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# 2020 LEsolutions Awards

New Learning Environment  
Prebbleton School classroom block

Executive Summary

Prebbleton School in Prebbleton, Christchurch, is modernising their learning environment for their primary students. Currently operating largely under traditional teaching models and within traditional teaching spaces, Prebbleton School’s new classroom block creates vibrant, versatile learning spaces for flexible learning and community and school events, while accommodating the school’s growing roll.

GHD provided a full suite of integrated design services on the new block, including planning, architecture, structural, building services, and civil engineering. An extension to the existing school, the new block will host 150 years 4 – 6 students in six class groups.

Different teaching environments are created through easy transitions between indoor and outdoor spaces, and a combination of break-out areas. Outdoor spaces are created through large covered balconies that enable outdoor teaching and play, and provide spaces for community recreation and sports events.

Recently opened, the new block has been well received by students, teachers, and parents. A fresh, modern contribution to the school, it has created a new architectural language, which Prebbleton School will continue throughout their campus, as they modernise their other buildings in the future.

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The new ‘Maunga’ building at Prebbleton school, designed by GHD is truly fantastic. It provides us with a carefully considered space where teachers can plan for a wide range of student and teacher interaction and collaborative learning experiences, but also easily allows for small group and individual activities. The ‘kitchen’ areas are such versatile spaces and the teachers are enjoying having the freedom to use these spaces to be more adventurous with science, technology and art activities.

The students are so proud of their new space and love showing it off to their parents. The comment ‘our new building is awesome’ has been heard many times!

The building has a wonderful airy feel and is a pleasure to be in; it is great for staff and student wellbeing and will be enjoyed by many children and teachers for a long time to come.

Overall ‘Maunga’ is an asset to our school with it’s carefully considered layout and the eye-catching design that has been frequently commented on by the wider Prebbleton community.”

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**John Russell | Deputy Principal  
Prebbleton School**







## Scope of work and budget

The scope of the work was a two level extension for 150 students, in a new block next to the existing school. This includes six flexible classrooms, outdoor learning spaces, project and breakout spaces, storage areas, and bathroom facilities.

GHD provided master planning, concept and developed design, detailed design documentation, and construction observation services for this project, along with multi-disciplinary services including planning, structural design, building services design, and civil engineering.

Acoustic services were provided by Acoustic Consultants and fire engineering services were provided by Ignite Fire . Project management services were provided by Greenstone.

Total overall project cost (fees and construction): \$2.7 million  
Our contract final fee: \$365 thousand





## School and community engagement

### Community

Prebbleton School is located in Prebbleton, a small town in the district of Selwyn, 20 minutes southwest of Christchurch, New Zealand. One of the oldest settlements in the Canterbury plains region, Prebbleton village dates back to 1855, and has a well-established residential community. The school has a long history on the site, first opening as a small rural school in 1857.

Prebbleton has been experiencing significant population growth for several years. Accelerated by the 2010 Canterbury earthquakes, many people have moved from central Christchurch, along with those arriving from overseas to contribute to Christchurch’s rebuild. The fastest growing district in New Zealand, and one of New Zealand’s fastest growing economies, Selwyn’s population was just 27,600 in 2000, and is predicted to grow to over 79,000 by 2028.

The median age in Prebbleton is 38.7 years, with an increasing number of families moving into the area, many with school-age children. In November 2015, Selwyn District Council adopted its Newcomers and Migrants Strategy, which addresses the needs of people new to the district, supporting them to settle in and make connections with their new community.

A decile 10 full primary school, catering for students from Years 1 to 8, Prebbleton School plays an important role in the community. The only primary school in Prebbleton, it is focal point for local families, who include young professionals, farmers, and older residents of a variety of ethnicities. The school is open to the public at all hours, local families use the playgrounds and sports fields during weekends, and the school hall is often used for community for activities and events.

### Stakeholders

This project’s key stakeholders are the Ministry of Education (the client), Prebbleton’s school board, which includes the school Principal, and teacher, student, and parent representatives, parents of students at the school, and the community and residents in the surrounding areas.

### Challenges

Despite being in a suburban area on the outskirts of Christchurch, Prebbleton School lacks space. The new block needed to capitalise on height to make up for the lack of ground space , while providing enough open space for outdoor activities. Our team designed a two-storey block that would accommodate six class groups, and capitalise on outdoor spaces, through the inclusion of covered courtyards, external stairwells, and deck areas.

The school had a tight construction budget, and needed to limit expenditure where possible, and the new building needed to connect to existing teaching spaces for economy of vertical transportation, while remaining accessible. We avoided purchasing an expensive new lift by connecting the new building to the first floor of an existing building nearby. This demanded strict and accurate design measurements, but was possible given the site’s orientation and proximity to the road, which helped reduce construction disruption. The new building’s second floor can be accessed via the adjacent building’s lift and stairwell. Construction took place during school hours, but we were able to limit disruption by working closely with the school, Ministry of Education, the project manager, and the contractor.

The building’s site footprint partially overlaps the old school pool. While the pool had not created any contamination in the surrounding ground, building on top of an old pool site did create ground capacity issues. These were mitigated by localised ground improvement.



### Available assets

The site was in a favourable location, which limited construction complications. Plentiful natural daylight and easy road access meant construction methodology remained within budget, and the existing storm water, sewer, and electrical infrastructure had sufficient capacity to accommodate a new building. The ground underneath the site had no contamination, and did not require any rework, meaning only shallow foundations were required.

GHD had a great relationship with Prebbleton School, which was significant in the success of this project. The design team maintained good communication with the client, and continued to provide a seamless service, to ensure programme was met.

“I enjoyed a great relationship with Prebbleton School’s Principal and Board, who were enthusiastic about the design and the shift to this new way of teaching and learning,” says Eduardo Fernandez-Moscoco, the project’s original architect. “I am not from New Zealand, but I was welcomed and accepted like a Kiwi, which is a testament to the school’s diverse surrounding community. The Principal and the Board loved the design from the start, making working on this project really fun and inspiring.”

Thomas Reese, who took over the design and oversaw construction through, agrees that GHD’s relationship with stakeholders played a key role in this project’s success.

“Despite the entire school previously operating in traditional learning environments, teachers were responsive and open minded about the switch to flexible learning,” he says. “This was a significant cultural shift that would require a greater level of collaboration between teachers, but the school embraced it. Teachers and students alike were excited about the new block and the changes it would bring.”

### Value of process and project

The design of the new block has brought new character to the school, through a modern, yet serene architectural language. A modern, flexible learning environment has been created through the integration of the different fit-for-purpose teaching spaces, including permeable internal and external spaces, breakout rooms of various sizes, and a central gathering area. Outside learning spaces are created through the provision of large covered balconies for recreation, learning, and school and community events.

Teachers, students, and parents have praised the new development, which is now open for use. The students and teachers who are based there have been enthusiastic about showing others through the building, a sense of pride evident in their excitement about the new space.





# Educational Environment

## Educational vision and goals

Prebbleton School’s vision statement is ‘Create, Think, Grow,’ which encompasses their values for their whanau (family) of learners:

- Wairua auaha (curiosity),
- Hiranga (excellence),
- Hapori (community), and
- Manawaroa (resilience).

The school’s goal is to further develop their culture, and increase the community engagement. Their goal for this project was to put these values into practice, and link pedagogy to space, by creating flexible learning spaces and generating a strong community presence.

The innovative learning environment created by the new block supports this vision, enabling new ways of learning and teaching through the provision of flexible, adaptable spaces. The new development is the start of Prebbleton School’s transformation; now confident in students’ ability to learn in this new environment, the school will transform its remaining traditional classrooms similarly in the future, facilitating flexible learning for all students.

## Supporting the curriculum

As outlined in The New Zealand School Property Strategy 2011-2021, the Ministry of Education’s investment objectives for property state that designs for educational buildings must be efficient in form and operation, durable and resistant to wear and tear, and cost effective.

The new block meets these objectives by providing an open-plan learning environment with flexible spaces that can be used in a variety of ways, depending on the subject being taught. A variety of fit-for-purpose spaces are tailored to different learning outcomes within Prebbleton School’s curriculum.

The two floors are almost identical, and are shared by three class groups each, who move about the space throughout the day. The internal spaces include wet areas for teaching arts, technology subjects, and cooking, and breakouts rooms of various sizes for focussed learning. Each floor has a large, open-plan, central space, which enables whole classes to meet, talk, and learn, and is adaptable for events, exhibitions, and meetings outside of school hours.

## Adaptability and flexibility to support different learning and teaching styles

There is an easy flow between indoor and outdoor spaces, and the building’s layout and structure create adaptable spaces that facilitate a high degree of flexibility. The structure is based on three long-span portal frames, to create internal floor depth, uninterrupted by internal load bearing walls. Complete with sliding doors to change how the space operates, this design accommodates a variety of room configurations. A large central space be opened up to enable classes to gather together, and number of smaller spaces and zones can be created for more focussed learning. Small quiet rooms provide multi-purpose spaces for one-on-one teaching, music lessons, testing, and teacher workspaces, and additional spaces can be closed off, to enable children to work individually or in groups, free of distraction. Resource storage is designed to be easily accessible for both students and teachers.





## Physical Environment

### Physical attributes

The design of the new block is underpinned by the Ministry of Education's investment objectives for property, and meets all Ministry of Education design guidelines.

The building utilises best-practise natural lighting and heating design principles. Generous windows and carefully chosen orientation allows natural daylight into the building, blocking high sun while allowing low winter sun through, and provides a high level of protection from prevailing winds. Windows are solar-protected, and generous overhanging exterior louvres on the north-facing side provide shade, while providing views of the school fields adjacent. This minimises the need for additional lighting and heating, and reduces electricity costs. Sun and shadow projection analysis was undertaken to determine the best orientation for the space and avoid projecting shadows onto neighbouring properties.

A mixed mode ventilation system is paired with an O2 sensor, which works on a traffic light system, alerting building occupants when CO2 levels rise above favourable levels. When the orange light comes on, building occupants have the option of increasing passive ventilation by opening doors and windows, or allowing the automatic active ventilation system to start up. The ventilation system includes a heat recovery system, which allows warm air expelled from the building to be transferred to cold air entering the building. This reduces operational costs, and warms the space quickly, creating year-round comfort.

The building's acoustics accommodate multiple conversations and activities, without students or teachers being overwhelmed by noise. High ceilings with high quality ceiling tiles are combined with a variety of acoustic treatments, including pinboards with polyester wall linings that absorb

sound and add colour to the space. Wall construction achieves a high sound transmission efficiency rating, and acoustically rated glass is used in the doors.

Passive surveillance of the toilet lobbies provides privacy, while ensuring children's safety when using the facilities. Each toilet is in a cubical of its own that includes a hand washbasin. Unlike traditional school toilet blocks, this design provides solitude and privacy, as children are accustomed to in their homes.

The contemporary exterior design creates a dialogue with the existing school and surroundings. With a strong form created by a single gable pitch roof, the whole building is described in one gesture. Two-storey-tall, precast concrete blocks have the texture and imperfections of natural timber, giving an organic, earthy look, while being robust enough to withstand the wear and tear of school children using the space for years to come. These are overlaid by sharp shadows from the horizontal louvres, which use dark colours and natural materials that will age with time, creating an organic look, which contrasts with the brightly coloured cubbyholes on the exterior of the ground floor.

### Fit within community context

Since its opening in 1857, Prebbleton School has developed strong connections with the community, which is now culturally and socioeconomically diverse.

The Prebbleton community is active and engaged with the school, and the new classroom block contributes to increasing this engagement. Fit-for-purpose, flexible, approachable spaces support local children to learn and grow, encouraged and challenged as they develop as individuals. Centered around students' learning journeys, there is a sense of pride among those learning and teaching there, which extends to the surrounding community.

### Inspiration and motivation

The students and teachers based in the new classroom block were excited to embrace new, flexible ways of learning and teaching from the outset. The light, airy, colourful interior creates an inspirational environment that facilitates learning and connection.

The silhouette of the building envelope combines a traditional pitched roof shape with a contemporary shelter form, metaphorically embracing and protecting those inside. The robust sheltering shape implies protection, while the aesthetic of the covering reflects the intended use of the space, with soft and welcoming materials that reflect the energetic and social nature of student activities.

Sheltered outdoor spaces link the internal teaching spaces with the sport fields and playground adjacent, and create spaces to host outdoor activities. Formed by vertical fins with no handrail, balustrades on the two balconies provide safety and deter young children from climbing, while providing sculptural elements that bring personality to the building.

Since it's opening in late July 2020, the students and teachers based in the new classroom block have been proud to be there. Students have been seen showing off their new classrooms to others, and feedback from teachers has been extremely positive. Unfortunately the resurgence of COVID-19 has placed New Zealand into alert level 2, with Auckland specifically into a level 3 lockdown at the end of August. It's evident in the images that Prebbleton School has been vacant recently, however we're sure it will be spilling with teachers and students again soon.







## Results of process and project

### Achieving educational and community goals

Throughout consultation, a reoccurring message from Prebbleton School was that the new building should create a strong sense of school identity and culture. The school's vision was for the building to 'provide a simple connection to the existing teaching spaces, while facilitating new teaching techniques, and creating an iconic presence.'

The design creates a flexible and adaptable learning environment, while facilitating engagement and connection with the local community. The new classroom block meets Prebbleton School's goals of proactively sharing information with their community and providing high quality reporting on learning, through providing spaces perfect for events like parent/teacher information evenings and learning ceremonies. The 300 square metre internal space can be used for activities that would not be possible in a traditional classroom layout, such as an exhibition of student art that was held as part of the new classroom block's opening.

The main balcony creates a grandstand with two tiers of covered space, to watch sports and activities on the fields adjacent. The bathroom lobby on the ground floor is accessible from outside, and can be locked separately to the rest of the building, enabling the bathrooms to be opened to the public without compromising the security of the teaching areas.

### Unintended results and achievements

Following an excellent working relationship between GHD's architects and structural engineers, elements of each discipline are integrated seamlessly into the building. Functional and aesthetic elements complement one another, with internal architectural elements uninterrupted by any structural members. The portal frames that create the building's shape are sleek in design and efficient, despite their necessary load bearing capacity to support the depth of space inside.

This project has been very well received by the staff and the cost estimate has shown the project to be under budget. The new classroom block has created an architectural language which Prebbleton School are looking to extend throughout their school, in future upgrades that will include the similar design concepts and building materials.

The success of this project has enabled the school to be confident in their new, flexible ways of teaching, and GHD is excited to work alongside them again, in the next stage of their transformation.





## Appendices

### Render 01

Prebbleton School Roll Growth Classrooms - 3D view - North East





**Render 02**

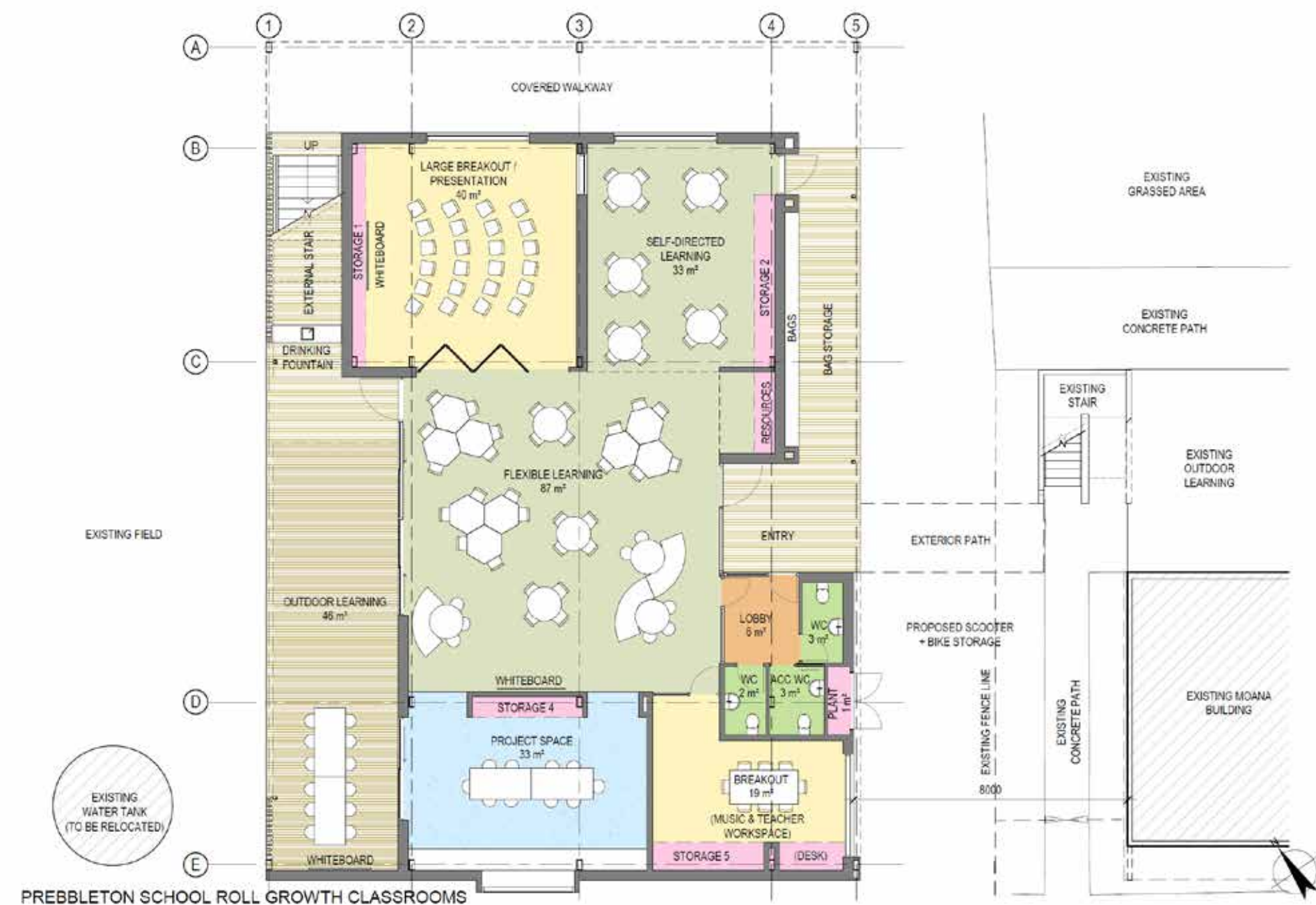
Prebbleton School Roll Growth Classrooms - 3D view - North West



**Preliminary plans**









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