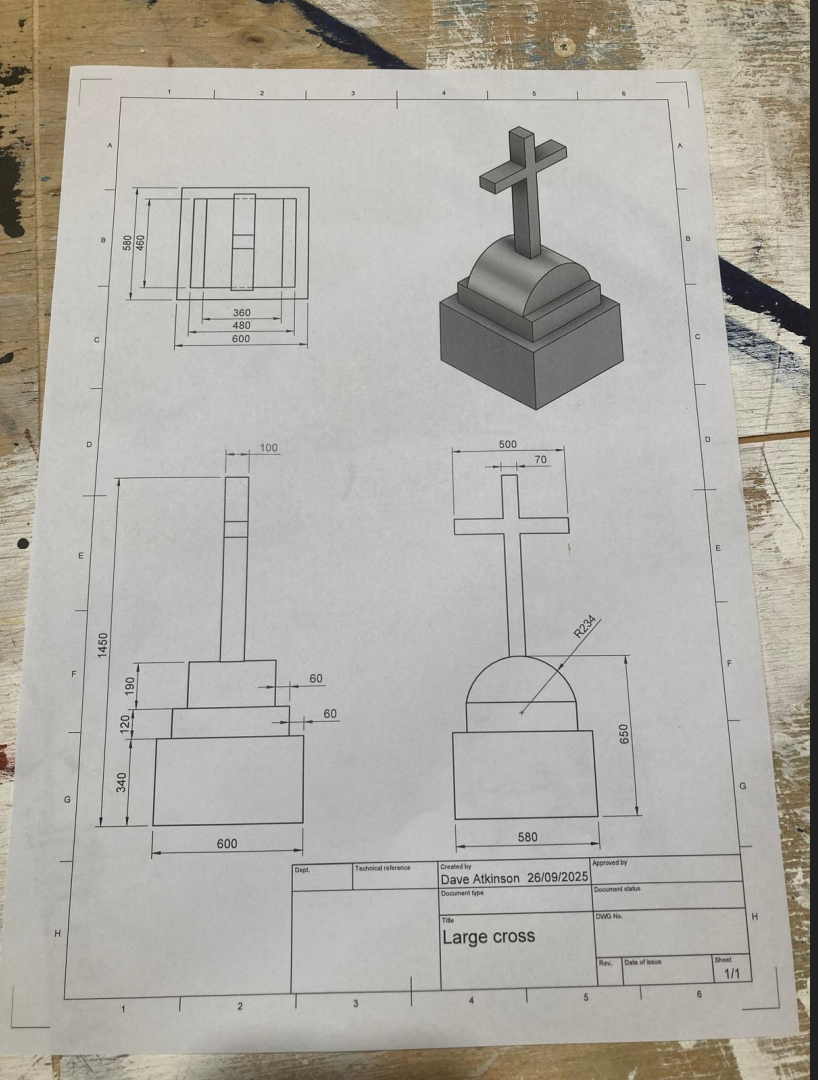
Appearance: The frame is visible from the back, and the front is a smooth, solid surface of fabric.

Characteristics: Lightweight and easy to hang, but less durable and more prone to damage than Hollywood flats.

Use: Traditionally used for stage productions where the flats are flown in and out, or when flexibility and speed are priorities.

Broadway flats are typically less-secure than Hollywood flats due to how the wood is fastened together. However, they are lighter and easier to maneuver, not only this but they are also a lot easier to store due to their slim nature



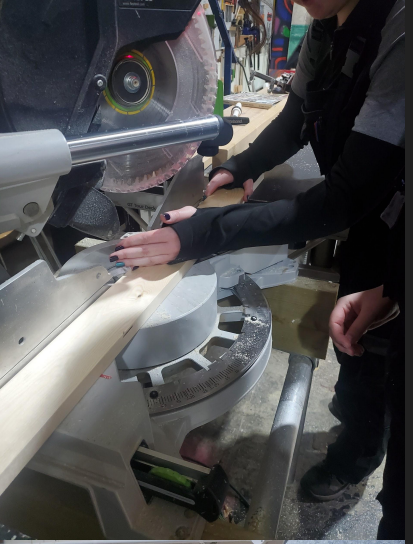


Constructing gravestones from scale models and technical drawings

We were instructed to build life-size tombstones from a technical drawing with the added assist of a scale model for reference. Our main challenge was figuring how to assemble all the different elements and attach them together. The size of the gravestone was 1450mm so size was not so much of an issue.









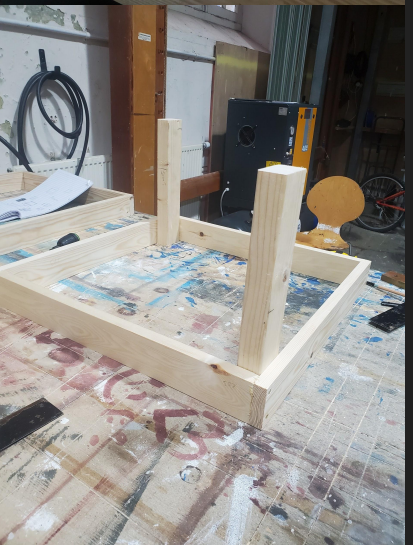
Constructing the cross

We decided to begin by constructing the cross that sits through the centre of the tombstone. We built the cross to be as stable as possible; constructing the long face as one length and the arms across the centre as one length so that they slotted together with a whole through the arm of the cross. We used a staple gun to fix the cross together; this meant that the fixings were hidden to make the construction more streamline. Each group constructed their cross differently, and while they all looked the same in the end, they used different methods depending on the people who made them.









Constructing the base box

After building the cross we decided to construct the rest if the tombstone from the base up, starting with the bottom box. Using 70mm strips of wood we built a frame to fit the dimensions of the scale model, taking into account the four faces of 3mm plywood that we would mount on top.







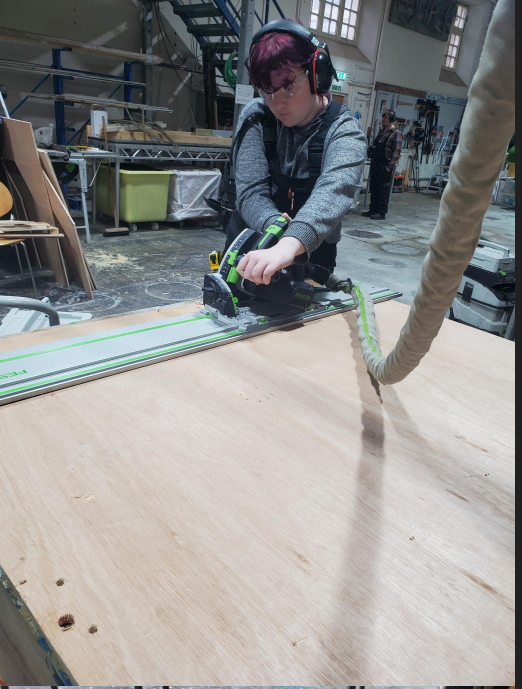


Cross foot toggles

Before securing the frame together we created two wooden strips for the foot of the cross to fit inside so that it would sit securely inside of the box. we measured the exact centre then marked 35mm either side to match the exact dimensions of the crosses width. To ensure we kept these dimensions as we drilled, we inserted small lengths of wood with the same dimensions of the cross held there with clamps.







Fixing the boxes together

Once the frame for the first box was completed with the base toggles attached we moved on to attaching the plywood faces. We attached chunks of shit wood strips to create a base of the second box to sit on top, then covered these with four lengths of plywood to create the final face of the base box.





The second box we constructed using 12mm plywood so that we wouldn't need to construct a second frame then attached this to the first box with screws.









Finishing the boxes

We used another measurement of 12mm plywood to form the roof of the second box and then created a hole in the exact centre with the measurements of the cross so that it would fit snugly within the box. We used a large drillbit to create holes in each corner then a jigsaw to cut out the hole in the face. We didn't fix the roof face to second box until the final piece was complete. Originally the plan was to cut four separate faces that would fit together to make the face of the box, however, we spoke to the other team who did something similar and they showed us how they got their facer to fit the hole on top.





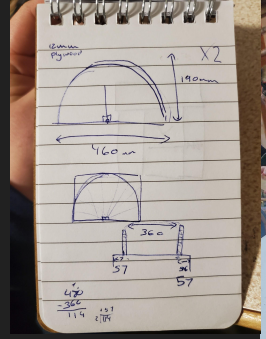
Creating the dome





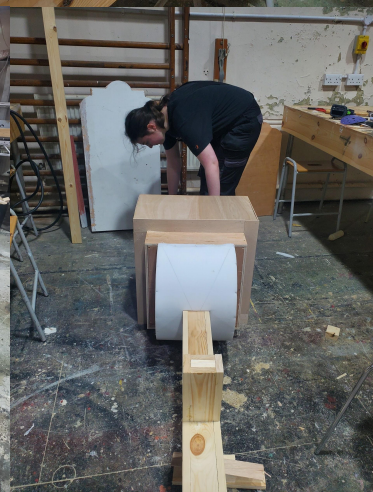
The main challenge we faced on this task was constructing the dome; we found the exact measurements of the arch and used a jigsaw to cut them out then cut six strips of wood to fit within the arch.

Originally we were supposed ro use plywood that we would score and bend around the arch, however, we discovered that this wouldn't work and we instead decided to use foamboard; a naturally bendy and versatile material with the only drawback bring that it is unable to support any weight.

















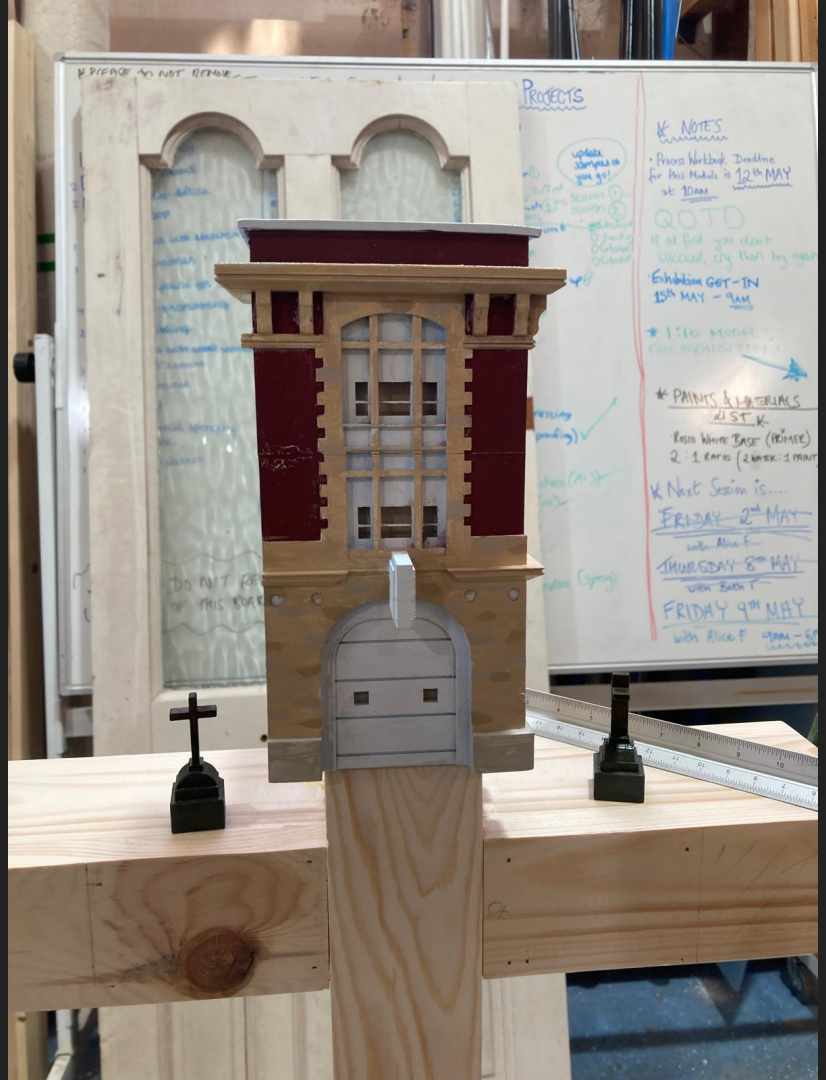
Canvas flats

We were lucky enough to watch the second year's constructing canvas Broadway flats. They are constructed by creating a wooden frame with fixings on each corner to ensure they stay secure before a thin strip of glue is brushed across the wooden frame and a rectangle of canvas is placed on top. As the glue dries it stretches the canvas and makes it taught much like the surface of a drum. From there it can be primed and painted.

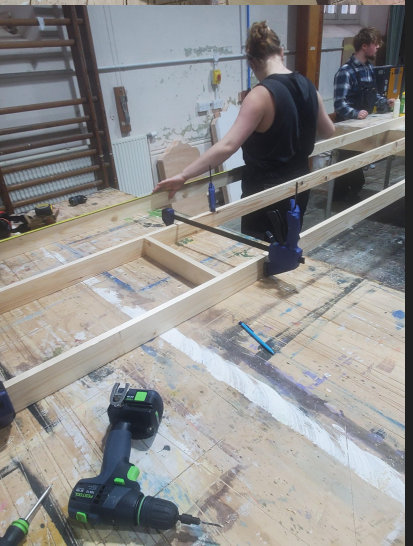




The Ghostbusters firehouse







Constructing the Ghostbusters firehouse

Our next task was to construct the firehouse from the Ghostbusters film out of three Hollywood flats. The first thing we did was figure where we would need all of the toggles to fit using the 3D printed scale model and Dave's scale ruler; while figuring out these measurements I realised that the scale on our issued scale ruler didn't match Dave's so we decided to stick with the same one each time to not confuse the measurements. We successfully attached all rails and toggles on both flats working in two separate teams.





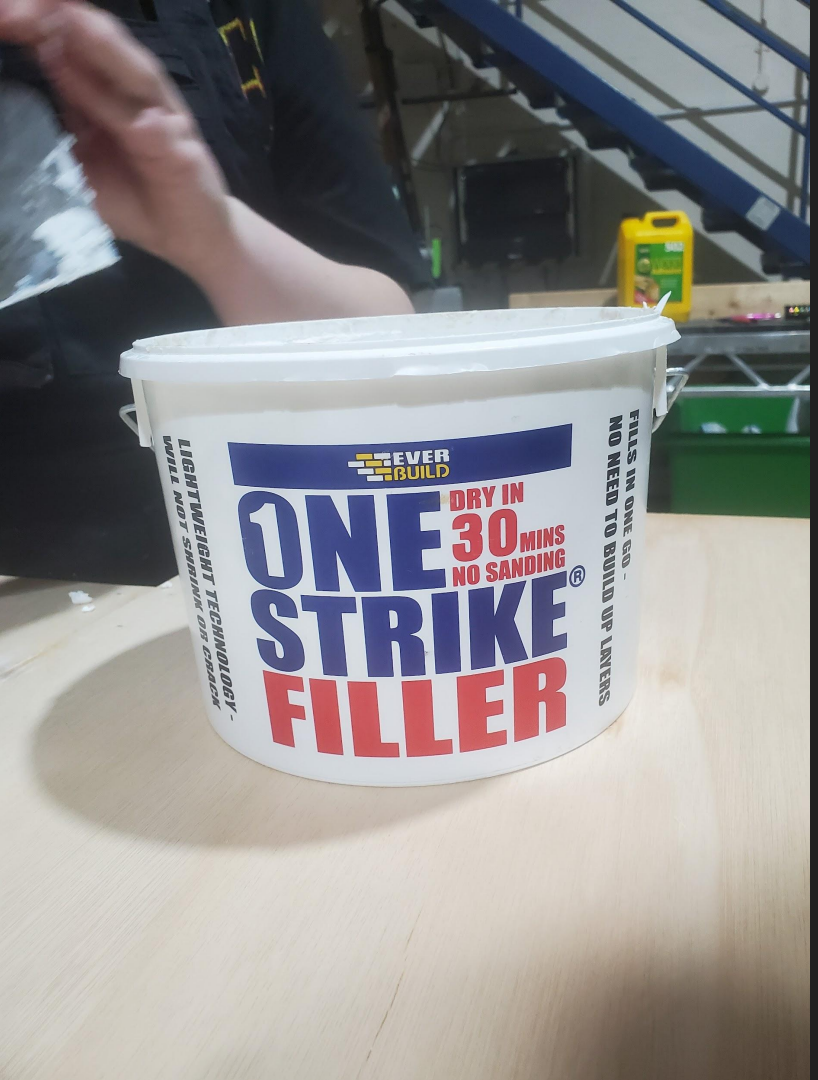


Attaching the face

The next step was to attach plywood to the face of both flats, leaving a space in the centre for the windows. We had to use 4 lengths of plywood and glue then staple them down before sanding them down. We also took the opportunity to learn the best way to lift and transport large flats safely, navigating the lights that sit at the same height as the flat.







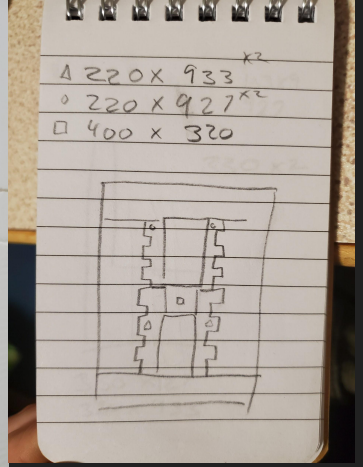
Filling the cracks

When piecing together the different plywood flats, we were left with cracks in the surface, after sanding we filled in these cracks with one strike filler, which we then also utilised for the brick detailing on the foam we attached to ensure there was no gaps or cracks.

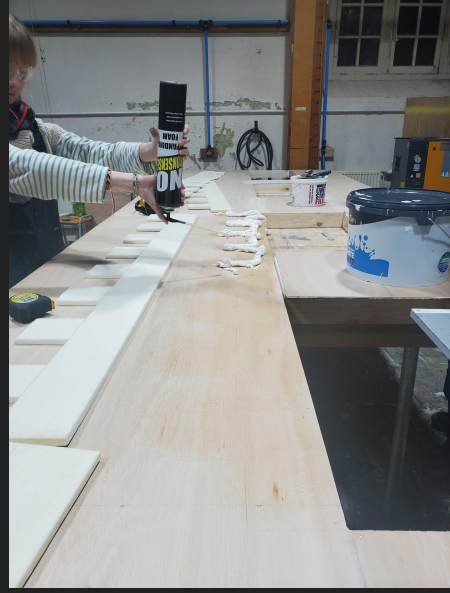








Foam detailing





I really enjoyed adding the detailing; we used foam due to it fitting the texture of the sandstone bricks. I calculated how thick the bricks needed to be for them to match the scale model then we cut strips and used scalpels to cut out the bricks and used expanding foam to glue them to the plywood; we looked at what different kinds of glue would work and found that expanding foam would work best. This type of foam is called polyiso and is commonly used for roof insulation, it comes in various sizes up to 200mm thick and is very cheap.





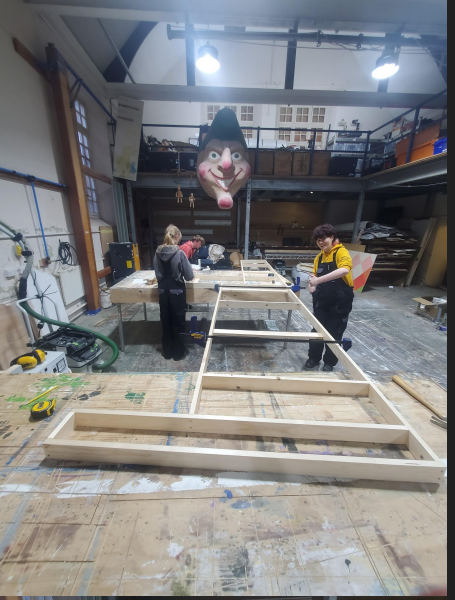
Constructing the cornice

We found some old PVC mounding that we cut down to shape; we cut 100mm from the top and then angled the larger side at 12°, using the table saw before nailing the two together to get a nice slope on the detailing. Next I used the miter saw to cut a 45° angle in the corner so that we could line them up with the front facing flats cornice. This was the finishing touch on the side flats before we began construction on the front face.











Constructing the front facing flat

We constructed the front face by splitting it down the centre; this is because with the measurements we had for the flat it wouldn't fit through the workshop doors. We split into two groups and constructed the two sides of the flat. We built them as opposites so the would fit together nicely, after we created the frame with the toggles inside we began piecing the plywood and stapling. Once we had finished both faces I climbed onto the table in the gap between the two faces to bolt the frame together using Nylock bolts (a kind of lock nut with a nylon collar that increases friction on the screw thread.) we constructed both sides simultaneously, however, the other group had a small issue where one of their toggles was too short. This meant that the wood bowed and the two sides would not line up nicely and they had to rectify this before they put the two sides together.







Cutting the window and door

After sticking the two sides together we found the central point and using a flexible piece of 3mm plywood we marked the arch from pint to point for both the top and bottom. The original design was gonna be to use an old projector to project the arch onto the plywood before cutting but we couldn't find the right projector for that plan. After marking the arc we used a jigsaw to cut the arch out.







Corbels and braces

To make the corbels we created a curved frame out of wood which we then used a hot wire foam cutter to pull along the wooden frame and carve each corbel to be the same dimensions. We the created two large braces ro stand the firehouse up. These braces were massive and were one of the last things to make before we finished. Unfortunately we didn't get a chance to finish this project so we will be finishing it in the new year so that we can display it at the end of the year.







Building a gingerbread house

In our flat we decided to have a gingerbread house competition; there were 10 of us so we divided into two groups. I was the group leader for my group and we decided to have the house be built as an abandoned building with vines and wooden boards as decoration. We cut the windows open and poured melted sugar in the frames to create glass windows, using greaseproof paper to stop them from sticking to the table surface.

I noticed during the construction of these houses that the construction methods we used were very similar to what we did in class, and the skills we had previously learnt we were able to build this quickly and efficiently with good communication.









Sticking the walls together

We used the molten sugar to discreetly stick the sides together. We purposefully left a few windows empty so that we could stick wooden planks across them. I used some gingerbread men as spare gingerbread to construct a chimney which I stuck to the roof. When the sugar had cooled we continued to decorate and and further detailing such as window panes and smoke in the chimney (candy floss). We put lights inside the house which shone through the windows with a warm orange hue.









Final detailing

We cooled a pool of hot sugar which we then smashed up to give the illusion of broken glass. We the used rainbow sweets as ceiling tiles and decorated the floor around the house with mushroom sweets and little green tree sweets. We also used spare gingerbread to create stepping stones up to the door of the house, then crushed up some fizzers as show because we didn't have any icing sugar.





Finished product





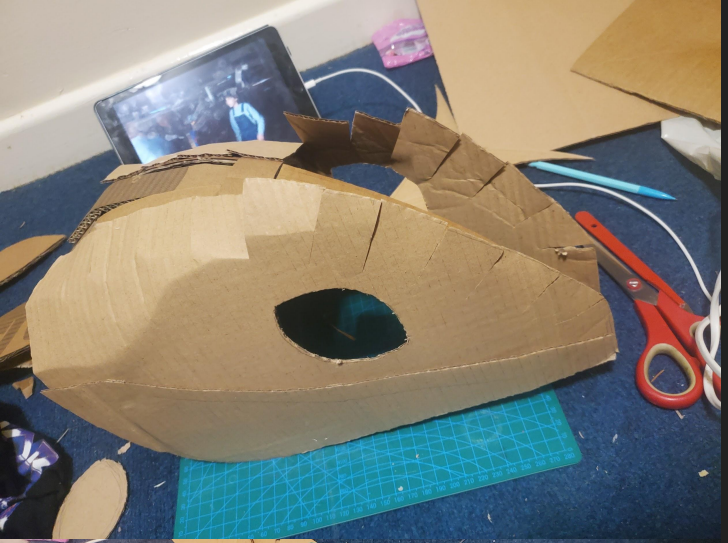
Making a hare mask

I'm going to a convention in March and our DnD campaign decided we would go as our characters. My characters name is Kipart Whittlebee the third and he is a harengon bard.



A harengon is a humanoid rabbit creature who walks on two legs and functions like a person. I designed a hare mask that I could fashion out if cardboard to fit the dimensions and characteristics of Kips face. I started with a cardboard base that perfectly fit my head and adjusted it to the size I wanted.







Building the face

Kip has a very long face so I made sure to fit this into the cardboard, I used thick strips of cardboard for the frame and thinner cardboard to create the side of the face which I then cut eye holes out of. I cut strips into the top of the mask so that I could create a curved shape. My next task is to paper maché the mask to fill out any gaps and then put a layer of felt over the top. The biggest thing that's missing is the large ears which I will be craving out of eva foam over Christmas and attaching with magnets so that they can come off and be packed down easily.

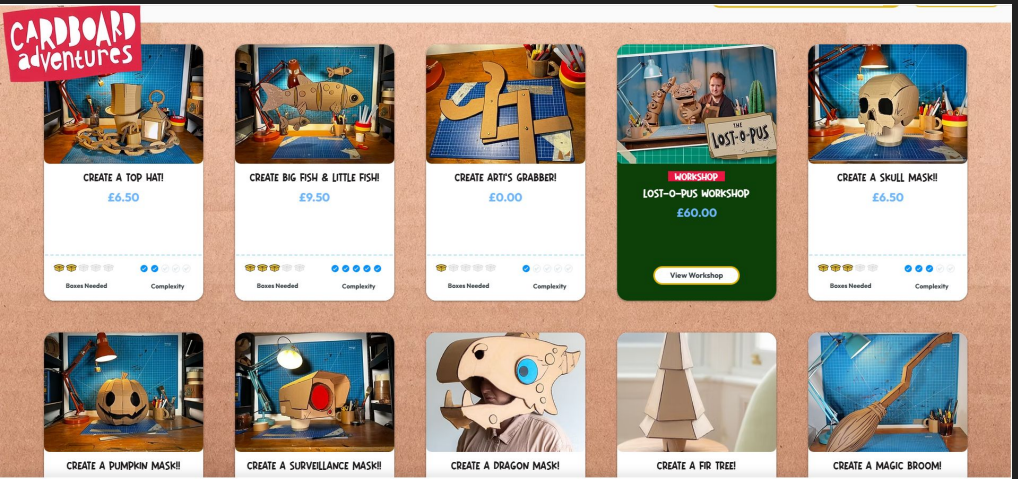




Cardboard adventures

Dave introduced me to cardboard adventures which is a website where people buy a template and are able to construct their own projects out of cardboard; the website says how much cardboard is needed and provide the template and instructions and helps you “take a regular cardboard box and turn it into your next “build it yourself” play-time adventure.

Started in 2019 with a single piece of cardboard, an idea was born. Re-use cardboard to create magical designs for your children to enjoy.” (Cardboard Adventures, 2019) I really love this concept and I do believe it can work on many levels; not just for children but as a craft for anyone, additionally these can easily be used as a prototype before an actual project is constructed from a material such as rubber or metal, using the cardboard template and model as a reference for how to construct it. I was particularly drawn to the projects that move; I love interactive props and costume with elements that people can enjoy, not just by looking at it but also by exploring its movements and dynamics.





Materials for cladding flats

The frames of flats are most often constructed out of wood, however, the face of the flat can be constructed by using any material that might better suit the project. Often times fabric can be the most suitable answer, the three fabrics listed below are manufactured in widths of 68”, 72”, 81” and 108” and solid in bolts containing 50 to 60 yards.

Linen canvas - linen canvas is probably the best material that can be used for covering flats. It is expensive, but is remarkably strong, does not snag or tare easily, and will last indefinitely when stored in the proper conditions

Cotton canvas duck - an excellent substitute for linen canvas, cotton canvas is used much more extensively than linen for covering flats because it is less expensive and can be easily found on the market. It is manufactured in various weights and is specified by the weight in ounces of a square yard. Eight ounce canvas is normally used for most scenic work.

Muslim - heavyweight unbleached muslin is used in covering material by many technicians why must operate on a limited budget. It is not strong and will stretch and tear rather easily; but since it is lighter in weight and thinner than canvas, it is well suited for the patching needed in altering and reusing stock scenery. Several coats of paint will completely conceal all patches. In spite of its weakness, muslin is surprisingly durable when used as a covering for flats or when made into drops; but it must be shifted and stored with care.

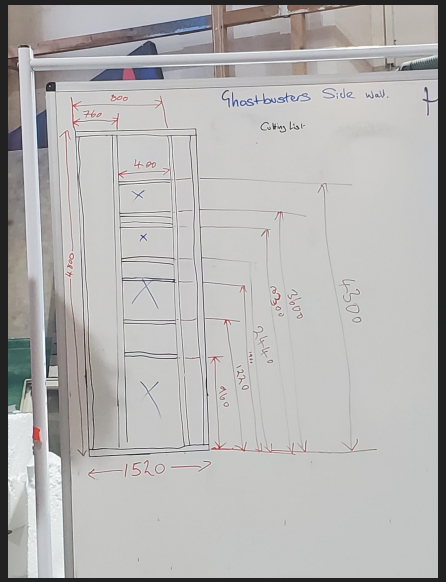
(A/S Gillette/Michael Gillette1981)





Study task research questions

1. From any drawing provided produce a cutting list for the flat. Estimate the overall amount of wood used and estimate what the difference would be if the flat were to be constructed using the Hollywood method. How do you think these two flats would be used –what are the advantages/disadvantages of each.



This is the diagram used as reference when constructing the hollywood flats we built to create the side of the ghostbusters firehouse side, drawn beautifully by Dave. For this flat we needed two lengths of 4760mm wood (4800mm - the width of the wood to which it joined top and bottom - 20mm), two lengths of 1520mm and then we attached sheets of plywood. Plywood sheets come in dimensions of 3000mm x 1000mm so we had to cut them down. If we were making this a solid flat we would have built the toggles central so that we could construct the flat with three sheets of plywood; we would be able to fit two sheets of plywood longwase with two sheets of 240mm x 3000mm waste and fit the last sheet down to 1800mm x 1500mm to fill in the gap. However, if we were constructing this flat as a broadway we would need to take off 140mm off the two side rails to take into account the width of the wood planks (70mm top and bottom) and added 45° ogles on at least two corners for added stability. While the type of flat we will primarily be building on the course are broadway flats, there are many benefits to both; broadway flats are much more sturdy and durable, however, they are hard to store due to their size. On the other hand, hollywood flats are a lot easier to store and transport due to how thin they are.

1. Research four different types of rostra used in theatre. How are they built and why is there a need for using different methods? Give advantages and disadvantages of these. From books in the library and digital research, find picture references of a set that uses rostra and explain what type you think may have been used.

Rosters are 'building blocks' used when the stage or parts of the stage need to be higher. They are commonly rectangular shape and often standard size of 2.4m x 1.2m but this does vary. Rostra can be of different shapes, and we build and reuse these all the time, but often change the legs over to use them at different heights.



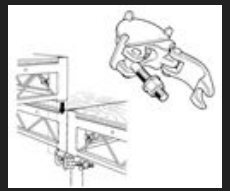
Steeldeck- Metric rostra

"Steeldeck is the most popular staging system used in theatres. It is strong, quick to rig, and easy to handle. Steeldeck uses aluminium scaffolding tube for legs" (flints 2025)



Steeldeck - imperial rostra







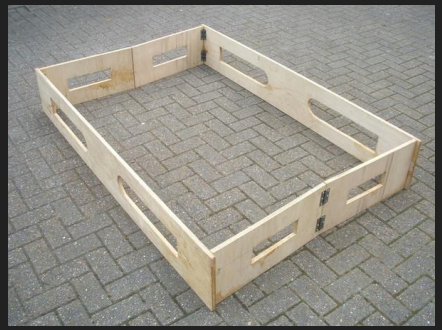
Quarter circle rostra

"The 4ft quarter circle stage can be used as a corner unit for staging or can be made into a full circle by piecing three together and fixing with staging clips .The frames are made from steel or lightweight aluminium which is powder-coated black. Their design allows them to be folded down for easy storage. The stage top is made from 18mm Birch ply which is stained black using a durable paint. Locating blocks are added to the underside of the stage top so that there is no movement between the top and frame, providing a highly stable surface." (Grumpy Joes 2025)



Gateleg Rostra

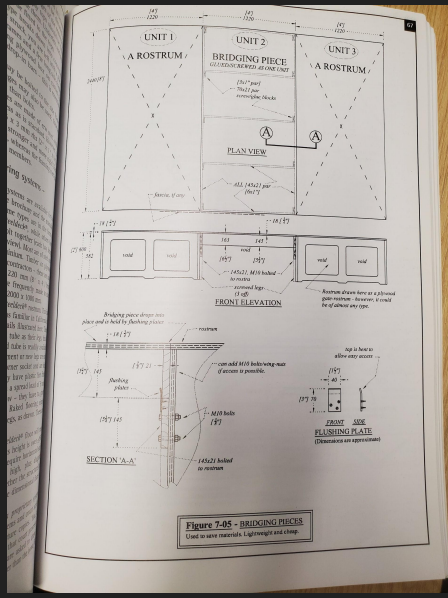
"With many theatres now preferring to use the modular steel rostra, the gate leg rostra has become a much less common sight. Each gateleg is made using a number of flats that then support the lid or roof. Vertical toggle supports are screwed into place and then the rails and toggles are slotted in using tenon and mortis joints. Each flat is connected to the other using hinges. It is important to ensure that the hinges go in the right direction so that the flats fold away easily. There should be a space no larger than 600mm to 800mm between each support.
One benefit to using the gateleg rostra is their ability to fold away easily and compactly.
Fun fact! They're called gateleg rostra due to the uncanny resemblance they have to old Victorian gates.
Created with dimensions of either 25 x 75 mm or 82 x 75 mm" (design and production, 2012)

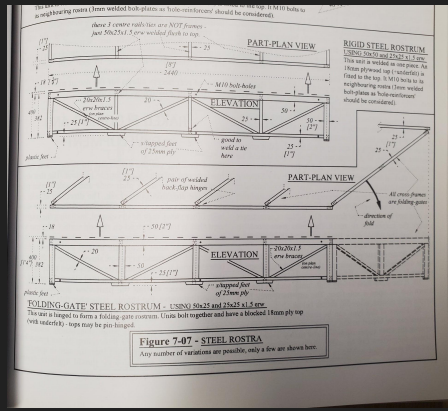


Rostra analysis

“Steel rostra - high rostra can often be cheaper, lighter and stronger if made of steel rather than timber. The decision to ‘go with steel’ is often made on the basis of evaluating the services offered by the contractor employed to do the work. There are as many types of steel rostra as there is imagination to dream them up. The only ‘rules’ are that the units are strong enough to convenient enough to do the job at hand. If you have to invent a new version, or adapt an old version and you are unsure of its structural capabilities then consult an engineer and/or indicate upin your drawings that you would like a qualified engineer to check your proposals before construction commences.” (John Blurton 2001)

Advantages of steeldeck rostra - stable, durable, can be adapted or adjusted easily, metric and imperial rostra. Gateleg rostra - easy to fold down for storage or transport. Shaped rostra, quarter circle rostra, can create a more abstract and interesting staging layout. Many stages use rostra including my Alevel drama performance, where we used steeldeck rostra to create a promenade on which to perform. It was approximately 30 cm off the ground and around one by two meters dimensions. I found this staging broke up the staging a rather satisfying manner to make the performance much more interesting.





1. Research theatre trucks. What they are, how they can be moved and what safety measures need to be put in place when doing so. Find examples of sets that use trucks and research about and fill out a risk assessment for using a truck

Theatre trucks are mobile platforms with casters used to quickly move sets, props, and actors on/off stage for fast scene changes in live productions, they are also called scenic wagons the best options focus on smooth, silent and stable movement with the key component being the wheels; White nylon wheels/glides: These are popular because they are non-marking, strong, and slippery on most surfaces, which aids in movement, Rubber wheels: Three-inch diameter swivel rubber wheels are a common recommendation for their durability and stability, though they may have a higher noise level than nylon on certain floors, Low-noise/High-load casters: Some specialist suppliers offer casters specifically designed for stage use that are built to be low-noise for use during a performance.

Health and safety forms must be filled out if using theatre wagons to ensure no injuries or damage is inflicted on the cast and crew or the sets. The crew should have adequate training for operating the wagons and should be made aware of the risks. With control measures put in place, the cast and crew should be able to safely navigate the risks.

I read *"HOAC® mobile Stage Wagon Magical and fascinating"* which I found was a very interesting website where the HOAC theatre company display how they build and move their theatre wagons for various shows; creating vehicles such as cars and boats that can be easily 'driven' onto stage either moved by hand, by using wheels and casters or by remote control. Additionally they value sustainability within the wagon constructions, recycling and reusing old models to create new wagons for new stage shows.

risk	Potential harm	Control measures
Slipping or falling	Physical injuries	Make sure all areas are clear of debris and potential fall hazards and secure all cables with electrical tape
Manual handling	Injuries, back strain	Ensure staff handing are up to the task, have competed training and/or have mechanical aids
Poor visibility during blackouts	Injuries or collisions	Mark key routes with white tape and use blue worrying lights

Theatre trucks

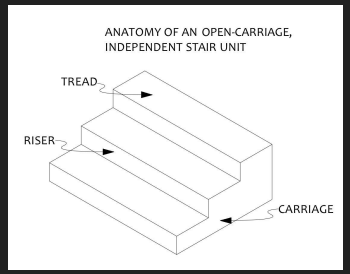
Construction - timber and plywood trucks are commonly used for their simplicity. They are lightweight and cost effective. Steel trucks have greater inherent rigidity than timber ones so they are often quieter. (the heavier the truck, the quieter it runs - up to a point)
-Always add underfelt to trucks that are to be acted upon whether the trucks are made of steel or timber and plywood. The underfelt is stapled to the underside of the plywood top and helps to deaden unwanted noise.
-Drop bolts are used to hold a truck in a given position on stage. These can vary from from simple, bought 'shoot-bolts' to taylormade units having large, removable pins with handles for ease of use.
-Castors - some trucks have no need to be guided along any given path.swivel castors allow the crew to move them anywhere they wish, making handling quite simple.
-Guides - tracks can be made that guide a truck along a certain path. They can be recessed onto the show-floor, as shown, or be placed upon the surface.
-The motive power
-'Mandraulic' power (stage slang for anything pushed or pulled by people) will frequently be the main method of driving trucks.
-Cable-driven trucks, having an underfloor cable/spade system are often driven by a simple hand-winch.
Motor-driven trucks are common: a motorised winch can replace the hand-winch described above, or 'drive-wheel'.

Health & safety
-Any moving objects on stage carry a potential risk to the staff. The draughtsman must try to reduce any likey danger by whatever means possible. Trucks can generate accidents. Expeny only professional cast and crew to perform specific movements in order to avoid danger. They can rehearse the movements in full light and are under the watchful eye of stage management.
-foot traps must be avoided
-finger traps must be considered
-the paging of cables can be difficulty
-headroom must be maintained

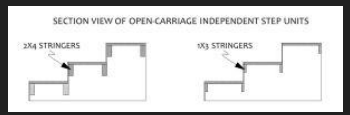
(John Blurton 2001)

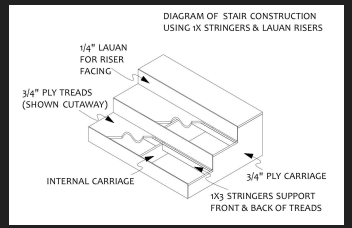
1. Research how treads are made – consider form and function. Are all treads built in the same way, what are the safety regulations for the use of treads –i.e. where does the critical angle come into play and why is it so important? Is the use of handrails necessary? What is important about tread and riser sizes? How do you stop noise? Again, find references to sets that use steps or treads. (Internet or books in the library). Why would you normally not clad these in Shuttering Ply, but when may this be possible?

'Treads' are a general term for staircases within theatre and shows. Due to safety regulations, to ensure the cast and crew remain safe while performing, each tread should be fitted with a non-slip surface, ensuring secure footing for performers and crew, even in high-traffic areas or during inclement weather.



"There are three main parts to a stair as the diagram to the left shows. The Tread is the horizontal surface on which the stair-climber walks.
The Riser is the vertical element that fills the space between the back of one tread and the front of the next tread above it .
The Carriage provides the structural support to carry the weight of the stair-climber to whatever structure supports the two levels accessed by the stair and serves to hold the treads and risers in position. Note that some stair units will omit the risers.
The basic stair usually starts with treads of ¾" plywood. The plywood tread is supported front and back with structural lumber in the same way a basic stage platform might be. Depending upon the width of the stair, strength necessary, standard construction practices of the shop and other matters, the stringers might be made of as substantial material as 2×4 to something as light as 1×3" (SJM 2012)





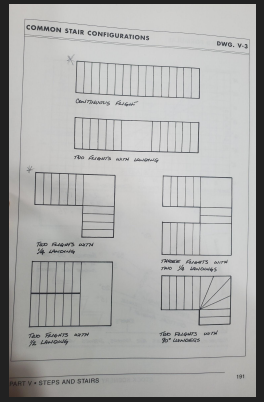
"The outside edges of the tread are supported by carriages cut of ¾" plywood. On a small stairway, the carriages may go all the way to the floor." (SJM 2012)

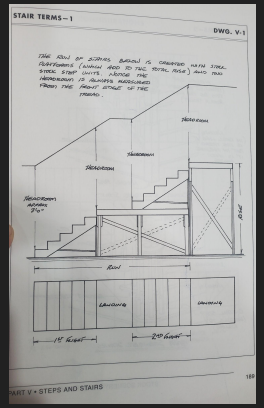
"This type of stair unit has a number of drawbacks. Since most of the time, a designer will specify with a slight overhang of the tread over the riser, a decorative detail or Nosing must usually be added to the front of each step. This nosing is easily dislodged by heavy foot-traffic. Additionally, all of these construction methods tend to rely upon fasteners to bear most of the weight of each joint. Those fasteners often hold into the laminated edge of plywood which is not a strong connection and does not serve as a good surface for glue. The biggest drawback to the methods of stair construction described above is the failure of these construction methods to take advantage of all of the materials to provide structural support. Consequently, some members such as carriages and stringers must be enlarged or extra ones added to provide support. This adds considerable weight to the structure" (SJM 2012)

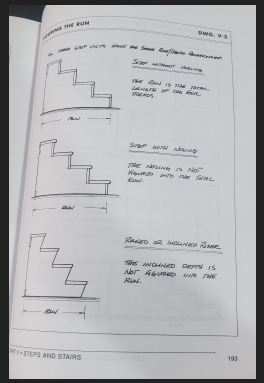
Treads analysis

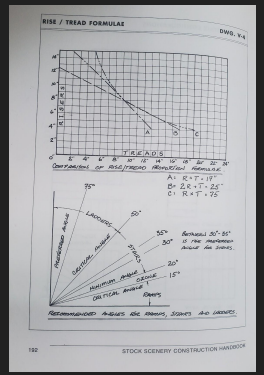
Regulations and health & safety
Most areas of the world have regulations governing the size and proportions of staircases, covering handrails, balustrades and matters relating to headoorm. It is imperative that the draughtsman be familiar with relevant local rules; a touring exhibition will require its stairs to conform to the most stringent regulations encounters on that tour.
Do remember that if a person is injured through using a faulty stair, the legal machinery may well trace the error back to the draughtsmen.
Tread proportions - hundreds of years experience have taught us that stairs must follow ergonomic logic: the stair must fit with the human shape and its natural stride. Each tread and each riser must be identical to its neighbours or a person will trip. The maximum pitch angle of 38 help to shape the stairs so that they conform to the needs of human frame.
Open flights of stairs have no risers - they have a rise, of course, but no solid riser. Ensure that the treads are not slippery and that they each have an overhang, or nosing of approximately 25mm - the front of each treads overhangs the back of the tread below it. If polished timber treads are used, then add proprietary non-slip strips(s) to suit.

Handrails and balustrades - domestic staircases may have lower handrails and need to not conform to the '100mm ball' rule
Finger-traps must be avoided on handrails
Pocket-traps must be avoided when designing handrails
Landings are often 'quarter spaced' or 'half spaced' .









(John Blurton 2001)

1. What are revolves and how can they be operated? Is it possible to operate a revolve on a raked stage? As usual find images to supplement your research, start to widen your research area and try forums – speak to people in the industry.

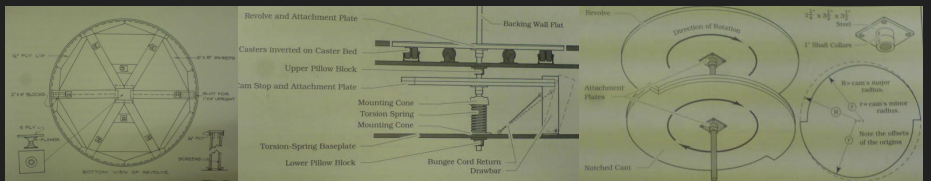
Revolve stage refers to a type of staging where a circular structure in the centre of the stage is set to revolve , allowing the audience to gain an alternate perspective of the stagin, actors and/or set.



A raked stage is a stage that is raised upward from the audience, *"a design that improves visibility for spectators and an led to the terms 'upstage' and 'downstage"* (wikipedia, 2019) .so that the actors are performing on a sloped stage. This is often due to the presence of rosteras.

I found evidence of a production, a project called 'TSM project 2008 - Raked Revolve' where the designer used a revolve on a raked stage, he first examined each type of revolve; "first of all I want the revolve to be sitting flush with the raked stage. There are several ways to make a revolve work. You can have a cable driven revolve, it can be gear driven, a wheelless revolve (using pivots), a frameless revolve and finally there a spring-driven revolve" before he began dissecting a construction of this revolve stage.
Later with detailed sketches, the author describes how he constructed the stage, staging that "there should be two supplementary castors mounted near the centre to prevent any starin from the butt joint holding the two halves of the revolve together. The castors should be placed with their wheels at right angles to aline representing radius. All castors should be rigid or locked swivel castors." he then goes on to discuss how he used a spring motor because they are self obtained and lightweight, and to help with the start and stop points a cam like vererios of the notched discs used on locking-swivel casters would be made.
"Stage crew will have to wind the spring before each show by spinning the revolve backwards. When the notched cam has reached its preset, the bungee cord return should pull the 2x4 drawbar into the cams notch, which should lock it in place. As soon as the stage crew trips the drawbar, the bungee cord should pull the drawbar back into position to catch the next notch and another stage crew member should help break the revolve so it does not stop with a jolt type thing."

(TSM Project 2008 - Raked Revolve, 2012)



This article also includes an estimated cost for stitch a stage;
The 2 1/4" spring + two mounting cones = £50.00

The 1" shaft collars = £02.00 (each)

The 1" flange blocks = £25.00 (each)

Ply wood (£7.00 x 6sheets) = £42.00

Rough Estamated Total = £150.00

Overall, according to the evidence of this project study, the answer is yes, you are able to have a revolve stage on a raked stage, however, is a lot more difficult and requires alternate procedures. Additionally, the cost is a lot higher, as well as the need for additional safety checks and manpower needed to operate the stage.

Analysing revolve staging



One of my favorite uses of a revolve staging is in ‘Hadestown’; where the revolve stage is used as a central, iconic design element to represent cycles, journeys, and transitions. Within the story of hadestown the representation of the journey is key and a revolve stage is a very strategic methodology to present this theme as is often used within theatre. I performed on one of these stages myself when I was 14 for the play ‘Alice’; a story inspired by the tale of Alice in wonderland, following not only her story but the stories of the characters she is to meet. One of the key scenes I can remember that used the revolving stage was the hedgehog croquet scene - the lights came up to the stage rotating as all sorts of fantasy animals played the sport with hedgehogs instead of balls and flamingos instead of bats. The reason we did this was to show an alternate perspective for the audience; allow them to see the scene from every angle as there were many characters with their back to the audience for different parts of the stages revolve.

I also looked at the set design for ‘our country's good’ which is play written in the 1980s based in the 1880s about the australian penal colonies. I found the revolve stage rather interesting as it operates on a sloped revolve stage; the circular stage not only splits down the centre but also rotates at different angles and the actors are performing on it. I tried to do further research into this staging and how it is done but I couldn't find a single thing about it. I have to assume the revolve stage itself was very expensive as the production was a bbc funded play with a very high budget. I wish I could find out how they constructed it though because I am quite fascinated by the technicalities behind its design.





1. I would like you to find 2 references to theatrical or screen design that you find interesting in a scenic construction sense. These can be found from shows or events you have seen or been involved with, you may know how it was made or have no idea at all! The idea is to bring something to the table that will generate an interesting discussion between us. Bring 3 images of each design you like.







War horse.

War horse is a very famously incredible stage play with expertly crafted puppets coming to life on stage and the breathtaking storytelling grasping the audiences heartstrings with its heartfelt relationships depicted and the connection it creates. I also saw this show in the Bristol Hippodrome and I was blown away by the sheer beauty of the craftsmanship of the puppets; expertly constructed by handspring theatre company the horse puppets constructed within this play are created by creating a metal frame that is then decorated with scraps of fabric, however, they put in tedious hours finding the perfect material for the construction, especially finding the perfect fit for the horse puppets mane and tail. The puppets are made primarily from cane, aluminium, leather, and mesh to achieve this balance. Three people skillfully operate this pupper; two inside the puppet, one who operates the back legs and tail, one who operates the front legs and chest, and the third who operates the head. Each of these actors spent hours and hours with a coach perfecting their movement to create this incredible illusion of a living breathing horse. The construction of these puppets is something that I find really fascinating and a route that I would be very interested in finding more about.



He lion, the witch, and the wardrobe.

I have always been a huge fan of the Narnia books and films and I was lucky enough to watch the stage play in the bristol hippodrome a few months ago where I absolutely fell in love with the design elements, specifically the set and lighting. The set itself at first glance was very simple; backstage there were two large circles that were lit by LED lights during different moments of the play upon further notice the space within the inner circle is hollow, lit by light shining through from behind the rings. At pivotal points of the play, characters would step into this space where their silhouettes stood out, almost threateningly over the stage, the lighting behind them would change in accordance to the tone of the themes of that scene. The construction of the set really intrigues me because I am really curious how the central level is built to maintain the strength of the actors and the illusions in play on the projections onto the larger circle. Colour and lighting is pivotal within this play to set tone and atmosphere; using colour to represent the protagonists as noble and good with warm tones , contrastes by the complementary blues of the antagonists and their cold harshness towards the world around them. I found the lighting and set and how they worked together skillfully absolutely breathtaking; they had a harmonious relationship that expertly elevated the show. I loved the idea of the optical illusion set and am interested in possibly looking further into them in the future.





1. Research into welding and metal working, what are the different types of welders, why are they different? We know wood comes in a variety of sections (3x1, 3x2 etc) but in what forms can you buy lengths of metal?

MIG welding - An MIG welder works simply by using lots of electricity, “an electrical arc (a short circuit) is created between an electrode wire (a positive anode) and the parent metal that’s being welded (a negative cathode). The arc melts the electrode wire, which is then deposited to create the weld. When the heat is removed, the weld pool cools, solidifies and form a new piece of fused metal – the weld is made.”(welding equipment & consumables) this type of welding was invented in 1948 and since then has been one of the primary methods of welding metal.

TIG welding - TIG stands for tungsten inert gas, the process uses a non-consumable tungsten electrode that delivers the current to the welding arc. “An inert gas, typically argon, protects and cools the tungsten and weld puddle. TIG welding is similar to oxy-acetylene welding in that you use a filler material for build-up or reinforcement.” (Andrew Pfaller 2012)

Oxy Acetylene welding - oxy acetylene welding uses gas and is one of the oldest heat-based methods of welding, using oxygen and fuel gas to fuze metal. “Oxy-acetylene welding is a versatile and simple technique ideal for joining various ferrous and non-ferrous metals, especially in small-scale and hobbyist projects or repairs.Gas welding offers control over different flame types—neutral, carburising, and oxidising—allowing adjustments to suit specific welding needs and material properties.” (Siim Sild 2022)

When it comes to buying sheets of metal you can pick them up similar to sheets of plywood, however the pricing is understandably different; buying metal costs a lot more than plywood. According to the metal supplier RAS their sheets of metal comes in the following dimensions;

“What are the sizes of sheet metal?

Standard sheet metal sizes typically include 48″ x 96″, 48″ x 120″, and 60″ x 120″. Dimensions can vary based on material type and supplier, but these formats are common across most steel, aluminum, and stainless steel sheets.

What is the blank sheet metal size?

A blank sheet metal size refers to the raw, flat dimensions of a metal sheet before cutting or forming. It’s usually based on standard sizes like 4′ x 8′, but can also be custom-cut to fit specific fabrication needs.” (RAS 20124)

1. Find out about the different types of plywood used in scenic building. You may need to think laterally on this one and look much further afield than just books in the library. Explain how they can be used in a context.







Plywood:

Shuttering plywood - one of the most expensive plywoods, shuttering plywood is made by combining multiple layers of wood veneer with strong adhesives like phenol-formaldehyde resin. This makes it the bet option as it is the most durable and highly waterproof plywood, however, it is impractical for projects on a lower budget.

Far eastern plywood - this plywood has a darker hue as is constructed using hard exterior grade thin wood veneers glued with WBP glue. It is very strong and durable as well as being waterproof due to the strength of the WBP holding it together. This plywood, like its name suggests comes from the far east. This is also the plywood that we use most commonly in the workshop.

Malaysian plywood - this plywood gets its name from the wood used within its structure; constructing this plywood with a species of wood from peninsula Malaysia. This plywood is often chosen for its durability and aesthetics, often used for furniture due to its high quality looks.

Marine grade plywood - like its name suggests, the marine grade plywood is used most commonly for projects where it would require water resistance, in damp or wet environments; this is due to the waterproof adhesives used in its construction.

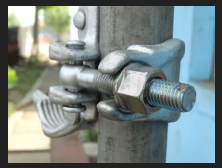
Phenolic plywood - Phenolic plywood is a durable and water-resistant sheet material made of plywood layers bonded with phenolic resin and coated with a phenol film overlay, however, this plywood is more expensive and heavier than other choices.











1. Name four ways that flats or sets can be joined together. Explain the advantage and short comings of each method. Also write a comparison between our workshop and the ones we have seen on visits.

How flats or sets can be joined together entirely depends on their construction; it can be a lot easier to attach softer materials such as wood together, but when it comes to materials such a metal fusion can become a lot more difficult. For flats constructed with wooden frames, there are a range of options that can be used -
As part of our ghostbusters firehouse project we had to attach the two sides of the font facing flats together; the way we did this was through nylock bolts; we drilled holes in each joining piece of the flat and inserted a large bolt. The novelty about nylock bolts is that they are a kind of lock nut with a nylon collar that increases friction on the screw thread; this means that upon attaching thyme, they become very secure and wont move unless you need them to - they can be taken apart and put back together again very easily.
Another way flats can be fused together is through battens, battens are boards either 1x3 or 1x4, these are attached by laying the boards flat on their backs and screwing battens to the frame.
For attaching flats together in a more fluid shame, such as circular there is the option of lashing; using ropes and a lash cleat. Essentially this means that you can screw cleats onto each section of scenery and tie them off using a rope.
Additionally, for attaching metal scenery you can use methods similar to scaffolding - a lot of the materials and methods we use in set design are taken from construction, taking this information the use of scaffolding couplers can be an option for attaching metal scenery together. Not only i this highly durable and well fixed, they are easily taken off when the set needs to come apart.

Comparing workshops while studying at wiltshire college for my art foundation I spent the majority of my time in the colleges workshop, and while I haven't been there in a number of moths, I can still remember the space pretty well. Unlike the workshop we have here at the uni, my old workshop was very small and rather cramped; there were four woodworking tables in the centre with two long metal/plaster working tables besides them. On all four sides of the woodworking tables there were clamps, with drill-boards stored under the tables in an attempt to avoid drill holes in the tables. All around the room were different tools; I remember specifically on one side of the room we had an oven, heat guns, flame torches and a grit blaster, while on the other we had an anvil and a spot welder. Either side of the door there were table saws and down one side of the wall was a display of mismatched metal materials that we were able to use either in our work or as tools. Additionally, attached to the main room there was an office were all of the tools were stored, and besides that was a 'craft room' with cupboards of materials that we had infinite access to. The main difference I notice between my old workshop and the unis workshop is the difference of professionalism - the tools at the uni workshop all fit the same neat boxes and always locked up. Additionally, the size of this workshop is exponentially larger, with the four main work benches having more than enough room for the projects we are working on, however, I understand that more than anything that is due to the scale difference between what we work on here vs the small artworks I worked on back at college. To be honest I preferred the workshop at wiltshire college because of the huge variety of tools we had constant access to. While the tools we use here are very useful and get the job done, they seem more or less wood-based tools as opposed to all the materials we used to work with every day at college.

1. What are the benefits of using metal to build scenery? Show at least three examples to illustrate your answer and show that you understand these. This means that your answer should not just be a picture but be accompanied by notes referring to these points. Over the next couple of weeks go back over your process workbook and readdress any areas that you consider you have not fully recorded. Does your workbook clearly show your learning journey so far? It is not a case of recording merely what you have done in class but where did you start from and where are you now? Consider mistakes and successes alike. Look at ‘how is my work marked’.

I believe there are many benefits to using metal scenery, with the most obvious being that metal is highly durable and difficult to break - this means that it can be a perfect material for levels on which people need to stand, in the photo that depicts staging levels, metal scaffolding is in use, allowing many people to use the level at once. Additionally, depending on the type of metal, it can be easily moulded and manipulated to any task needed - types of metal like steel and aluminium can be moulded by hand to any shape needed, while metals such as tungsten and high-grade steel are hard to bend which gives them the advantage of durability. Organic objects such as trees and vines can have frames constructed from metal wiring which allows them to be sturdy and retain shape. This is also evident in a spine I constructed as one of my college projects last year; I wanted to replicate a spine with its fluid movement and I was able to do this by constructing many ‘ribs’ out of metal that I was able band into shame and spot weld together.



However, it is more difficult to attach objects to metal due to its smooth surface. This also means that painting it can be difficult; this is due to the fact that the paint can easily be scratched off. This is a problem I found on a different college project,I wanted to create a tunnel or sorts, using metal wiring to obtain the correct dimensions, however, the lighter colour of the metal was very obvious against the dark material I covered the tube in. I wanted to rectify this by sanding and painting over the metal wire but this didn't work as the paint would just scrape off anytime it was rubbed against anything. Additionally working with metal can be a lot harder than working with wood; wood is soft and easy to cut, metal is a lot tougher and cutting it can be dangerous; leaving sharp metal edges exposed, not only this but while you can attach wooden sets together easily with screws and staples, the only way to really attach metal together in the same way is through welding which is more costly and not always practical. Therefore, I believe that while metal scenery is practical and durable it can make life a lot more difficult.





1. Research how you could construct a tree which has cast members climbing on it. How would it be fixed to the stage and how could you make something so prominent not overwhelm the stage. This should include materials and some estimate about cost, time and resources needed. Don't panic-just think it through.





Research - Redwood

"***Redwood*** is a musical with music by Kate Diaz and lyrics by Diaz and Tina Landau and a book by Landau. The show tells the story of Jesse, a woman who, after her son's death, leaves her wife and work, drives across the US to the redwood forest, and forms a relationship with a giant redwood.

The show premiered in 2024 at the La Jolla Playhouse in California and opened on Broadway on February 13, 2025.[1] The musical was originally conceived by Landau and Idina Menzel. It closed on May 18, 2025." (wikipedia 2025)

One of the key points of this musical is the actors climbing a giant redwood tree that takes up the majority of the stage. The incredible set of this very young broadway production was designed by Cornell Alum Jason Ardizzone-West a former AAP student who participated in many PMA productions.

"While Stella's front resembles a 14-foot-wide tree trunk, she rotates throughout the show to reveal her posterior, which is made up of LED screens. These match the series of large, sculptural screens that surround her in concentric circles, tree ring-like, and are filled with moving digital images created by video designer Hana S. Kim. When the characters are on the ground, the screens evoke a dreamy and dynamic forest floor. When the players ascend to the canopy layer, the screens shift to convey the limitlessness of the sky." (luna Adler 2025)





Final design

My final idea combines both scenic construction and scenic art to create an aesthetic tree set that can sit comfortably on a stage by using rigging to fix it in place. My idea utilises scaffolding as a frame for the tree to sit around. I would have a simple cuboid shape with cross bracing, reaching quite high - the top of the tree wouldn't be visible behind a proscenium arch. There would be two sections to the scaffolding; a base section which would be larger with one side of the frame reaching up and attaching to the lighting rig above; this would ensure that the tree would remain stable and durable while people climb it - making sure it wouldn't move. Surrounding the scaffolding would be a shield of 'bark' which I would construct using polystyrene with a protective layer of jesmonite. This ensures each section of bark would be light and easy to use. I would make approximately six sections that would each fit together to construct to create the trunk. For the branches I would attach thick metal wires that slot into sections of the bark, I would use tubing to wrap around the branches to make them thicker and for the branches that won't have to support the strain of human weight i would use paper mache to give them organic shape. I would make sure the branches that people can climb on are marked correctly for safety. For texture I would use expanding foam and carve away at it to give it a natural feel before painting it.



I looked into the price of scaffolding and for what I was looking for in my design the cost sits around £300. I looked into metal wire and found that instead, reinforced galvanised metal fencing would work better; I could shape that into organic branches and it would still support human weight, the price of this type of fencing is roughly £40. Exploring the price of polystyrene i found that a thick sheet of polystyrene is very cheap; only around £10, and expanding foam cans are even cheaper, reaching only around £7

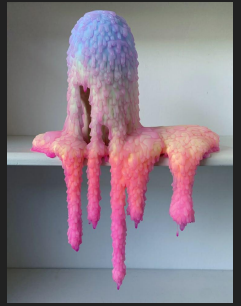


1. Explore what materials you can use to clad scenic elements that need to be three-dimensional. You should include any protective coatings and explain why they are necessary.

A few weeks ago, we were lucky enough to watch the second years pitch presentations, in which one group made an incredible number machine where the main character of the play they were studying spent most of his years. They talked us through the process of creating this prop and we were able to watch a little of it while we were working as they worked besides us. They essentially carved a shape from polystyrene foam before plastering it with jesmonite; jesmonite is similar to modrock, it's a strange substance combined with a mesh, when wetting jesmonite it becomes a spreadable material which meant they could coat the foam in a thin protective layer. This ensures that the polystyrene won't fall apart on stage.
Another method we were introduced to was by the third years as they worked on their show blood wedding. This material is called idenden which was originally used for construction and stripping asbestos, however, was used effectively as a protective cover for the tree trunks used in the production; they layered up thin layers of muslim and using idenden, they plastered the shapes of the tree trunks that had been made previously. The fibres and selent of the musim and idenden ensures that the protective shield is very difficult to break and creates a smooth surface that can easily be painted over.
On the other hand, if the situation and products called for it, you could also use resin as a protective coating; artist Dan Lam uses a combination of acrylic paint and epoxy resin to create strange vibrant 'drippy' sculptures and his method is very simple; he starts with a thick layer of colorful resin, waits for it to dry before adding another layer, this keeps building up until its to his liking. Although this is more of a fine art method of creating sculptures, i could definitely see this working for prop design and scenery too, after all things can have two jobs.





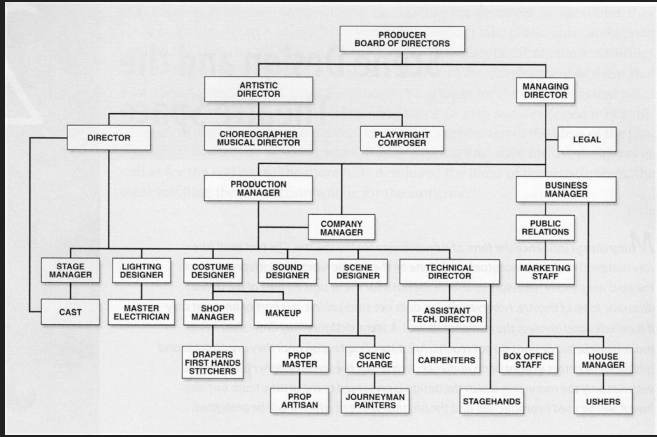


Resin can be a very helpful tool for other circumstances too, it can create a solid plastic material can can be used to create protective coverings over cladding as long as the designer is happy with the glossy coat it leaves behind.

1. What is the role of a Production Manager and art director as far as Scenic Construction is concerned? Consider their full job description
and responsibilities - find an example of a management hierarchy, typical of a theatre company and film set setup.

A production manager in a theatrical sense has many responsibilities when regarding a show; these can range from watching auditions and helping the director choose what actors fit each role best right up until the end of the show, ensuring everything runs smoothly and there are no technical issues regarding prop, set or otherwise. Other responsibilities could include “Creating and maintaining a production schedule for each show, Maintaining contact information, Organising meetings for cast and production staff, Working closely with Directors and other department heads to make decisions regarding set, costume, lighting and other aspects of a production and ensure these are within the budget of the production, Ensuring decisions made regarding the set of a production are carried out safely, Prepare budgets and monitor accurate expenses, Create construction drawings for all scenery elements, Organise the ‘Get In’ and ‘Get Out’ of the set and scenery” (get into theatre 2024)

Production manager
Production managers for film oversee the general logistics of the film or series and are responsible for organising the practical aspects of the production



Art director
An art director in film is responsible for bringing the prediction designers vision to life

Scenic construction questions

‘You have been asked to make a structure, its steeldeck on scaffolding legs that sits 3000mm high. The platform is 1000mm wide x 1000mm deep wide. Its wobbly and the customer does not wantr cross bracing, explain your next actions’

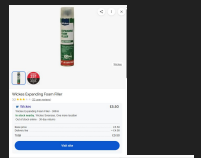
Firstly, I would explain that without cross bracing, the structure will be a lot less stable. However, to fulfil their request I would construct the structures legs with the additional support of 45° braces on each leg, welding these metal structures to the scaffolding legs and to the base/platform at approximately 300mm to ensure that it is as stable as possible without cross bracing.

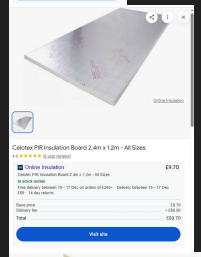
‘You're making a realistic set with lots of walls. On these walls are wall lights, are you qualified to install the electronics safely? What is the conversation you have with the customer?’

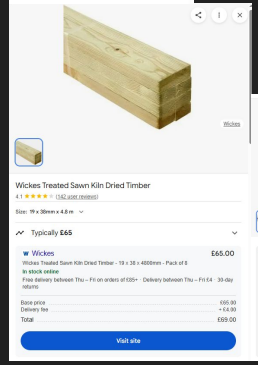
I would ensure that the customer new from the get go that I will do as many technical jobs that I am qualified to do, however, there is a limit to my skillset and I will not be able to safely install all of the wall lights. Although I will recommend other people who I know who are qualified to install such lights, and recommend different skill ranges and price ranges of the people I know of who have these skills. Additionally I recommend that they hire a partner whom I can work alongside during the construction phase of the work so that we can make create and construction choices together to ensure the success of the commissioned project. On the other hand, for a higher wage I would offer to take time to learn the necessary skills to do the work they request.

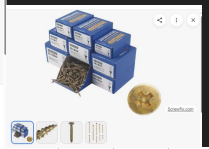
1. Going back through your own experiences now, how would you have scheduled the build you have just undertaken? Where could time be saved, or planning altered? From the records that you have kept review how much each piece of scenery has cost (labour not included, though extra points for those who can show how many people hours were actually involved). Spend the next week going through this, putting together material suppliers and contact details and price lists etc. How much time and money was wasted? (This is a valuable learning curve and not one you are judged on).

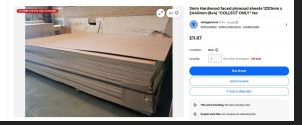
One way we misused man hours according to Dave was through how uncharacteristically friendly we are; we wasted precious time we could be working because we enjoyed a particular conversation too much. If we were to do this work again, not only would we be faster because we now have the experience under our belts but also because we would work as we talked. Multitasking is a precious skill and one that is very useful in this line of work. Additionally, if we were to do this again we wouldn't make as many mistakes as we did previously; simple mistakes such as placing a toggle in the wrong place could have cost us hours of work but as beginners in education i believe we can let our mistakes be learning curves.









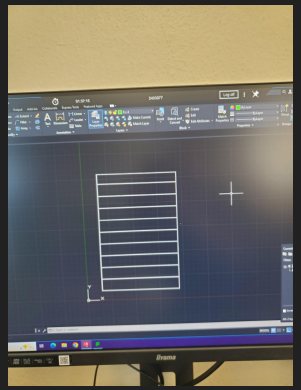


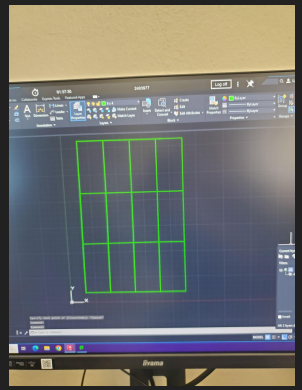
Material cost estimate- from what i can find, the average price for eight lengths of 500mm sanded and treated timber is around £70. For one sheet of 1000mm x 3000mm 3mm plywood the average price i found was around £10 i also looked into expanding foam cans at an average of £5, and sheets of polyiso foam at an average of £10 per sheet. For the first gravestone we used about one length of timber and half a sheet of plywood, so is worth approx £13 worth of materials, for the flat we made we used two sheets of plywood, and about two lengths of timber, so it is worth approx £55 worth of materials. For the second tombstone we used around one and a half sheets of plywood, and three lengths of timber, so it is worth approx £40 worth of materials. For one side of the ghostbusters firehouse we used a lot more materials, from my cutting lst I estimated 7 lengths of timber, and 4 sheets of plywood, and one sheet of polyiso which is worth approx £108, multiplied by two for both sides makes £216. Finally for the front face, one half used roughly four lengths of timber and two and a half sheets of plywood which is worth approximately £48, multiplied by two makes £96. Which means overall, the ghostbusters firehouse is worth around £312.

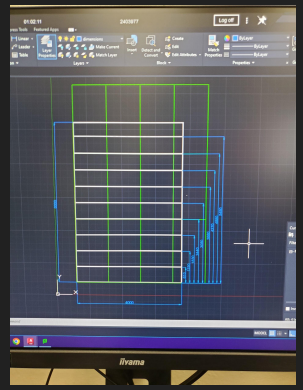
According to my calculations, since october 16th (our first scenic construction lesson) we have spent 66 hours in the workshop. The average salary for a set designer in the uk is £15 per hour, therefore the total man hours spent from myself would be £990. For all 10 people on our course the total estimated man hours for everything we have built since the beginning of the academic year would be worth £9900.

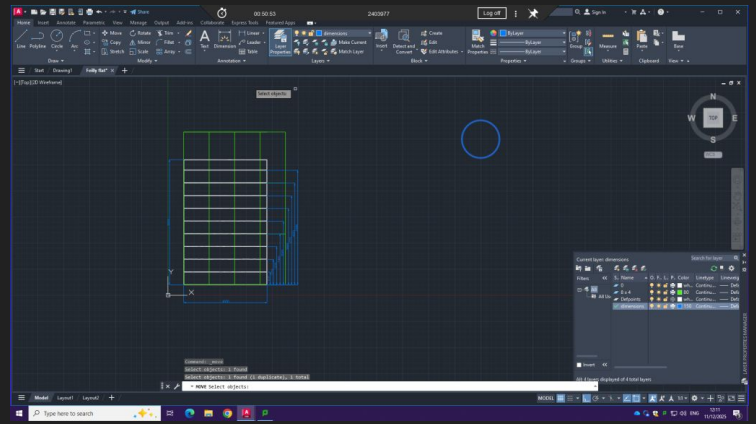
1. Produce a CAD drawing of scenery. This must be a third angle orthographic projection.

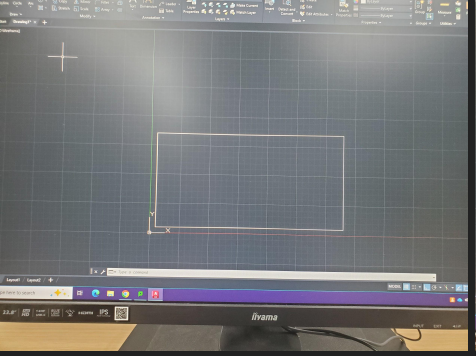
I was introduced to the CAD programme on the 11th of december 2025 after very little experience with technical drawings made from a computer. Previously I have used a programme to design a desk ready for printing, however, I wasn't very good at this and the design layout of the site was very different to CAD. I was taught the basics for how to use CAD; how to create simple shapes, multiple layers, dimensions, material thickness and depth and plan out appropriate technical drawings to be used in construction. Overall, Felix and I designed this flat, at 4' x 6' dimensions we were taught how to fit the frame to the sheets of plywood we would need, as well as where the toggles would need to sit and how to correctly make note of these in dimensions. This was the first thing that we designed in CAD and I intend to do a lot more work in the future (including a design that I am allowed to mention for this study question).

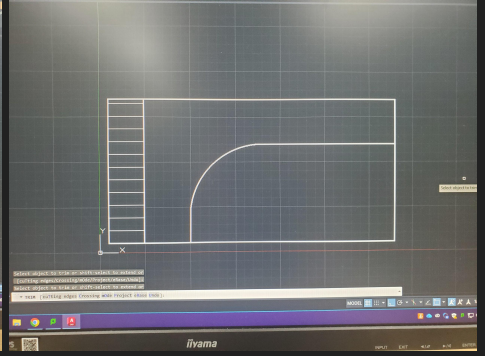


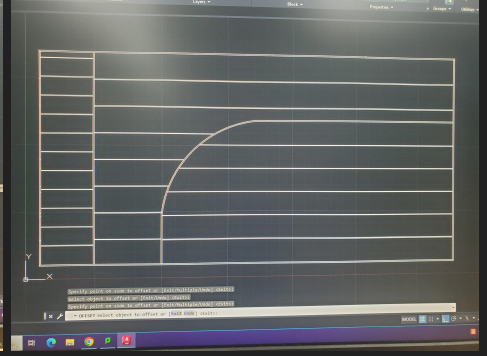


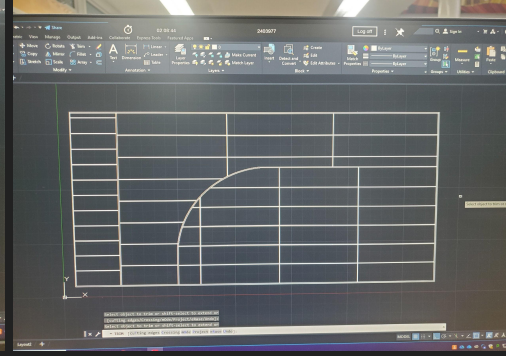


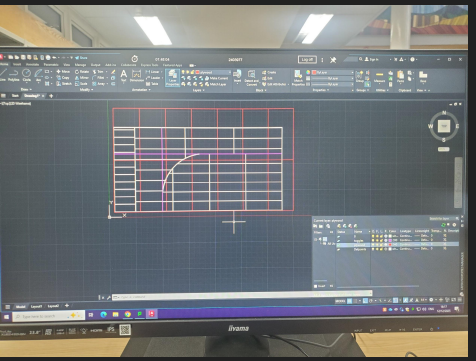


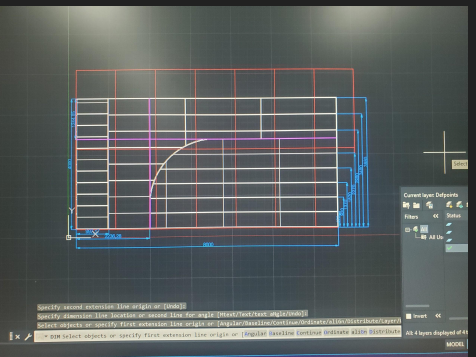












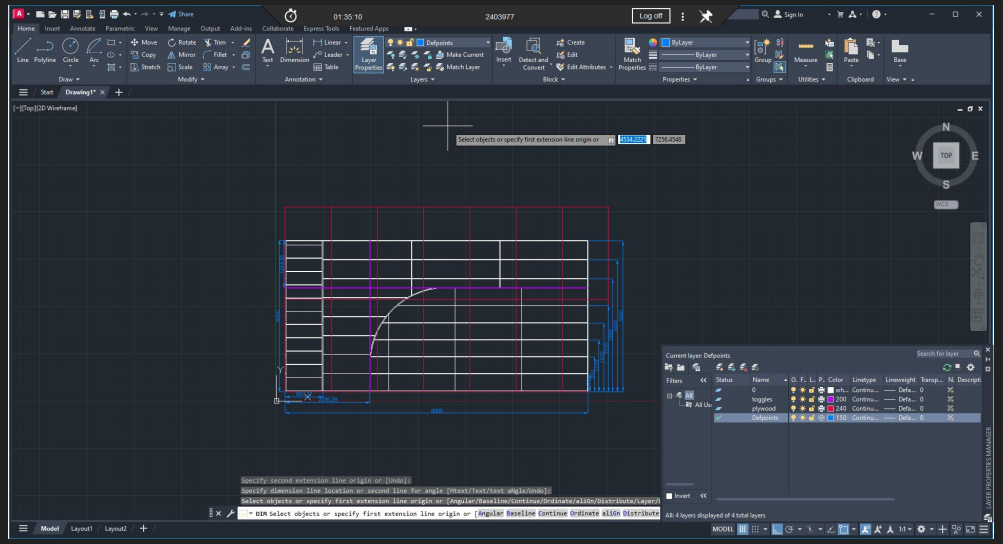
Designing using CAD

Using the skills I learned in class, I experimented with many different tools to create a technical drawing for a bookshelf that I had previously built as a scale model as part of a previous project. I first constructed the frame then the key features; the curve and the ladder, before I went on to insert the actual shelves for both the inner and the outer parts of the bookshelf. Once I had created the simple line art I placed in the key toggles along the curve and inserted a layer to show where the plywood would sit on the frame; this is shown in my photos in red. After that I went on to insert the dimensions of each shelf, where the toggles sit and the total height and length of the bookshelf.

Final product



Above is the photo of the model which I based my CAD drawing on. As seen, the model has two levels; a front face and a back face, divided by a curve. On the left hand side is a ladder and each section on the CAD model is designated as bookshelves, with each sitting equidistant apart. The contrast between the scale model and the CAD drawing is simply that the CAD drawing is made to be life-sized while the scale model is - a model.



Final impressions

I found the construction side of the course extremely different to the other modules we studied but I loved the contrast, I really enjoyed building skills that I will be able to implement, not just later in the course, but also skills I can use in my own life. I am a big fan of maths problems so I enjoy the mathematical side of the construction and I loved using the big tools. I feel my limits are my height and strength; it may be warped vision but this module has made me fear that I am vertically challenged when it comes to certain aspects of moving set, using tools and just generally reaching the board but I'm hoping I can use this to my advantage and my height will become a unique selling point of my own. I enjoyed the collaborative side of this module and I know I would not be able to do as much as I did without them. I feel our class gets along very well and all enjoy each other's company very much. This has led to a great working environment within the workshop and outside of class. We often divide into groups depending on the skills we have and what we're interested in; either different construction sides, different tools or the mathematical side. This ensures we have the feedback of peers if one of us makes a mistake. Often we have problems or questions when it comes to tools or any other issues someone else will know the answer. If not, Dave will.

I'm glad that for the construction side we were left to our own devices, using whichever construction techniques we wanted to experiment with, and feedback was always available if we needed it. This gave us an opportunity to learn our construction limits and methods that could help us out in the future.

I was sad that we couldn't finish our final project but we will have the opportunity to finish this later in the future. We finished the rest of our projects and I was very happy with the final outcomes, but my favorite project we worked on was the second tombstone with the cross coming from the top. I loved working from the scale model and the technical drawing to build a life-size grave and I am very excited to begin painting and decorating this project in a later module. I also enjoyed building the Hollywood flat, I learnt a lot about flats and the benefits and drawbacks to each kind of flat which definitely helped my understanding later down the line.

Overall I loved this course, the skillet that was developed because of it, the teamwork skills we developed and getting to work in a professional environment with the large tools and teamwork skills. I'm going to miss this module and I can't wait to put the skills to good use in the larger world. I'm very grateful for the opportunities we were given to learn scenic construction and teamworking skills.

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