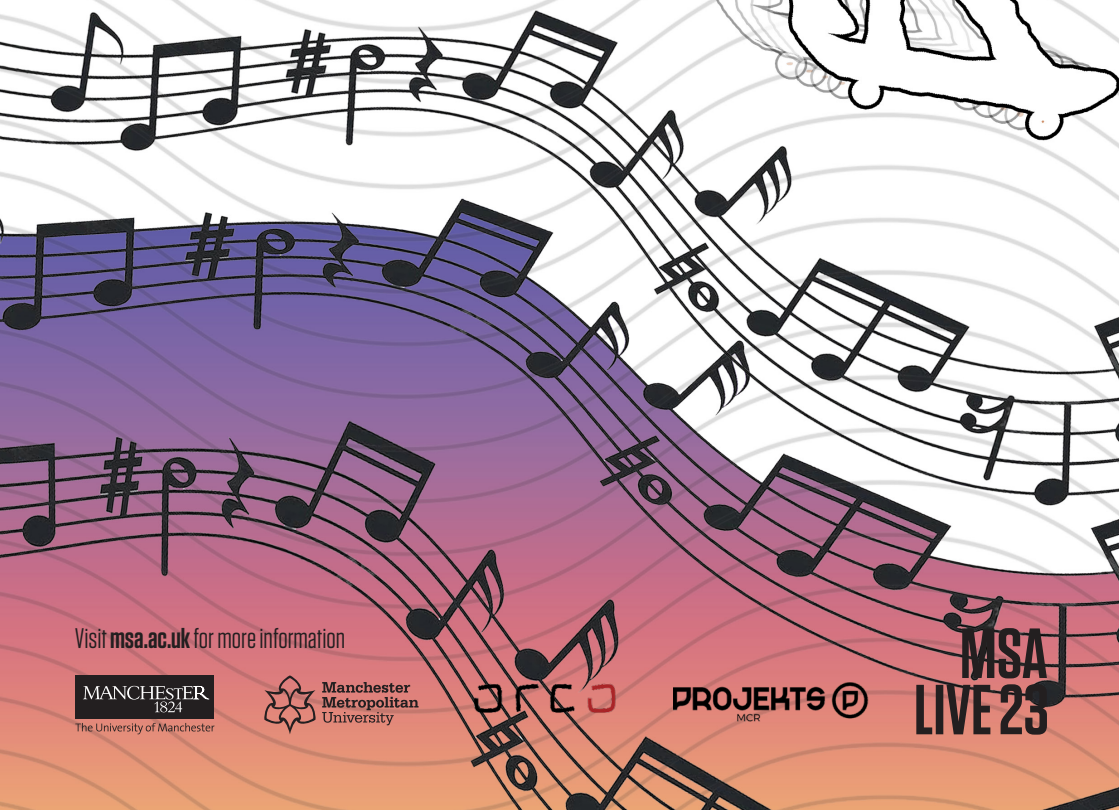


MANCHESTER SCHOOL
OF ARCHITECTURE

ACOUSTIC SKATE



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Team

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Partners

We had the pleasure of working in collaboration with **Arca Architects** for the creation of a sound barrier for **ProjektsMCR**.

ProjektsMCR is an independently run skate park that offers regular skating classes and a safe space for Manchester's huge community of skaters to perfect their craft. As well as this, the venue hosts a small cafe and local shop. The skate park is engaged in promoting minority communities, such as LGBTQ+, girls and young women, in the skate world. (Davidson, 2022)

ProjektsMCR was designed by **Arca Architects** and it was completed in 2020. Arca is an award winning architectural practice based in Manchester, UK. The practice was established by John Lee, its director, in 1998. During its years, the firm has excelled at a wide range of design projects from signage to major bridges, from listed buildings to landmark new buildings, across England. Their philosophy is focused in the concern for the interests of the human being in the process and product of architectural design. In their unique work for clients, Arca seeks to combine ideas of place, architectural technology, social factors and economy into coherent form-making and fluid spatial sequences. (www.arca.co.uk)

Agenda

AcouSkate

We are AcouSkate a student group of year 1, 2 and 5 collaborating with ProjektsMCR along with Arca architects. Project's site is located underneath the Mancunian way just outside the city centre. ProjektsMCR skatepark offer coaching sessions, a café, shop and a future platform for events. Following a few meetings held with our collaborators, we decided to design a sound barrier at skatepark to prevent sound leakage from the events held at the venue.

Over the two weeks' time period we proceeded our action plan and, focused on analysing the issues and threats of the site as the first step. Then we designed a sound barrier and selected materials, by having an overall goal of achieving a functioning design. Finally, students were divided in to three groups and focused on making an instruction manual explaining the assembly of each and every module, construction sequence describing the assembling, dissembling, storing of each module and the whole structure and model making. We also focused on the structure and materials of our design, ensuring that it will withstand the wind, rain and site specifications. Our main goal was to design a sustainable, cost effective and easy to handle sound barrier that was both in part permanent and flexible. These design ideas were a combination of both undergraduate and masters students, which created the platform to share and transfer skills between everyone. This project benefitted students in gaining and improving their knowledge on designing, selecting materials according to a specific environment, modelmaking, structure and drawing skills.

Overall, this sound barrier will benefit the skatepark's activities as a not-for-profit social company dedicated to educating, training, and having fun with people of all ages. This document explains the process of designing and highlights the progress.

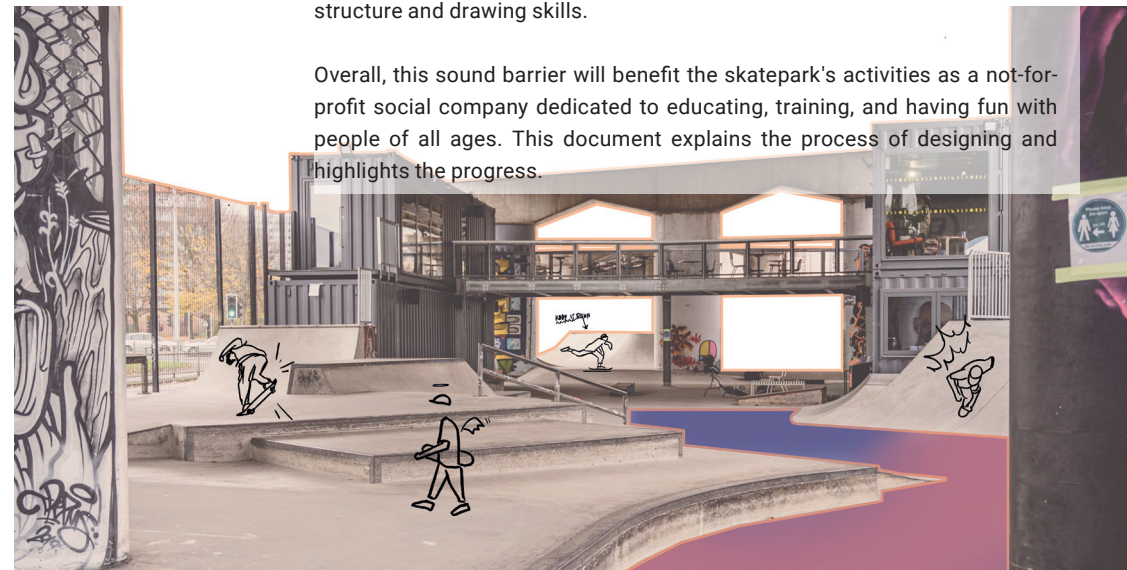
Scan me for the
Instruction Manual



Scan me for the
Construction Sequence



Scan me for our
Client Presentation



Who, where, what and why?

ProjektsMCR is a skatepark, established in 2004, designed under the Mancunian way under the initiative of John Haines, for skating enthusiasts. They offer training, a café and a shop with skating products and have made the site more interesting and greener than before. Initially this site was an antisocial area with thefts and crimes but now ProjektsMCR has made it a positive and safe environment within years for all the communities. They also encourage women skaters, and making the environment accessible for all ages and disabilities who are passionate about skating to improve their skills at the skatepark by introducing different events. The skatepark was designed by Arca architects in order to give the best atmosphere for all the skate enthusiasts. This space helps to celebrate the social, creative and active environment around the area.

AcouSkate group is serving the purpose of building a sound barrier through a sound insulating panel in order to prevent the sound leakage for future events held at the venue. ProjektsMCR is planning to host different events including concerts and gigs in the evenings. This would create sound disturbance to the neighbourhood by bouncing from the concrete structure of the skatepark to the outside. The initial idea of our design is to limit the noise within the skatepark without compromising the sound quality to the event participants. This site is located near a residential area and the large sound originating from the skatepark events will disturb the surrounding. Depending on the event approximately Sub-bass would make 20 – 60Hz, Bass: 60 – 250 Hz, Low-mids: 250 – 500 Hz, Midrange: 500 – 2kHz, High – mids: 2 – 6kHz, High: 6 – 20kHz. Our main project goal was to create a panel to absorb these sound frequencies generating by different events. These factors were considered when designing, selecting materials and structuring.

NO NOISE

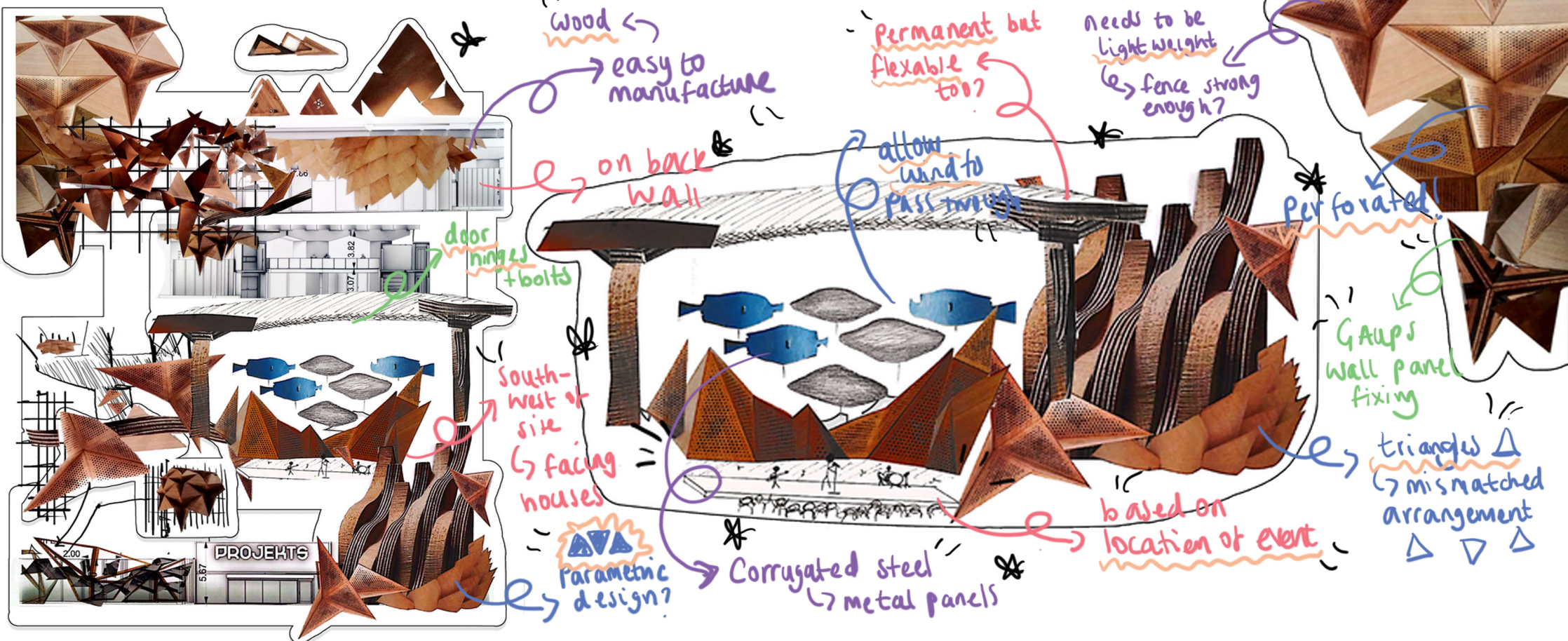


it's so nice to finally have a place where women can fiercely show their skating skills!

KEEP IT DOWN
SOUNDS GOOD



Workshop 1: Unleashing Creativity and Collaboration



Following our site visit, the focus shifted to engaging the BA1 and BA2 students in a collaborative and creative activity called The Big Draw. This activity aimed to explore the placement and form of modular sound barriers through the medium of collages.

During The Big Draw, participants immersed themselves in the world of visual expression by creating collages using multiple precedents of modular sound barriers. By combining various elements and ideas, the students could visualise how the sound modules would fit together

within the skatepark environment.

After the Big Draw, the BA1 and BA2 students presented their collages to the group, sparking an inspiring and dynamic discussion. The presentations became a platform for exchanging ideas and generating design concepts for the sound modules. As each collage was shared, the group collectively brainstormed on fixings, materiality, shape, and ideal locations for the placement of the modules.

To capture the essence of the discussions, the

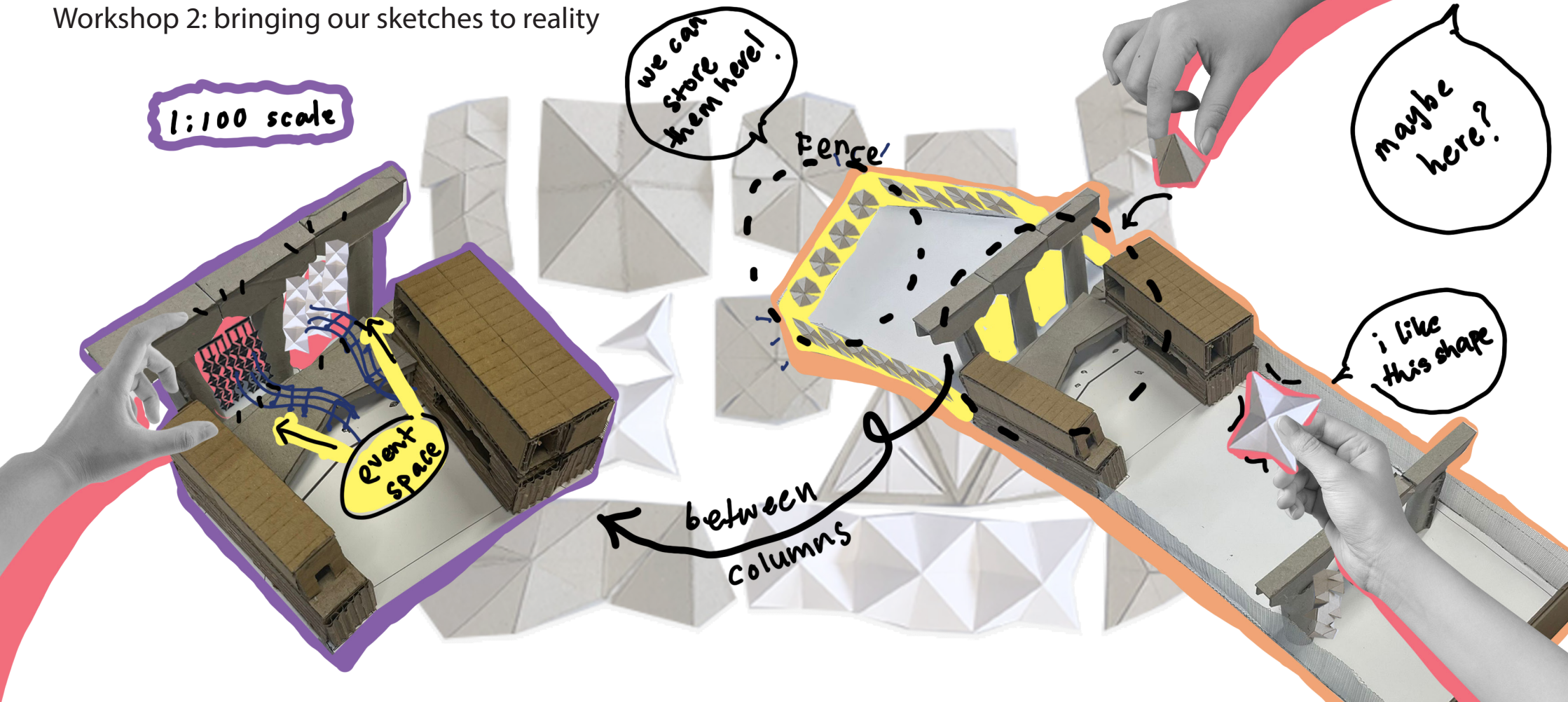
BA1 and BA2 students created a mind map that consolidated the key points and ideas shared during the presentations. This mind map provided a valuable visual representation of the collective insights and served as a foundation for further exploration and refinement of the module designs.

Additionally, students chose one of the collages, and it was given to Midjourney (AI text-to-image generator) along with a text prompt based on the mindmap's keywords. Students played around with the results and got new

ideas from some of the variations.

Day 2 witnessed an incredible display of creativity, collaboration, and innovative thinking. The BA1 and BA2 students actively contributed to the project, infusing it with fresh perspectives and ideas. The AcouSkate team eagerly anticipates translating these ideas into tangible designs that will shape the future of sound treatments at ProjektsMCR skatepark.

Workshop 2: bringing our sketches to reality



On the third day of the AcouSkate project, the BA1 and BA2 students delved further into the design process by translating their ideas into tangible forms. The day's activities revolved around the creation of a 1:100 scale site model and individual sketch models of their sound modules. The students began by crafting a meticulous 1:100 scale site model, providing a bird's-eye view of the skatepark and its surroundings. This site model served as a crucial reference point for understanding the spatial context and identifying potential locations for the placement of their sound modules.

Next, armed with their learnings from The Big Draw, each student embarked on the creation of a 1:100 scale sketch model of their unique sound module. Drawing from their collages and the discussions that followed, the students manifested their visions into physical representations. These sketch models captured the essence of their module designs, showcasing elements of fixings, materiality, shape, and contextual integration.

Once the sketch models were complete, the students participated in a collaborative

critique session. Each student presented their sketch model, and their peers provided constructive feedback through the use of post-it notes. This interactive critique allowed for an exchange of ideas, and suggestions, encouraging iterative improvements in the module designs.

The day was a hive of creative energy and collaboration as the students immersed themselves in the design process. The site and sketch models provided tangible representations of their ideas. The critique session

fostered an environment of shared learning, ensuring that each student's module design benefited from the collective expertise and insights of their peers.

Day 3 marked a significant milestone in the AcouSkate project, as the students brought their ideas one step closer to reality. The site and sketch models laid the groundwork for the subsequent stages of the project, igniting anticipation for the transformative sound treatments that will soon grace ProjektsMCR.

Design Development: the evolution of our NOMO sound barrier

Research and Analysis:

The project began with comprehensive research and analysis to understand the current sound quality at ProjektsMCR skatepark. This involved studying the existing setup, identifying areas that needed improvement, and researching the best sound treatments and equipment available. We also looked at studying sound frequencies in relation to sound absorbing materials.

The Big Draw:

To visualise the placement and form of sound modules, the BA1 and BA2 students participated in The Big Draw activity. They created

collages using multiple precedents of modular sound barriers, exploring various design possibilities and stimulating creativity.

Design Ideation and Critique:

Based on The Big Draw, the students individually developed 1:100 scale sketch models of their sound modules. These models were then presented to the group, sparking discussions and idea sharing. Constructive feedback was given through post-it notes, encouraging the iterative improvement of module designs.

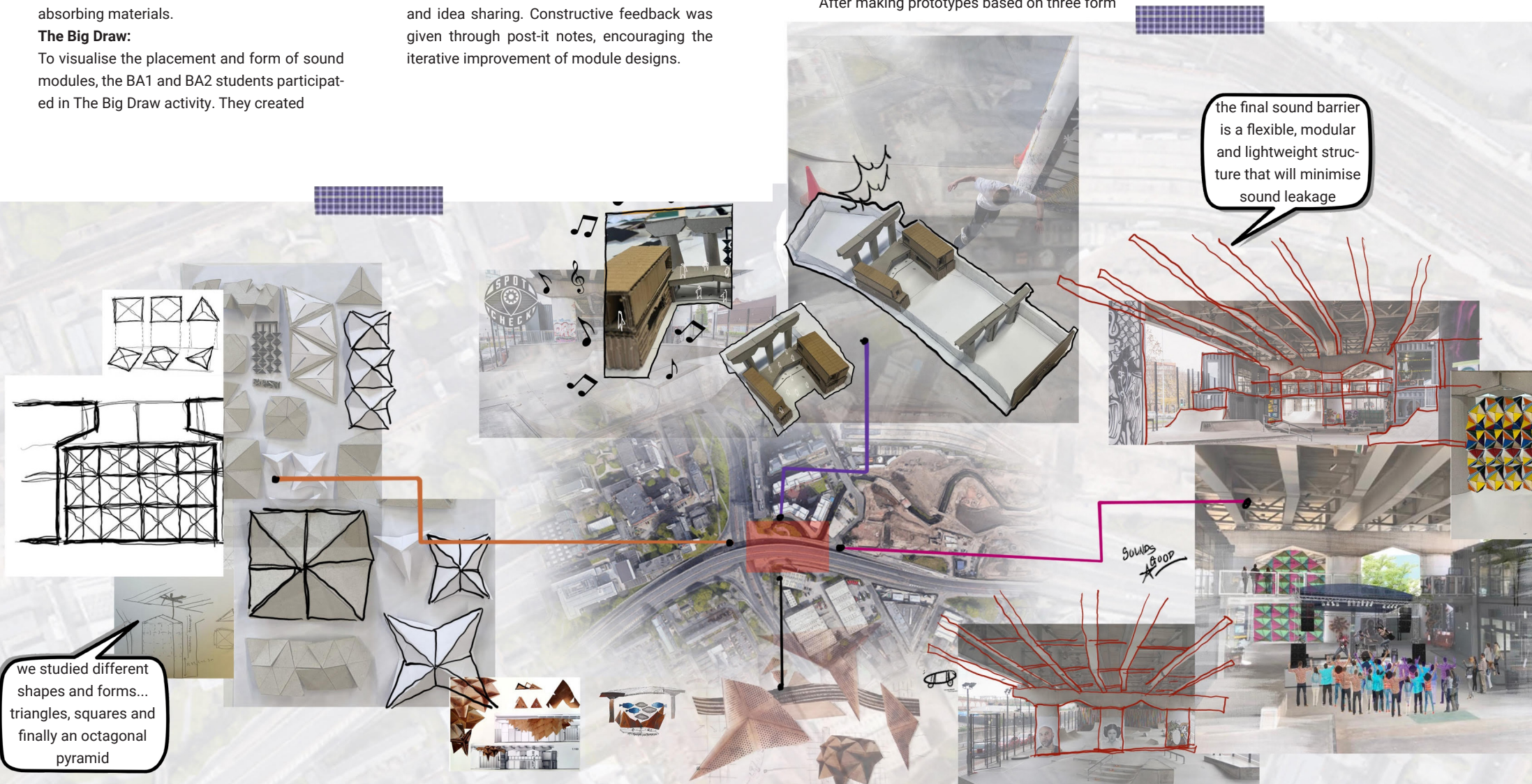
Site Modeling:

The students crafted a 1:100 scale site model, providing a comprehensive overview of the skatepark and its surroundings. This model served as a reference point for understanding the spatial context and identifying suitable locations for the placement of sound modules.

Design Finalisation:

After making prototypes based on three form

options, the team engaged in a thorough evaluation process. They considered factors such as shape, size, fixings, material, and placement. Through analysis and discussions, a final design was chosen, reflecting the project's goals and seamlessly integrating with the skatepark's aesthetics. Lastly, we ran some sound simulations by Grasshopper to assess the performance of our design.



we studied different shapes and forms... triangles, squares and finally an octagonal pyramid

the final sound barrier is a flexible, modular and lightweight structure that will minimise sound leakage

SOUNDS GOOD

Our Final Outputs

AcouSkate demonstrated the team work by delegating responsibilities and forming three output teams. Each team was assigned a specific output: instruction manual, construction sequence and model making.

Instruction Manual

The instruction manual is an A5 booklet inspired by an 'ikea' manual that outlines the process in a step-by-step guide for making one individual modular shape.

The booklet also consists of the tools and equipment needed for assembly, the cost of the overall project and a guide on the do's and don'ts when constructing. The manual aims to provide information in a quick, graphical way, so that any user can make the product efficiently.

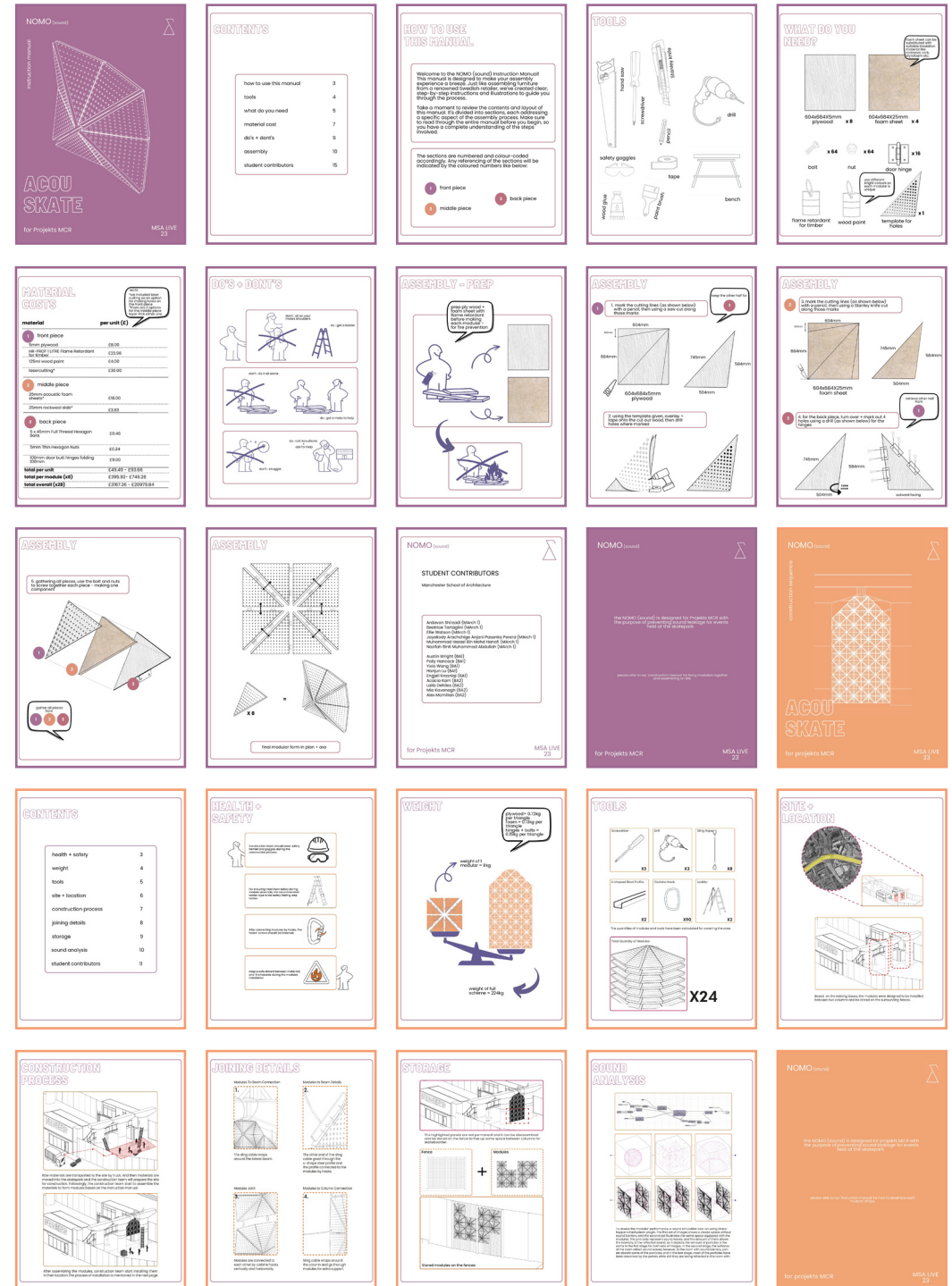
The product would be made on site, by the staff at ProjektsMCR, so it was vital that the guide would provide a easy, fun and simple way creating an effective manual.

Construction Sequence

Overall, the construction sequence is a continuation of the instruction manual demonstrating the process of installation after one module has already been built. It also illustrates how to disassemble and store the modules step by step.

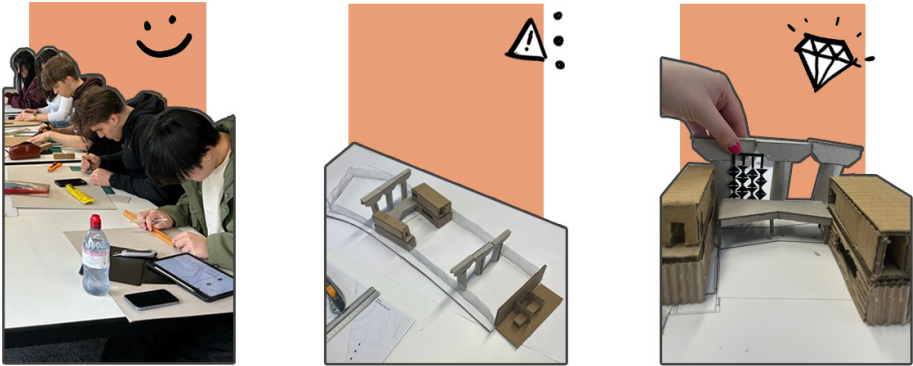
This document has been specifically designed for the staff at ProjektsMCR, therefore, the information has been illustrated graphically and kept as simple as possible to make it understandable to everyone.

Additionally, the booklet contains information about necessary tools and equipment alongside their quantities. Finally a small section regarding safety advices has been added at the beginning of the booklet.



Model Making: building prototypes of our NOMO

scale 1:100



After making collages, BA students started making the site model in 1:100 and then put their conceptual models on the site to choose the best location to install the sound barrier.

scale 1:20



The next stage was figuring out the process of tessellation and the geometric form of the modules, which was achieved through making 1:20 models.

scale 1:2



The last model was made in 1:2 scale to show the overall look of the modules and fixings in more detail. Through this prototype we examined the doability of the construction process of the pro-



ABOUT

Each year the MSA LIVE programme unites Masters Architecture year 1 students with those in BA year 1 and year 2 and Masters Landscape Architecture 1 in mixed-year teams to undertake live projects with external partners to create social impact.

LIVE PROJECTS

All MSA LIVE projects are live. A live project is where an educational organisation and an external partner develop a brief, timescale, and outcome for their mutual benefit.

SOCIAL IMPACT

All MSA LIVE projects have social impact. Social impact is the effect an organization's actions have on the well-being of a community. Our agendas are set by our external collaborators.

EXTERNAL PARTNERS

MSA LIVE projects work with many organisations: charities, community groups, social enterprises, community interest companies, researchers, practitioners and educators.

STUDENT-LED

Our MSA masters students take the lead in the project conception, brief development, delivery and co-ordination of a small project. Other cohorts joined for an eventful 2 weeks of activities at the end of the academic year.

KNOWLEDGE TRANSFER

Working in teams within and across year groups and courses; MSA students participate in peer to peer learning. In addition, collaborators, participants and students engage in the transfer of tangible and intellectual property, expertise, learning and skills.

LARGE SCALE

This year approximately 650 students from 4 cohorts in MSA have worked on 42 projects with partners.

QUESTIONS

For questions about MSA LIVE please contact the MSA LIVE team:

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BLOG

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