



mecanoo b.15 model making award

will be presented to two final year architecture students for high quality model making skills

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2015 PROJECTS SHORTLIST

**B.15
:45**

**ARCHITECTURAL
MODELMAKING
EXHIBITION**

MANCHESTER
1824
The University of Manchester

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School of Architecture

15



BA (Hons) Architecture



BArch

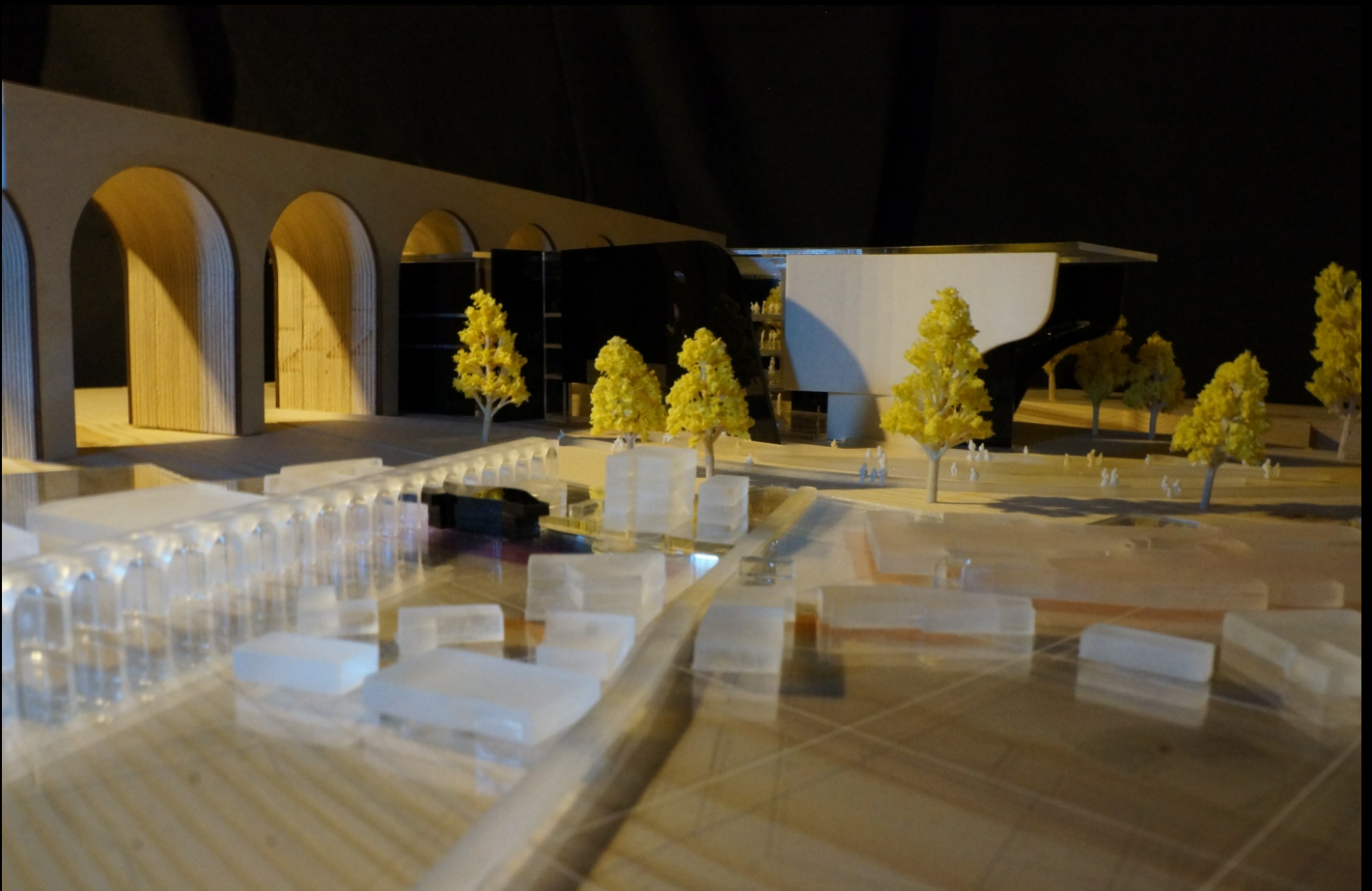
Afshin Khalife

The Forgotten River (Stockport Academy of Music & Culture)

Music is a language through which people easily communicate and share their culture; therefore the Academy of Music and Culture aims to create a place for people of different backgrounds and cultures living in this town. The chosen location of the project is the edge of the River Mersey in Stockport town centre; the key features of the design are to transform the edge of the river from a soul-less edge into an active edge by bringing the water into the landscape. In addition, the building is designed in such a way that it provides a comfortable space in today's climate as well as an extremely hot climate in the future; hence, water plays a crucial role in the project.

The physical model reflects the idea of transparency and cleanliness of water in addition to the fluid movement of the river. Thus, the base of the model is made from timber with an astonishing texture, which is lifted from a MDF sheet to emphasise the fluidity of the river. The building itself (scale 1:200) is a conceptual representation of the river that collides with the viaduct; it is a snapshot of the collision. For this reason, the building model is made up of clear acrylic for horizontal elements (river) with engravings to show the main layout of the floors, and black acrylic for vertical elements (man-made objects) to show the contrast and to narrate the story. Moreover, placing 1:200 scale human figures inside the building model, shallow ponds of sandblasted acrylic as part of the landscape and trees in the background has brought a sense of space into the model.

Finally, to show the building in a wider context an additional site location model (scale 1:2000) is attached to the model's base. The same material (clear acrylic) is used to create harmony and continuity in the model.



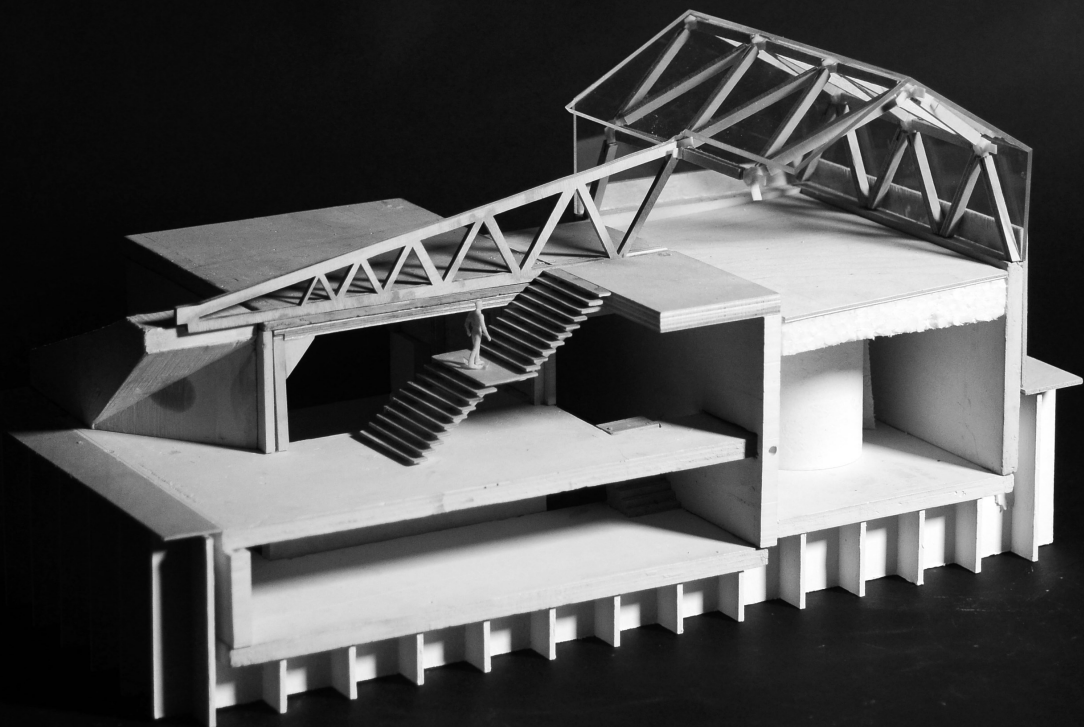
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Finbar Charleson

Waste Water Works

Imagining a new typology of wastewater treatment in Stockport. Millions of tiny creatures cleanse the excrement of 18,000 people through the use of emerging biotechnology. Treatment tanks fluctuate with the influent level, whilst plants indicate the type of pathogens therein. Unlike most energy infrastructure, central to WWW is the notion of public engagement, as people are free to wander the botanical gardens cleansing their waste. Hard and soft engineering interventions ensure a relationship between man and machine is negotiated for the betterment of the natural environment. The industrial heritage of the town is recognized as the project aims to bring our ageing infrastructure into an uncertain age of climate change, with optimism and hope.

The 1:50 scale model communicates the complex merging of programs and systems as the connection between the entrance, auditorium and treatment tanks are displayed in a section slice. Materials are selected to remain true to their properties. 3D printed nodes connect laminated timber members, creating a structural language to house the internal programs. The model continues to communicate the themes of circulation and materiality inside and out, with a network of cast staircases ramps and walkways, contrasting with the light-weight



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Thomas Smith

*Stockport Workhouse- Fuel Poverty Accommodation
in an Extreme Cold Climate.*

The aim of the collective design is to re-appropriate the former Stockport Union Workhouse, excising the sinister dialogue that overcasts the perception of the site currently. The project will solve social issues associated with workhouses in general . The program of the site will reflect the historical use and provide accommodation for residents of Stockport who fall into fuel poverty. These models convey the overall structure, form and experience of two of the building typologies I have designed. The elements of the model act in the same way as the structural elements I propose to incorporate (i.e loading), and the model was constructed in the sequence that the buildings would be in reality, enabling me to understand the construction process more clearly.

The plywood panels represent the plywood finished sips. The surface of the plywood when etched works well to represent the replaceable larch cladding, and the smooth etched surface replicates the internal finishes, as all walls and floors will be finished in ply The clear acrylic represents glass and the polycarbonate shell, allowing me the illustrate internal conditions in terms of lighting. By making these models at a scale of 1:50, I was able to analyze the internal environment of the spaces in terms of lighting and overall experience for the user.



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Jacob Alexander Graves

Piccadilly Fishery

A pocket of tranquility nestled within an urban setting, provides an opportunity to reintroduce a popular sport alongside Manchester's rivers and canals.

A unique approach designed to reintegrate the Rochdale Canal with the city centre, transforming it from a barrier to a meeting point. A base for the Salford Friendly Anglers Society and other Northern Quarter based greening groups.

A 7000m² master plan offers 2 fishing lakes and a series of walking trails designed to keep the relationship between commuters and fisherman at observation, key view/ vantage points are sculpted throughout the site celebrating the fishery.

This 1:500 model aims to demonstrate the design of the topographical layering of the site and its relationship to the fishery. Highlighting walkways and lakes with distinct level changes. The specific implementation of trees is used to naturally shelter the fishermen and small lakes from Manchester's unpredictable weather and break up the surrounding urban fabric.

Materials were chosen based on their unique properties. A dark solid base anchors the model, while cork – a relatively earthy material – could be easily manipulated, building up the layered topography. Site context made using teak wood contrasts and highlights the 1:500 3D printed fishery.



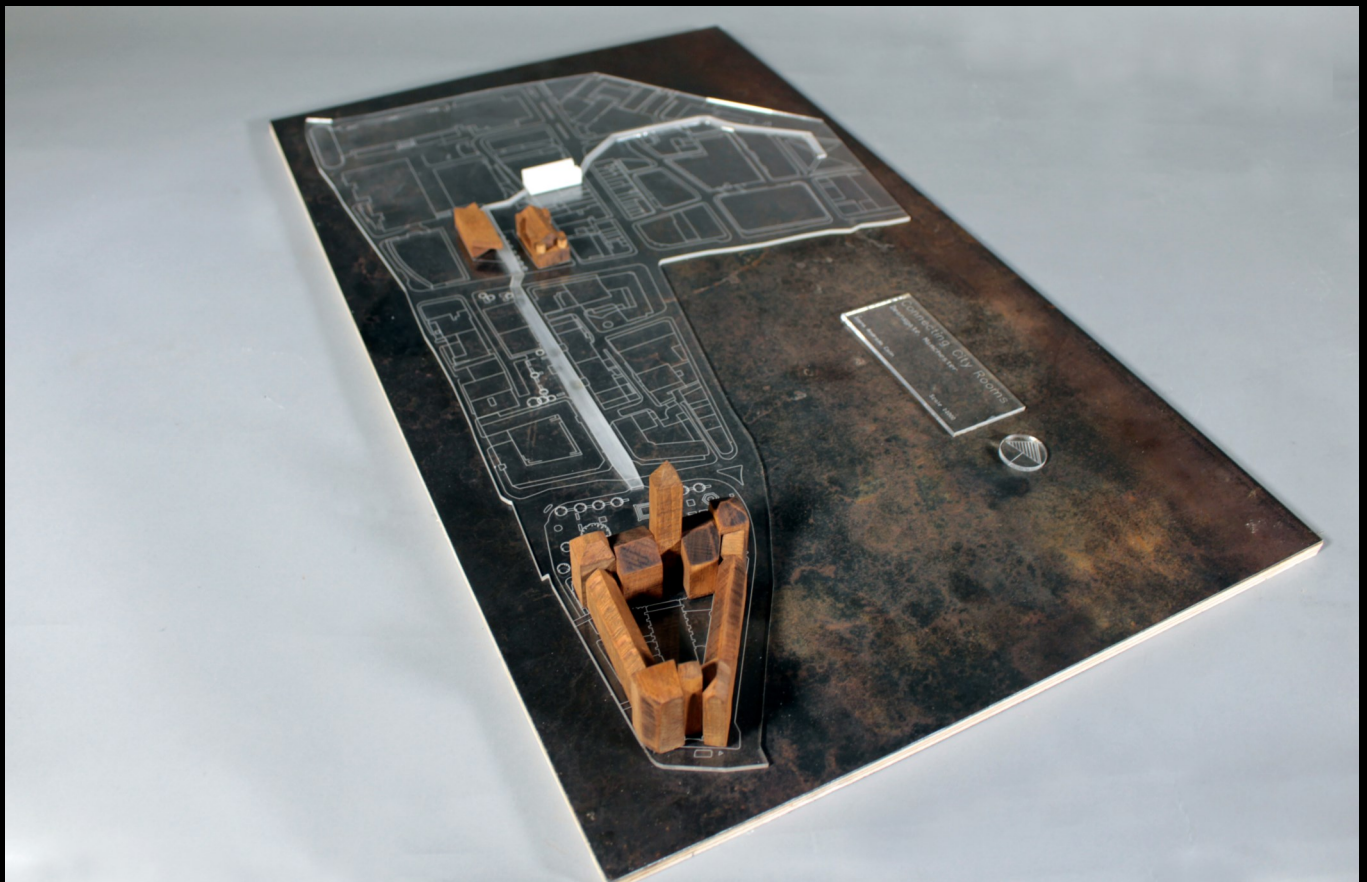
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Ioana Andrada Calin

Tempus Library—Connecting City Rooms

Speculating on the idea of compression and expansion in the city, my intention was to create another city room that offers experiential qualities for walking and staying activities in the city. In terms of cultural attributes, a library that hosts special collections of Braille, Audio Materials and Artifacts comes to complement the opposite John Rylands Library, contributing to the local cultural heritage. From a social retrospective, designing for the old raises awareness about the reintegration of the elderly in the social life of the city.

The 1:1000 scale model conveys the idea of connecting different city rooms in the territory, where my proposal acts as a passage on this city route. To illustrate this idea I used opposing color palettes of materials for existing context and intervention, but also picked materials with contrasting opacities. Key buildings were carved in hardwood and layered on top of an engraved acrylic master plan. A rusted steel sheet base offers visual dynamism to the entire composition. The proposed city route is shown differently in frosted acrylic as well as my proposal, which stands out as a layered white block.



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Daniel Mclean

Helping Hand Project

My design is to create a building which uses natural light to its highest potential in the building. The Building is set into an urban block and therefore it is necessary for light to work hard to get into the lower floors and illuminate the building. To portray this through the models, I used a pallet of similar material in order to make the three models interrelate, and also to make any testing with light true.

The model set is a series of three which starts at a 1:100 sectional model exploring light penetration. The model is set into the table so it is viewed as a true section. Second is a 1:50/1:100 light study where light can be manipulated in the façade, creating special interior spaces. Finally are my 1:50 interior models on how the light will create beautiful spaces within the buildings.

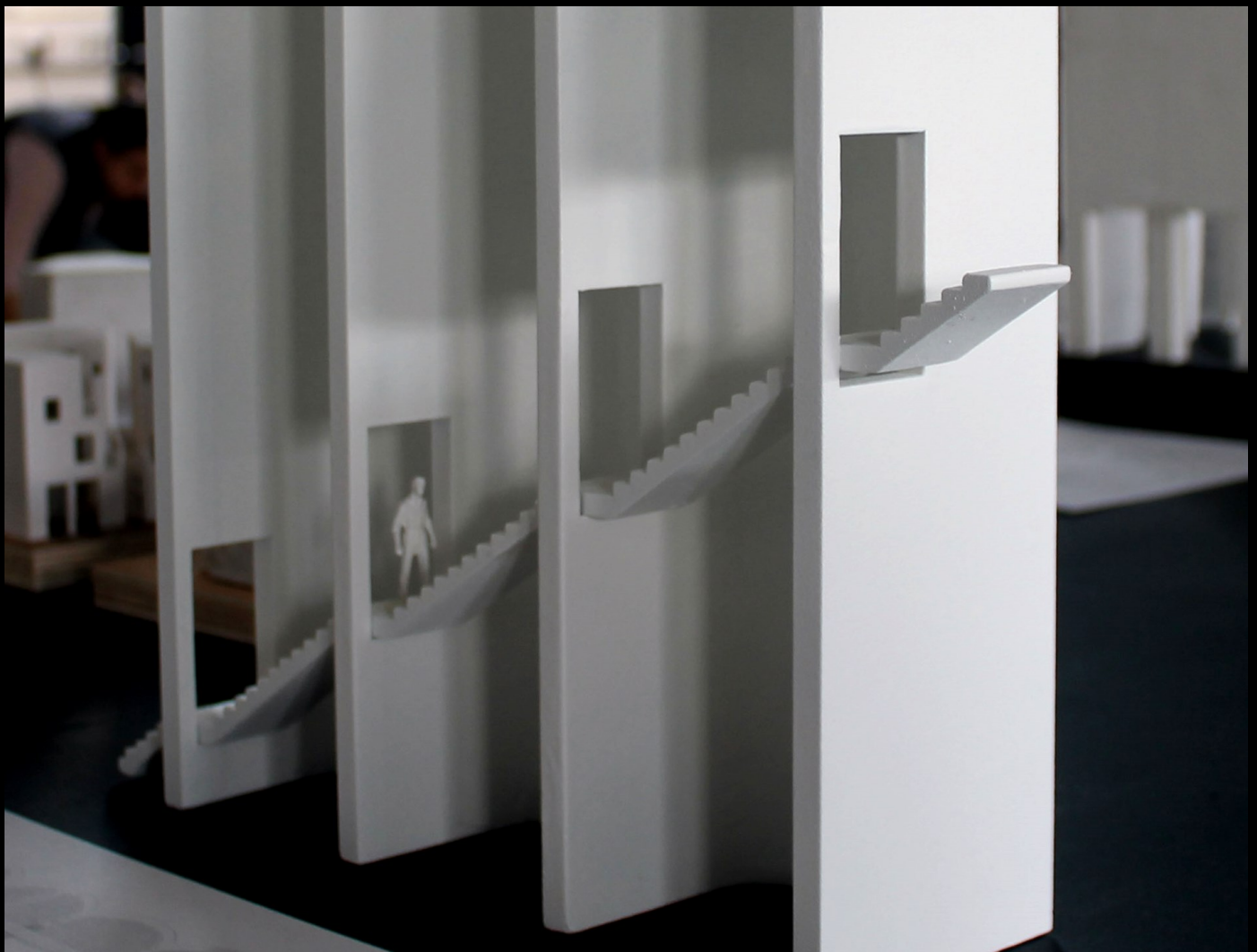


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Rebekah Parkinson

Chorus Music Therapy Centre

Derived from research into architecture, mental health and the city, this building demands a high degree of architectural and material honesty. A load bearing brick structure maintains a theme of inversion throughout, to bring the city square indoors and consequently create a piece of much needed common ground within an urban block. This method of construction also allows a series of poche spaces to be embodied within the massive structure and, in order to communicate the carved nature and almost cave like atmosphere of the building, it was important to focus the model on one particular poche space, the curved pockets that house the stairways along the West wall of the building. To remain a spatial model it was important to keep materiality abstract but allow the space to read as one continuous mass, denouncing texture in favour of a continuous white surface. Working with acrylic allowed for the precision needed to create the doorways, the stair and a uniform elevational geometry, whilst the process of filling and sanding by hand to create the internal curves allowed a degree of control but remained slightly imperfect, reflecting the sheltered cave like atmosphere the building seeks to embody.



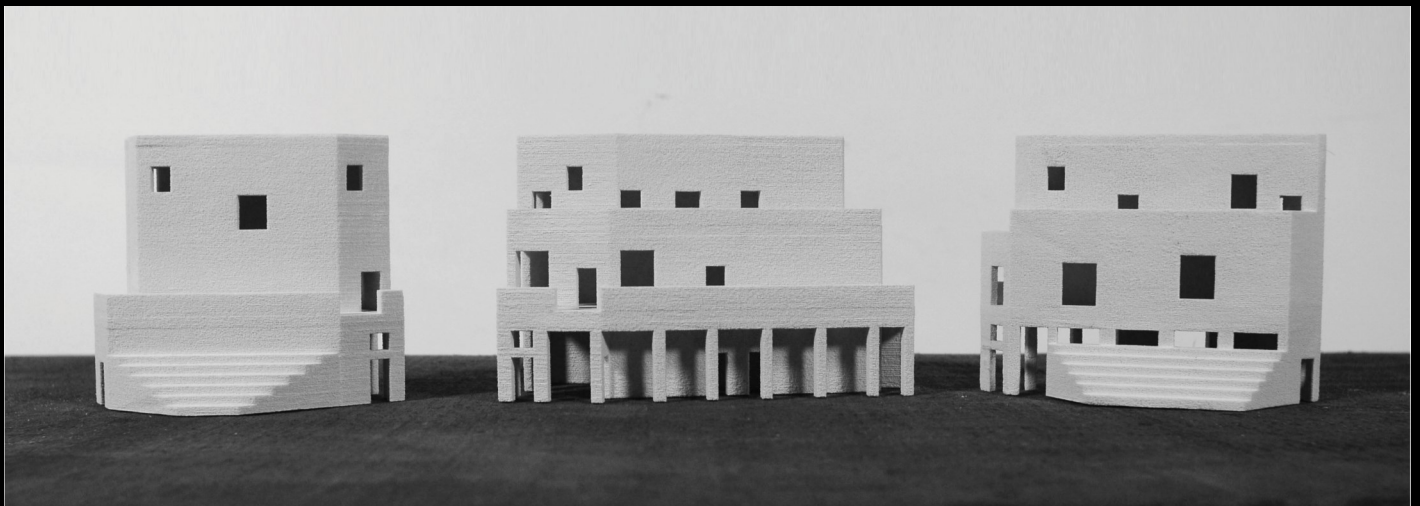
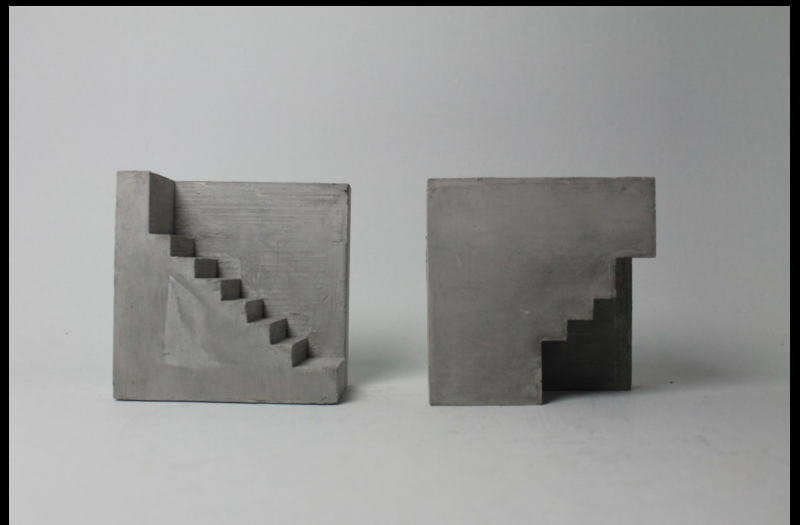
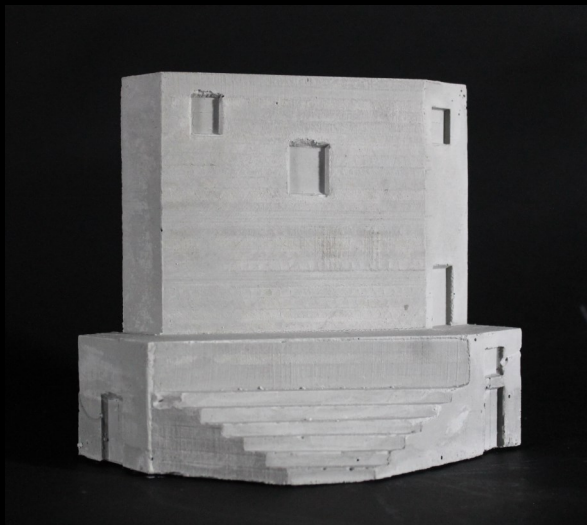
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Sara Rose Perera Hammond

The Cycling Forum

The Cycling Forum aims to recreate the city square. From studies of public space and the Roman Forum as a typology, the diagram for the cycling forum is a collection of buildings on site providing a central meeting space for cyclists in the city. Three buildings make up the urban square housing cycling programme which can help to solve problems in the city representing social, commercial and practical. The choice of concrete has been significant in the design. The choice of monolithic material represents durability and the strong use of typology as the building lasts to be reprogrammed over time, further providing durability and maintenance for cycling activities.

A series of models have been used to communicate form and materiality of design, exploring the craft of casting in an attempt to accurately demonstrate the feel of materiality and deepen my understanding of the construction process. Heavily weighting the importance of time spent on creating the precise form-work ensured a sharp cast object representing the solidity and monolithic feel of the project. Small details of the cast such as the windows were achieved by fixing pieces of acrylic onto the negative with chamfered edges for ease of removal.



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Paul Thornber

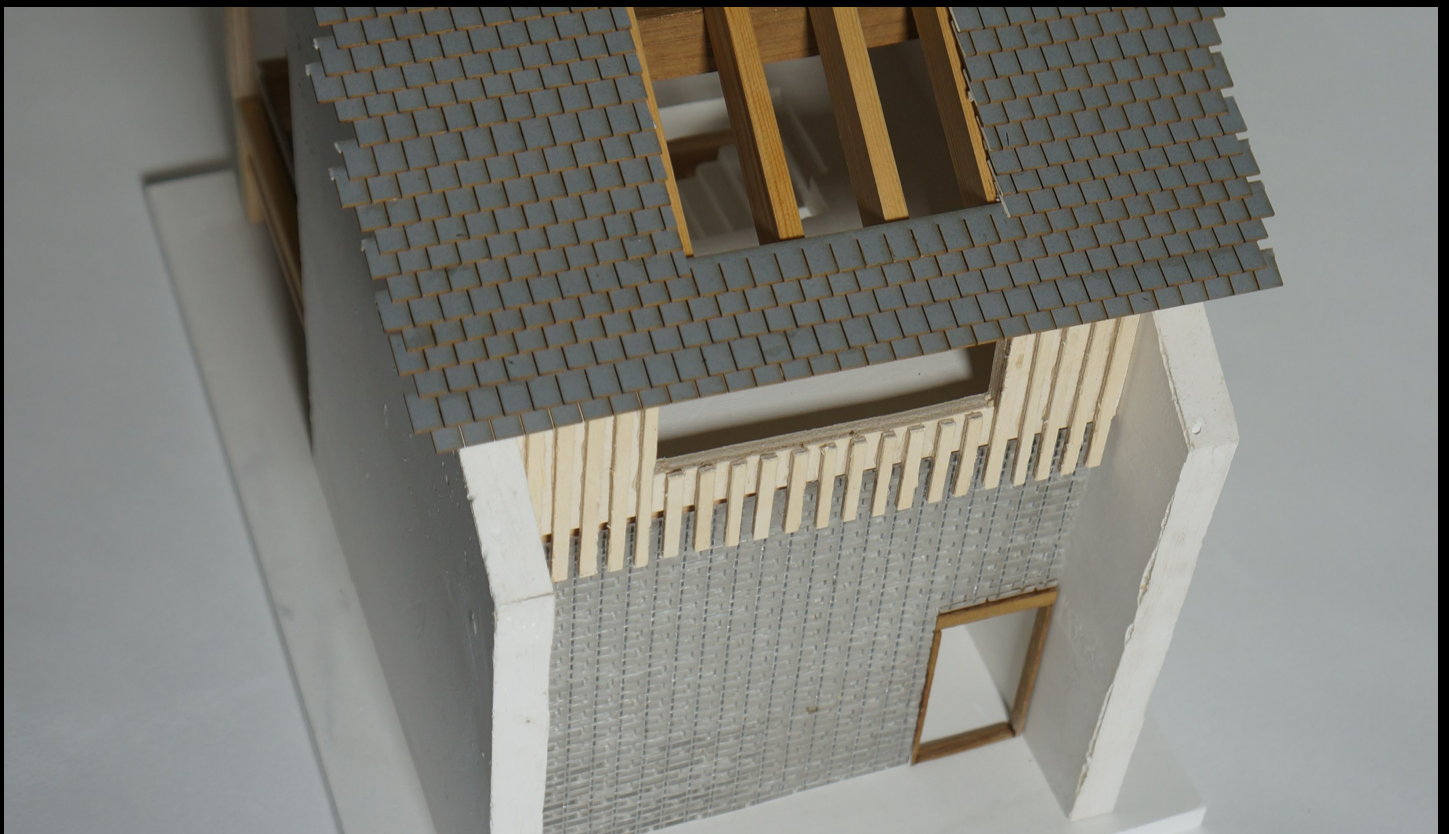
Energy House

The reduction of fuel costs for sufferers of fuel poverty through the design of housing using passive solar design and a district heating system.

Model making was essential throughout the development process. I produced drawings, made study models from these drawings in 3d and then amended the drawings based on lessons learnt from the study models.

My scheme utilises a hybrid structure of precast concrete and a timber frame. This is represented in the model with cast plaster components and an open timber frame. The plaster was cast using moulds which each needed to be designed and detailed so the model could be assembled easily and junctions could be hidden.

As the glass brick facade was an integral part of the building I tried to replicate the construction methods proposed as accurately as possible. This is something that couldn't be achieved with digital modelling and rendering software. The glass bricks are represented by hundreds of individual scaled acrylic blocks with two holes that were slotted onto 2mm steel rods, one by one. Flat steel bars that provide lateral bracing are replicated with laser cut perforated acrylic strips. I made the decision to use a physical model to create the final visuals for my project so wanted to replicate the effect of the glass blocks as accurately as possible. To properly test the internal light conditions and external facade appearance this accurate representation was invaluable.



BArch

Vicente Fuster

Rowing Quays

A rowing tank attempts to simulate the conditions of open water rowing, in an indoors facility. Being in constant fixed position, rowing is performed while facing a perpetual channel of water. A 90% similarity to a real rowing experience can be achieved, if designed properly and is primarily used for off-season rowing as well as technique training.

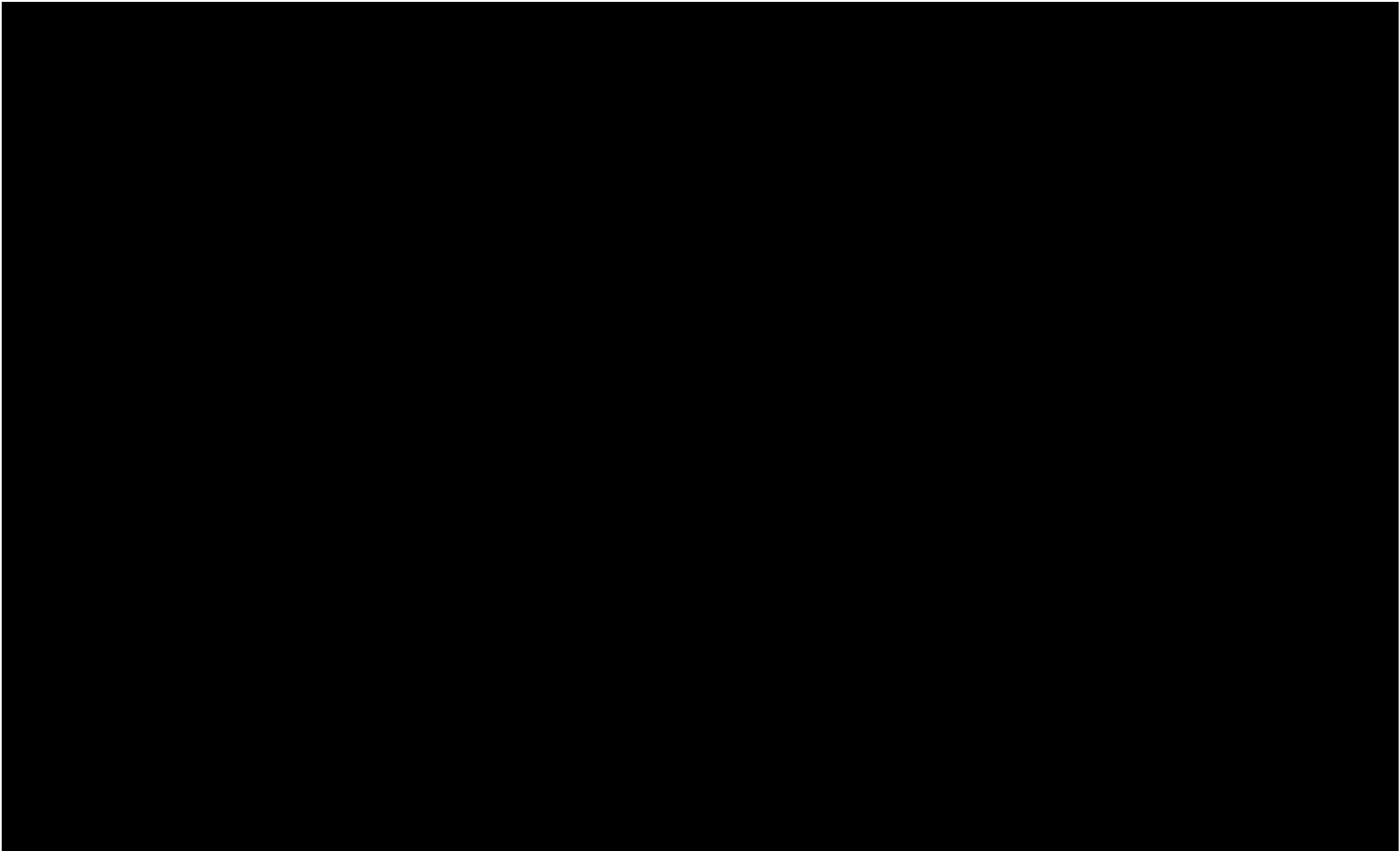
The scheme is located in Castlefield, near the Bridgewater canal. Castlefield holds a long history of canal transportation, dating back to the industrial revolution. In order to carry out structural stability and build a constant water stream, for the implementation of the rowing tank, part of the structure had to be placed underwater.

The 1:50 model aims to include key elements of the scheme, instead of focusing on smaller structural details, such as foundation, envelope, as well as the roof structure. Materials were chosen as a reflection of their respective representatives in real-life construction. Specifically, the foundations were made out of reinforced plaster, casted in situ to achieve accuracy in shape. Out of water-structure was indicated by prefabricated plastic I-beams and columns. I chose to laser cut the roof trusses and purlins out of 3mm MDF as well as the window frames and glazing was achieved by transparencies, while the internal roof finishes are made out of cork panels. Last but not least, a grey corrugated cardboard proved to be most suitable material for the external roof cladding.





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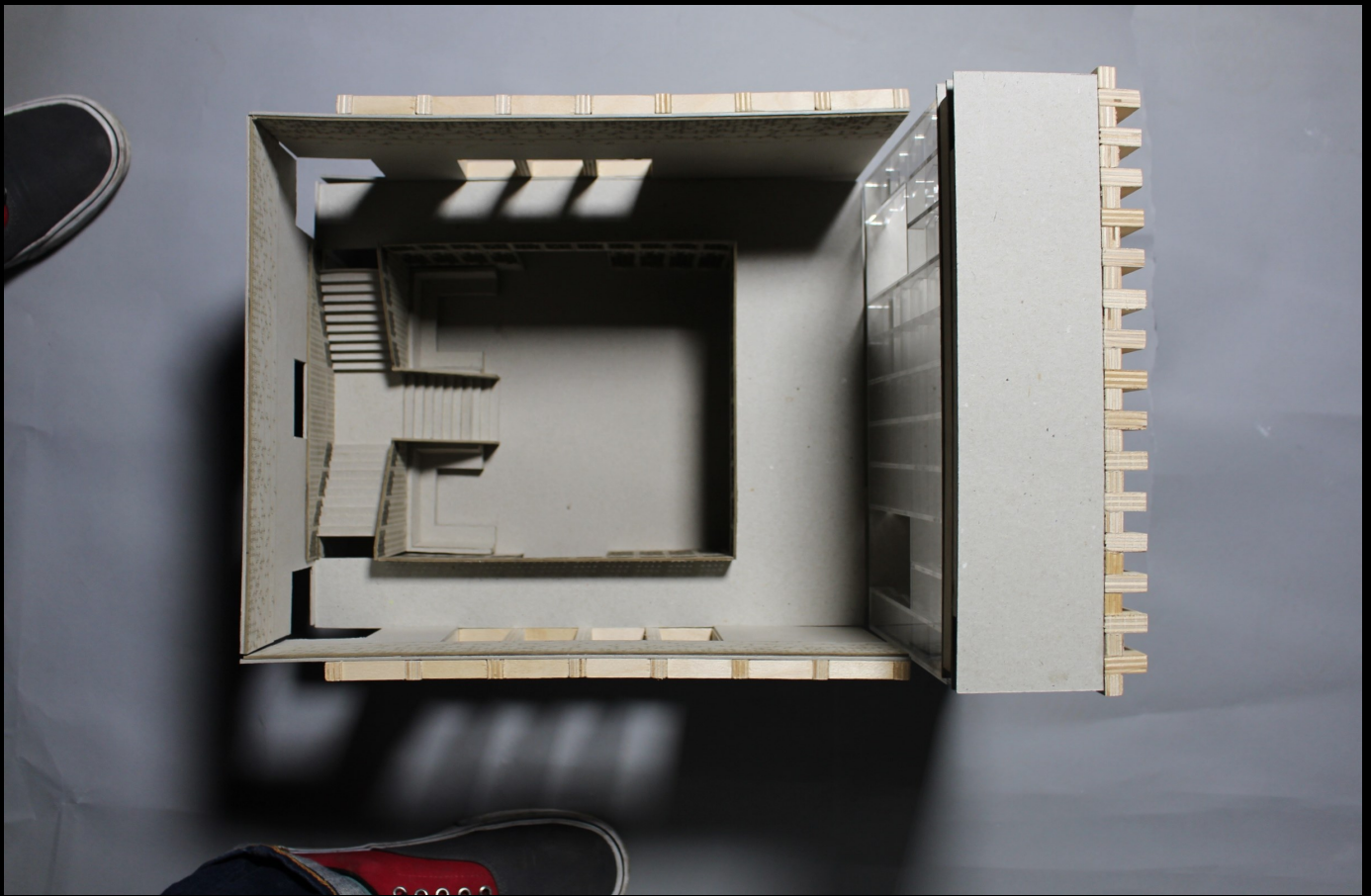


MArch Katie Williams

'Outreach and Fundraising Hub – An extension to the Wood Street Mission, Manchester.'

Situated in a constrained site, the design had to respond to the existing Victorian Mission building, as well as create spaces for the existing and new programmes. The Hub aims to connect people (families), process (goods) and money (fundraising). This is resolved in the design through the use of split levels and balconies around a central atrium, allowing the users to connect visually and physically. The structural strategy of the extension reflects and reinterprets that of the existing by using structural brickwork, and a glulam frame internally. Key details include large perforated brick openings and angled glulam roof trusses.

The 1:20 model is a section through the facade covered terrace. This space incorporates the key design details, as well as showing both floor build-ups, curtain glazing, the roof build-up, roof lights, and parapet. Where possible, materials are a close reflection of the actual construction. The glulam trusses are hardwood, and the internal roof finish is birch ply. Wood was easy to model the angled beams, as it could be sanded and shaped. The floor build-up is done using representative materials, such as foam board insulation, and a Styrene waterproof membrane. The facade brickwork is laser cut MDF to achieve accurate perforations, and the parapet capping is vacuum-formed Styrene, which is cut to fit over the cavity walls.



MArch David Jones

Work and Play: An Ageing Community Centre

This project is an early sketch model of a great hall in a community centre for ageing knowledge workers. Built in the shadow of the palace of the Alhambra it borrows on the grandeur and exquisite surface decoration of the palaces interior.

The model proposes a taught skin of material, embossed with an abstraction of a Moorish pattern that is hung on a CLT timber Frame. Around the balustrade and cleaning the pattern is cut out to create a screen allowing light to pass through.

Many of the ceiling of the palace are depiction of the divinity of heaven, here star and cross shaped holes filter daylight entering the space from above and cast a patterned shadow on the floor.

A south facing glazed façade is recessed behind large columns that provide solar shading to the interior and provides a balcony at first floor level from which there is a superb view across a river valley towards the Alhambra.

A simple material pallet expresses the difference between structure and cladding/lining. The intricate pattern is etched and cut out of grey board. While the handmade plywood elements describe structure.



MArch

Hajir Alttahir

Manufacturing Lost Culture

Situated within Runcorn New Town, a town of dualities and juxtapositions, the proposal seeks to reinvigorate underutilised infrastructures. Returning to the regional tradition of exporting prefabricated cultural buildings, and rooted in current photogrammetric and digital fabrication techniques; the site manufactures and exports lost culture to locations that have destroyed their heritage through natural disasters or conflict.

The scheme consists of several programmatic components situated within a megastructure, namely a fabricator, laboratory and school designed to develop and disseminate skills to the local population. The industrial shed is made up of a series of concrete ribs, a lightweight suspended roof and ETFE skin. The surrounding landscape acts as a temporary archival storage facility and a curated evolving park displaying fabricated culture.

The final model is intended to convey the activation of latent transport infrastructure networks in addition to highlighting the atelier theme of infrastructural architectures and urban experimentation. Resin printing and frosted acrylic were used for transient elements such transport, cranes and fabricated monuments to allude to their changing natures, whereas powder printing was employed to convey the more established nature of the megastructure. The urban context is restricted to a limited palette of black acrylic and dark stained plywood to contrast with the proposed elements, which were 3d printed partly due to the scheme's association with digital fabrication techniques.

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**Compiled by Scott Miller for the first annual award for modelmaking at
Manchester School of Architecture sponsored by Mecanoo and the B.15
Modelmaking Workshop.**

‘Mecanoo B.15 Modelmaking Award’

All text authored by respective students.

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