

WOMEN IN FABRICATION – ZAYED COLLEGE FOR GIRLS
AUCKLAND, NEW ZEALAND

PROJECT OVERVIEW

Women in Fabrication 3.0 is a collaborative platform that empowers female high school students, architecture students and architectural graduates through design and construction. The project partnered with Zayed College for Girls to improve its built environment and interface with the community, by constructing a pavilion near the school entrance where students can wait for their parents after school. To ensure the users of the space have an active voice in the project, workshops were held in the college, where students learned about basic principles of design and technology, provided input on the most suitable location of the pavilion and developed concept designs for this structure. They were mentored by female architecture students and architectural graduates, as well as their everyday teachers. The design process celebrated the rich cultural diversity that is part of this community, including the integration of Islamic traditions that are an integral part of the school's philosophy, as well as the application of Te Aranga principles that honour New Zealand's indigenous culture. The discussions, concepts and ideas from the workshops will inform the final design of the pavilion. The pavilion will then be designed and constructed by a group of female architecture students, architectural graduates and other specialist professionals, using digital fabrication technology to maximize efficiency and minimize waste of resources. The fabrication stage will also strengthen teamwork and leadership skills for women architects and students.

PROJECT PROCESS

The project is divided into three stages. They are:

1. Social design with students and teachers. This stage saw a variety of architecture students and practitioners with different backgrounds and expertise host workshops at Zayed College. The workshops were themed and ranged from teaching students how to make models, explore design to understanding Maori design principles.
2. Design Development and Refinement. This stage seeks to refine design concepts Zayed students have come up with. A large amount of work is required to engineer concepts to become feasible to inhabit and fabricate using a CNC router.
3. Pre-Fabrication and assembly. With the use of digital fabrication technology - specifically, the CNC router - a kit of components will be fabricated at Unitec's workshop to be assembled at Zayed College.

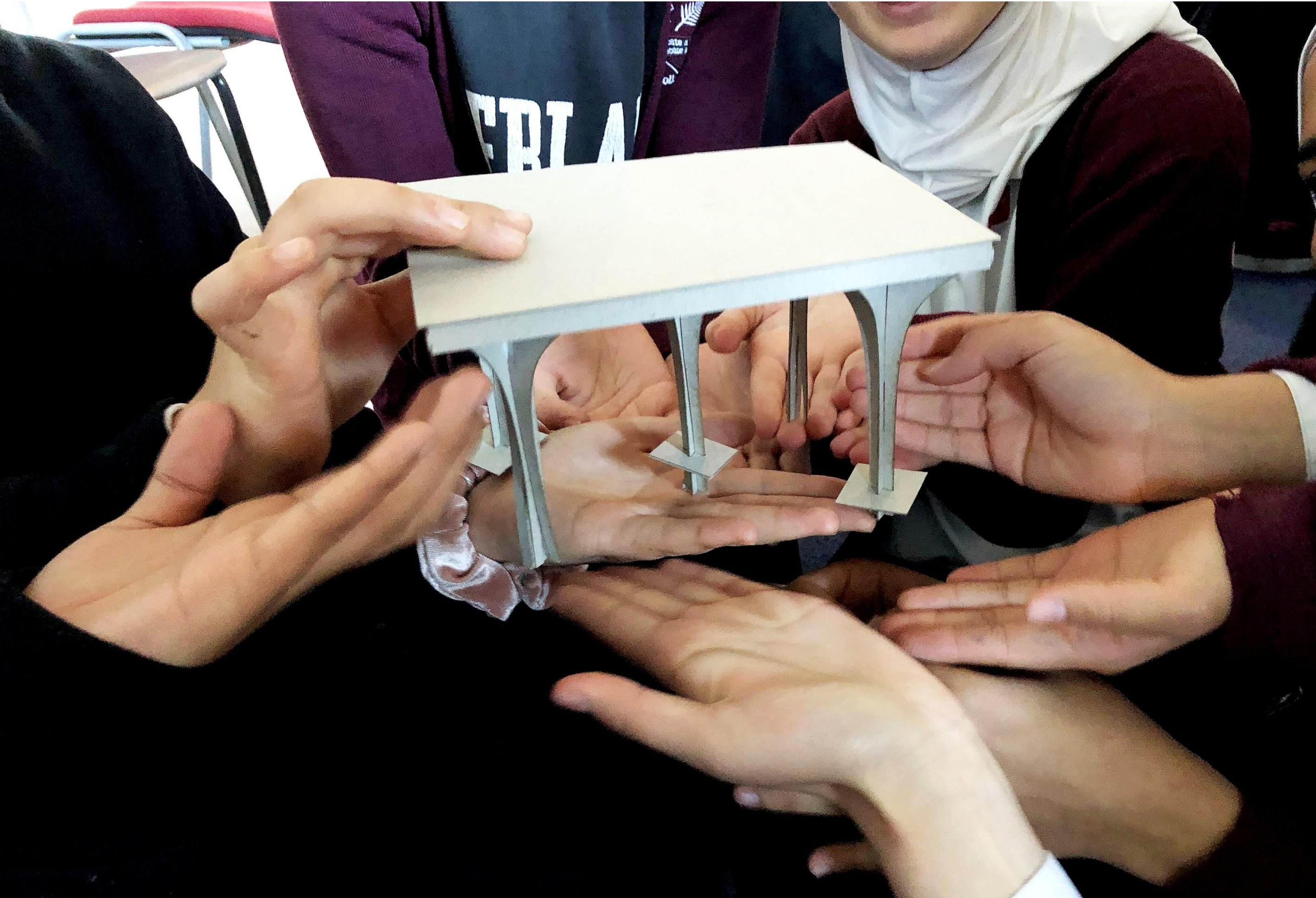
COMMUNITY ENGAGEMENT

Community participation was developed through the school, by involving students, teachers and the school board. By engaging them, the project will be able to respond to their own needs and values. By strengthening the connection between people and the places they share, this collaborative process will lead to placemaking with better integration within the community.

The main partners are Zayed College for Girls and Unitec Institute of Technology. The college has provided support for the workshops to take place, provided space and teachers to assist in the program for students. Unitec has provided funding, materials and equipment for the project, as well as knowledge and assistance from lecturers and technicians. Building industry stakeholders will also partner with the project for the fabrication of the pavilion, collaborating and sponsoring materials for the construction of the pavilion.

SDGs CONSIDERED

The project addresses two SDGs: Goal 5 - Gender Equality and Goal 11 - Sustainable Cities and Communities. Within these goals, Target 5.5 "Ensure full participation in leadership and decision making" and Target 5-B "Promote empowerment of women through technology" were considered and implemented. The project is led by women, female students had an active voice in the design, and the fabrication stage will again empower women in architecture and construction. Target 11.7 "Provide access to safe and inclusive green and public spaces" was also considered. Once built, the proposed shelter will provide a safe place for students and a better interface with the school and its urban context.



First model making activities for students at Zayed College for Girls



Zayed College for Girls – view from entrance



Workshops at Zayed College for Girls: brainstorming ideas for the shelter



Workshops at Zayed College for Girls



Workshops at Zayed College for Girls: understanding scale and site plans

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PROJECT AIMS AND IMPACT

Primary Aims:

- 1. To facilitate and represent female architecture students and practitioners. Although there has been a large amount of positive work to represent women within the industry, there are still a lot of gaps. One major gap is in the making/building space. Over our successive projects, we aim to alter this perception showing that women can do everything men can do, and that technology makes it even easier for women to work on fabrication.
- 2. To advertise the architectural profession to female high school students. A large majority of our work prior to this was to empower students within architecture Unitec School of Architecture. We want to show them that architecture is a diverse industry with many different pathways
- 3. To provide an architectural output to the community. The purpose of this outcome is to provide shelter to students before and after school while waiting for their parents to pick them up.

Secondary Aims:

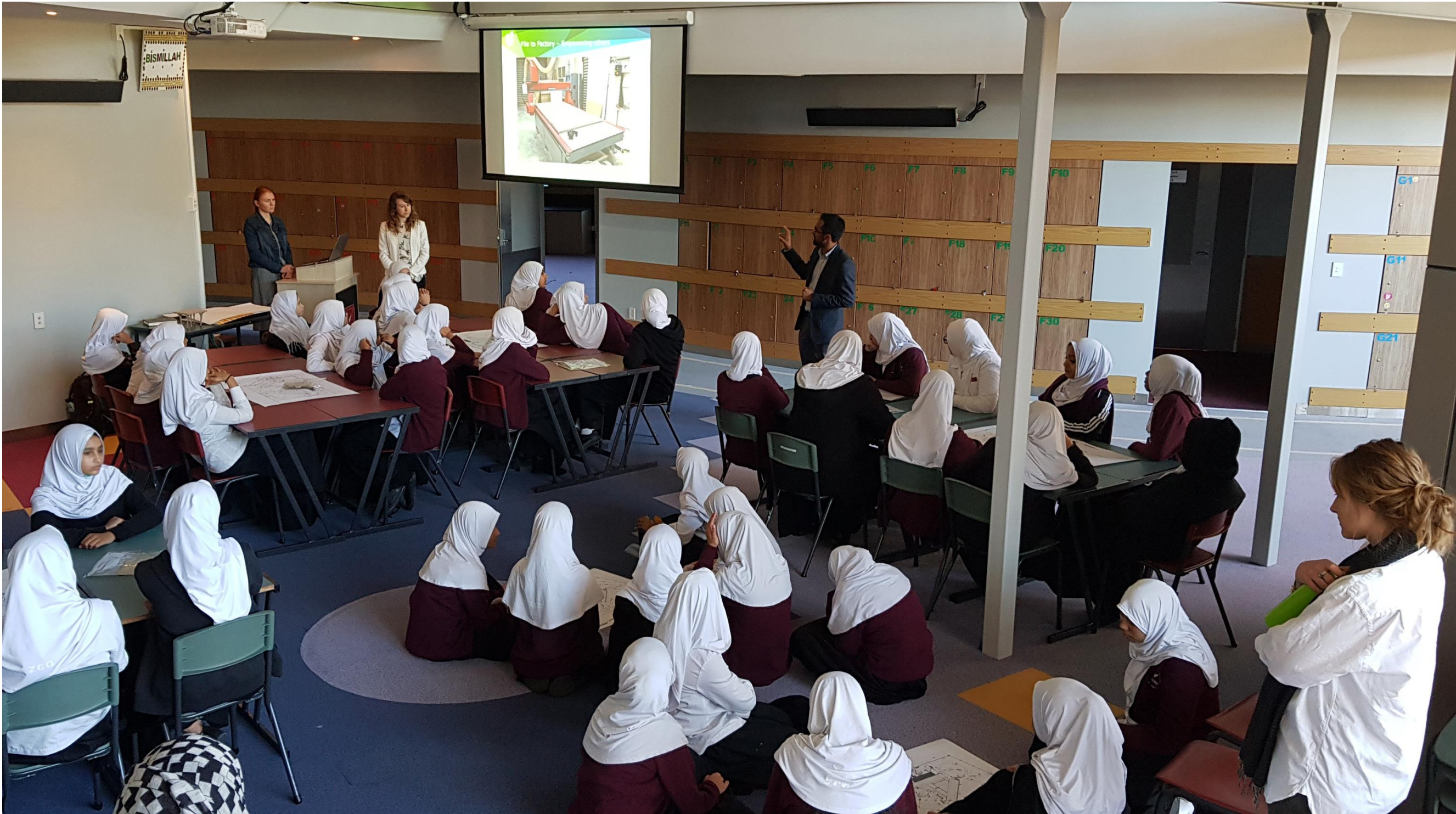
- 1. To respect the ancestors of the land. This means making sure Maori representatives are part of the team to teach and understand they land they are inhabiting.
- 2. To think about the urban environment, how to enhance it and how to use natural materials.
- 3. To develop further technology and innovation for the fabrication process.

PROJECT OUTCOMES

- 1. Provide shelter - design and build an architectural product with the students at Zayed college.
- 2. Education - there are two types of learning taking place here. They are:
 - 2a. Teaching students from Zayed College about architecture, materials, technology and innovation
 - 2b. Allow our students at Unitec to develop their design/making skills. A lot of it will be centered around making skill and learning software (Such as CAD/CAM)
- 3. Social understanding and development. This school is the only Islamic Female school in Auckland. After the Christchurch attacks in March 2019, a drive to find ways to represent Muslim women in New Zealand became a drive force within the public. This project aims to highlight acceptance and diversity within New Zealand, by bringing together people from many cultures and backgrounds.
- 4. Showing that design can be a tool to celebrate diversity, blending elements from different cultures harmonically.
- 5. Team building within the group of people involved with the project.

PROJECT TAKEAWAYS

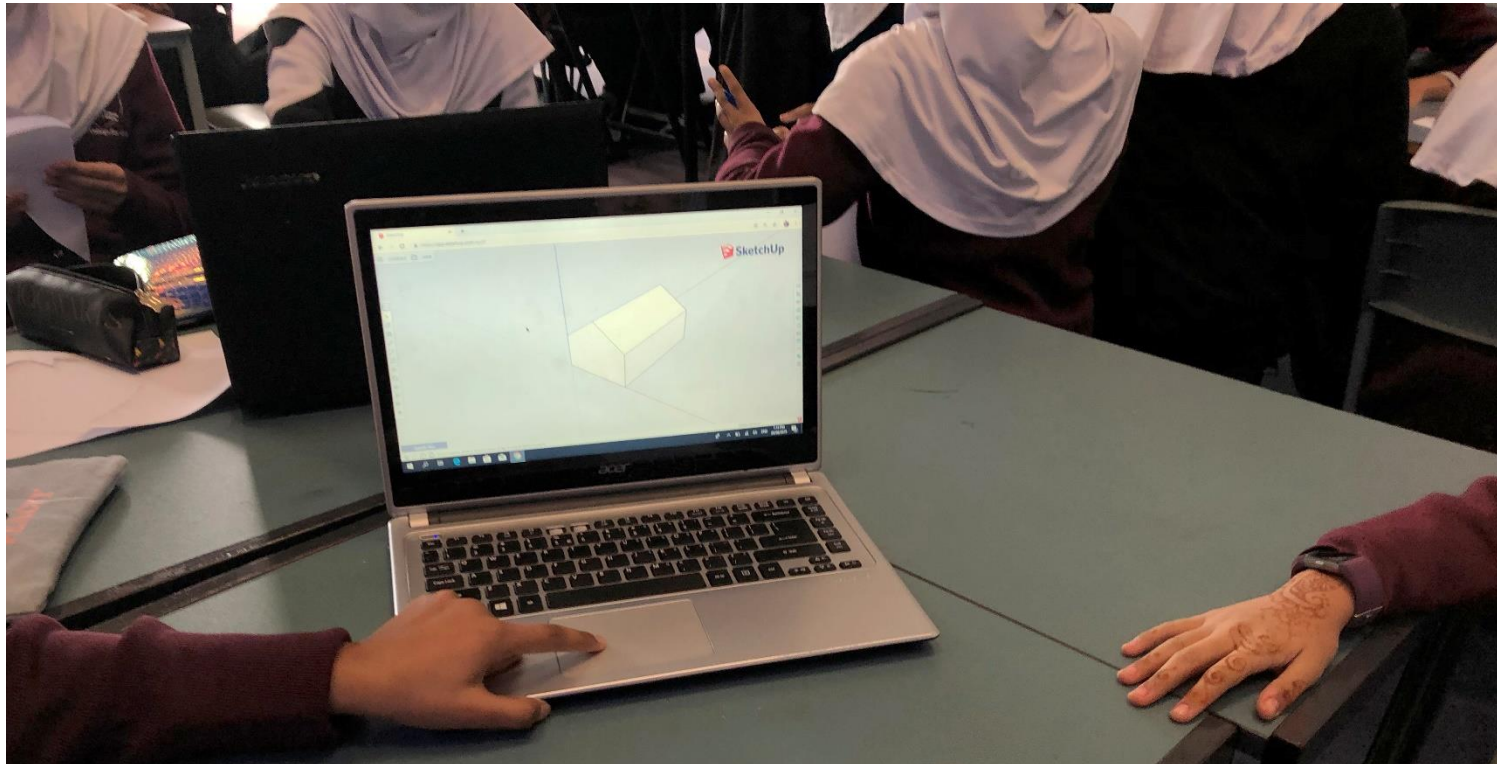
- 1. Designing is hard. Designing in groups is even harder. It is worth it in the end. Diversity enriches the design process.
- 2. From a teacher's point of view: understanding the audience is important. High School kids are different and need a variety of stimuli to want to engage.
- 3. From a student's point of view: we ensure there is enough interaction. To get them interested, lots of fun activities were required. There imagination and naivety around architecture/design/construction can really help generate ideas that professionals/university students cannot come up with.
- 4. Model making and being creative is fun – especially for the practitioners involved with the project, who often forget about this side of architecture.
- 5. There is not enough collaboration between university level and high school level. There are a lot of disconnects, and this project can help to bridge the gap.



Workshops at Zayed College for Girls: learning about digital fabrication



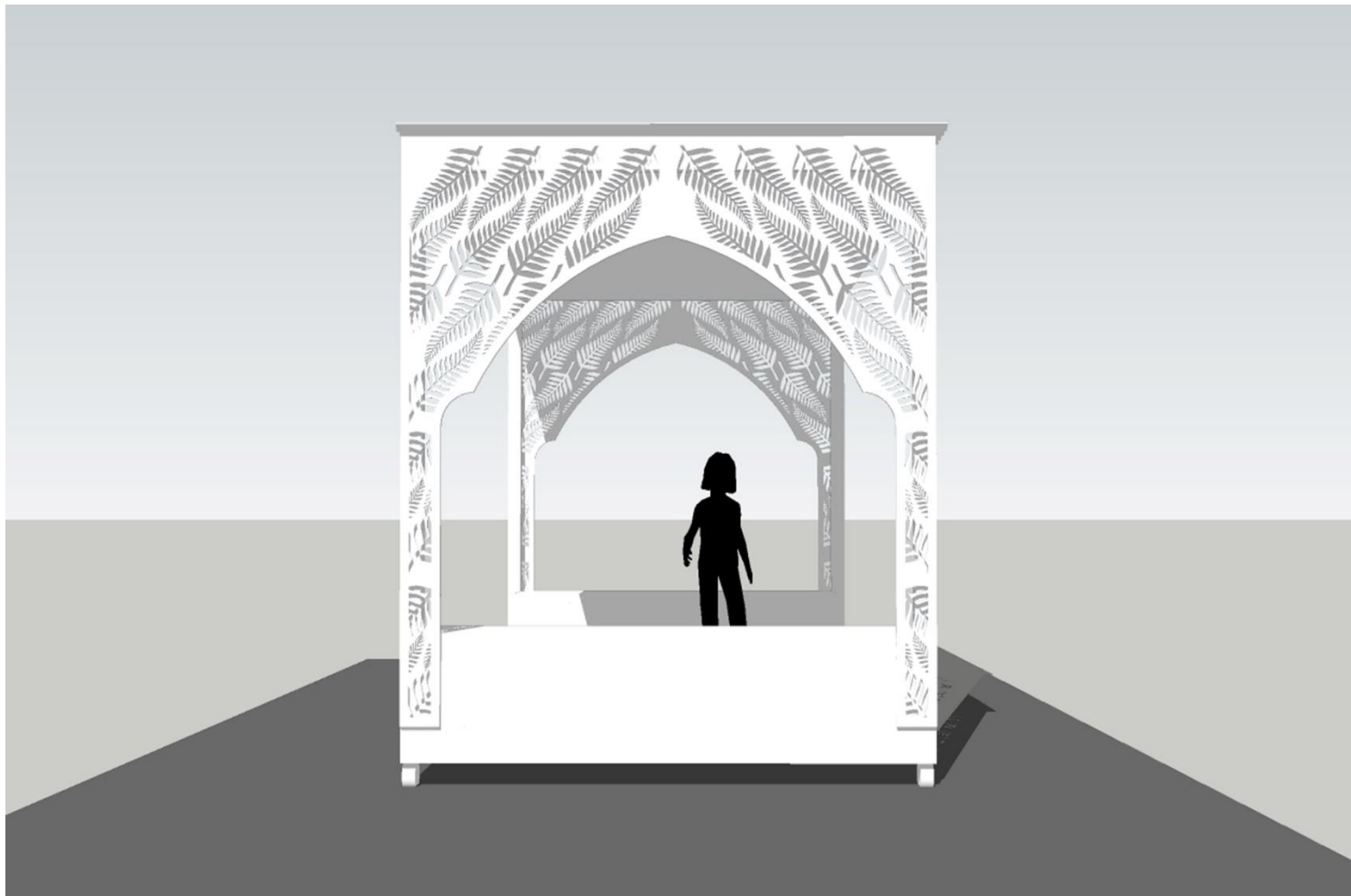
Workshops at Zayed College for Girls: integrating Te Aranga design principles



Workshops at Zayed College for Girls: digital model making



Workshops at Zayed College for Girls: physical model making



Concept design developed from students' initial ideas: Integration of Arabic elements (arches and masharabiyas) and New Zealand elements (silver fern pattern).



FUNDERS :
PARTNERS :
PROJECT TEAM:

UNITEC INSTITUTE OF TECHNOLOGY
ZAYED COLLEGE FOR GIRLS AND UNITEC INSTITUTE OF TECHNOLOGY
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