Association for Learning Environments

2019 James D. MacConnell Award

Ao Tawhiti

Unlimited Discovery School

Project Details

Project Name: Ao Tawhiti Unlimited Discovery School
Client: Ministry of Education
Location: Christchurch, New Zealand
District Name: Christchurch Central
Principal: Steven Muster – Director
Occupancy Date: May 2019
Grades Housed: From Years 1 to 13
School Roll: 545 students
Capacity (Students): 670 students
Total Gross Area: 5,815 m^2
Building Construction: NZD$25 million
Project Role: Lead Architect
Contact: Nickie Bennett
Title: National Marketing & Communications Manager
Phone: +64 21 354 548

Sub-Consultants

Education Architects | Hayball
Civil & Structural Design | Tonkin & Taylor
Services Engineering Design | Stephenson & Turner Engineering
Acoustic Engineers | Acoustic Engineering Services
Traffic Planning | Novo Group
Planners | The Property Group
Structural Engineers | Lewis Bradford
Cost Management | BBD

At 12.51 p.m. on Tuesday 22 February 2011, a magnitude 6.3 earthquake caused severe damage in Christchurch and Lyttelton, killing 185 people and injuring several thousand. It occurred nearly six months after the 4 September 2010 earthquake. The earthquake struck at lunchtime, when many people were on the city streets.

Source: Gillian Needham, nzhistory.co.nz Gillian Needham took this iconic photo from her home in Cashmere minutes after the 22 February 2011 earthquake struck Christchurch. It shows the city's CBD enveloped in a cloud of dust.

Photo Source: odt.co.nz

Photo Source: nzgeo.com

Photo Source: thestar.com

Executive Summary

Ao Tawhiti Unlimited Discovery is a new, purpose-built four-storey urban school in inner-city Christchurch, New Zealand. It opened on 29 April 2019 with 545 students from years 1 to 13 and can grow to a maximum roll of 670 students. There are three dimensions that make the school unique:

1. It is the first state school of its kind in New Zealand, which has a history of suburban, greenfield schools.
2. It offers an alternative pedagogy to traditional New Zealand state schools.
3. It is part of the rebuild of an earthquake damaged city bringing a new population into town to humanise and enliven the streets once again

Visions & Goals

The alternative learning environment of Ao Tawhiti Unlimited Discovery needed to support an innovative and unique approach that individualises the education programme for each student's specific learning path. Finding a suitable inner-city location was critical to support a foundational philosophy of the school wherein civic spaces and amenities become classrooms as much as the school site itself. The building design would empower students to follow their passions, interests, needs and strengths; to take the lead in directing their learning.

Community is also a foundation vision for the curriculum and learning experience. The building would enhance an equal relationship between students, teachers and other adults. Extended family-like relationships with parents, whānau and the wider community are highly valued, and family members are empowered to be directly involved in school life and curriculum delivery. Māori values would be enabled and reflected in the school's core values, special character and operations.

Outcomes of the project

The design of the school has created learning spaces that enable flexibility, focus, inspiration, versatility and agility, supporting experiential and inquiry-based learning. The architecture places learning processes at the centre, creating opportunities for a multitude of learning activities and modes.

The design team's approach looked at functional working settings based on activities – i.e., activity-based working (ABW) and activity-based teaching practices. The adaptable, agile environment is being used by the students in all the ways the team wished for and more. The central atrium, stairwell, social and eating spaces create a heart to the school, and the 'learning communities' on each floor enable the building to work as a whole. The community is visible, social and energetic. There's a real sense of learning going on and students are engaged and well behaved. The pedagogy makes this building work and the building enhances the pedagogy.

This is a building that actively engages with its city. The school has been designed as a home base, from which students can interact with outside activities and share their learnings when they return. Ground-floor performance space can open up into the new urban Greenway, allowing more dialogue with passers-by. With an exterior design that is 'out of the box' the school signals there is something different happening inside and so promoting a playfulness and energy fit for a school.

Scope of Work and Budget

The project

Following the devastating Christchurch earthquakes of 2010–11, the Unlimited and Discovery 1 schools were demolished, with both schools having to seek temporary accommodation outside the central business district of Christchurch.

This project evolved out of the need to rebuild an urban school in a city where over 90 per cent of the buildings were demolished as a result of earthquake damage. It was an opportunity also to amalgamate two schools with similar education philosophies.

Ao Tawhiti Unlimited Discovery is a new, purpose-built four-storey urban school in inner-city Christchurch, New Zealand. It caters for up to 670 students from years 1 to 13.

Budget

NZD $25 million

School & Community Engagement

Ao Tawhiti Unlimited Discovery traces its history back to 1993 when a group of parents and educators opened the Alpha Learning Programme within a mainstream Christchurch primary school. The alternative learning environment supported children struggling in mainstream schooling by using an innovative, student-led approach.

The Community

Ao Tawhiti Unlimited Discovery traces its history back to 1993, when a group of parents and educators opened the Alpha Learning Programme within a mainstream Christchurch primary school. Making the most of legislation that allowed schools of Special Character to be formed away from traditional pedagogical practice, in 2001 Discovery 1 was opened to accommodate 200 students in years 1–8. The alternative learning environment supported children struggling in mainstream schooling by using an innovative and unique, student-led approach that tailors the education programme for each individual student's approach to learning.

Early adopters of this approach were students who were gifted, had higher learning needs, or were previously home-schooled. Over the years, as more students have graduated and the school has developed a higher profile, the community now represents a wide cross-section of families from across the city.

Today, after merging with Unlimited Paenga Tawhiti in 2014 (a nearby secondary school operating with a similar ethos), Ao Tawhiti Unlimited Discovery caters for students from grade 1 to grade 13 within a new, purpose-built school building.

Given its approach to learning beyond the boundaries of the school building, Ao Tawhiti Unlimited Discovery does attract a few unique niches – in particular, students training in high-performance sport, music or dance academies who would otherwise have to be home-schooled.

Parent community

The parent body is more engaged and hands-on than in a typical state school. This is partly because of the people it attracts: parents who take a keen interest in education options and are prepared to travel significant distances to access them. But it is also down to the school's philosophy of engaging parents more deeply and more often with their child's learning.

For example, parents contribute to their child's individual learning plan throughout the year by attending planning meetings each term. The school also encourages parents to use portions of their annual holidays to come into the school and work with student groups. In this academic year alone, parents have led 45 different activity sessions ranging from mindfulness to arts and crafts to web design.

School community

In terms of the teaching and student community, the school purposely blurs lines and blends the two groups. Examples include: 1) there is no staff room – students and learning advisors (teaching staff) share the same kitchen facilities; 2) there are no offices, so learning advisors work in the same settings as the students; and 3) the school director (principal) works from the front reception desk.

This integration between students and learning advisors supports an independent learning environment, which is based on a collaborative rather than purely instructional model. It has the added benefit of increased passive supervision, with the result that many

School & Community Engagement (Con'd)

of the behavioural issues at a typical school simply don't occur at Ao Tawhiti Unlimited Discovery.

Urban Community

The school's approach is to use the city as an extended learning environment. Local businesses, council facilities, tertiary education providers, sports facilities and the city itself all form part of the school's extended community. Making the most of what the city can offer allows the school to reconsider what it needs to provide itself. In a city that has been torn apart by earthquakes, the urban community has been rebuilding. Christchurch is about halfway through this process of urban rebirth, so it also has to have a hopeful eye on the future. The school's opening has brought children back into the heart of the city, making it a more liveable place.

Stakeholders

Central Government: Owner Funder

Since Ao Tawhiti Unlimited Discovery is a state-owned school, the Ministry of Education is the owner and funder of the school building, fit-out and land. The ministry funds the ongoing operations and maintenance budget, sets the school's basic education curriculum to New Zealand standards, and monitors the school's special character status.

Governance

Typical of all New Zealand schools, overall governance is provided by the parent-run school board, with the director (principal) managing day-to-day school operations and staff. The board also manages the school buildings.

The other key governance stakeholder is the Discovery Learning Trust as a specialist in student-centred learning. They have one member on the school board whose role is to make sure the school is living up to its special character and founding principles.

User Groups

In addition to these 'corporate' stakeholders, the teachers, students and parents have a strong voice in the direction and operation of the school year-on-year. These user groups were responsible for providing specific information and feedback throughout the design process to inform a purposeful design that was tailored to their needs.

External educational supporters

Now the school is settled in its permanent location, it is also starting to build relationships with nearby organisations, such as Ara Institute of Canterbury (who are providing access to their gym facilities) and the local business association.

Name challenges

A suitable site in the city

The school had spent eight years in temporary, prefabricated classrooms, and the first challenge lay in finding a suitable inner-city site on which to rebuild. The school actively works to a sustainable future by encouraging the use of public transport. As part of the city's rebuild, a new bus hub was created in the centre of the CBD. With this in mind, the school focused on sites within a short walk of the new hub.

The Ministry of Education was keen to look at options for buildings that could revert to office use and looked at several options, including buildings partially damaged by the earthquake and new developer-led office buildings. After a number of potential agreements fell over, in late 2015 the ministry was able to purchase a brownfield site from CERA (the Canterbury Earthquake Recovery Authority) and construct its own building.

The site was occupied in part by an earthquake-damaged building, but had otherwise been cleared following the quake. There was some contamination from asbestos (from demolished buildings), which needed to be removed before work could commence. Heavily damaged city infrastructure, taken for granted in a modern city, had been partly rebuilt in the area, but fire-fighting water supplies were weak and required additional support.

Extra space needed for multi-storey

The Ministry of Education in New Zealand has a well-developed process when building new traditional schools, which rarely exceed two storeys. The process includes a spatial provisioning programme, based on school rolls, which sets the built area the ministry will fund. The challenge lay in designing this 'vertical school' with functions and extra costs required by the building's commercial scale.

With the underlying commercial zoning, the building had to comply with commercial use requirements, such as an extra lift. The atrium, smoke extraction and internal circulation requirements also meant competing priorities to get the footprint optimal from a learning point of view within the budget.

Concerns over losing students with the relocation

There were also challenges when moving the community back into the city. After eight years at a suburban site, many of the current families had only ever known the school with green outdoor space and easy parking. There was concern that the school might lose families following the relocation. Surprisingly, they didn't lose a single family once they moved back into town. Many students quickly adapted to catching the busing to school with the bus interchange only one block away.

Maintaining a multi-storey building

The school is government-funded the same way as most state schools in the country and parents are asked to pay a small donation (less than NZ$300) each term. But maintaining a multi-storey

School & Community Engagement (Con'd)

building is more of a challenge, as the maintenance costs do not fit standard school building formulas.

Available assets

At the start of the project the school had a site with a strategic city location and some reuseable equipment. The school's physical location is its greatest asset. Within a short walk is the new city bus exchange, the new city library, retail stores in the CBD, Christchurch Art Gallery Te Puna o Waiwhetū and Canterbury Museum. Recreational facilities include a new, international-standard fun zone. The Margaret Mahy Playground and the central urban Hagley Park are also within close walking distance.

Value of process & project to community at large

The school undertook two facilitated visioning processes: one in 2014, and a second with project architects with the chosen project architects (Christchurch) and education consultants (Melbourne) in 2015. The vision workshops looked deeply into the school's philosophy, goals and vision, and how these could be reflected through its planning, operation and design.

The second, key part of the design process was the facilitation of a series of workshops involving the architects and the educators. Participants in the workshops usually included the architectural team, the leadership team from the school, key personnel from the Ministry of Education, and, in some special focus sessions, the school's board of trustees and students.

The workshops explored the unique pedagogy of the school, which had developed in its original pre-earthquake premises – an old office building housed above a department store in the city. After moving out of the damaged building, the school had temporarily relocated into two separate campuses and had struggled to maintain its teaching and learning model in these interim facilities. The prospect of a new campus offered the school the chance to reimagine a campus tailored to its education model. The design workshops formed a key part of this process of reimagining and translating the school's pedagogy into a physical design response. The workshops were all facilitated by the architects in order to develop the initial project brief in a format based on the ministry's standardised documents.

This collaboration between the architects and the school became a critical part of the design process. It evolved thinking around the following key points:

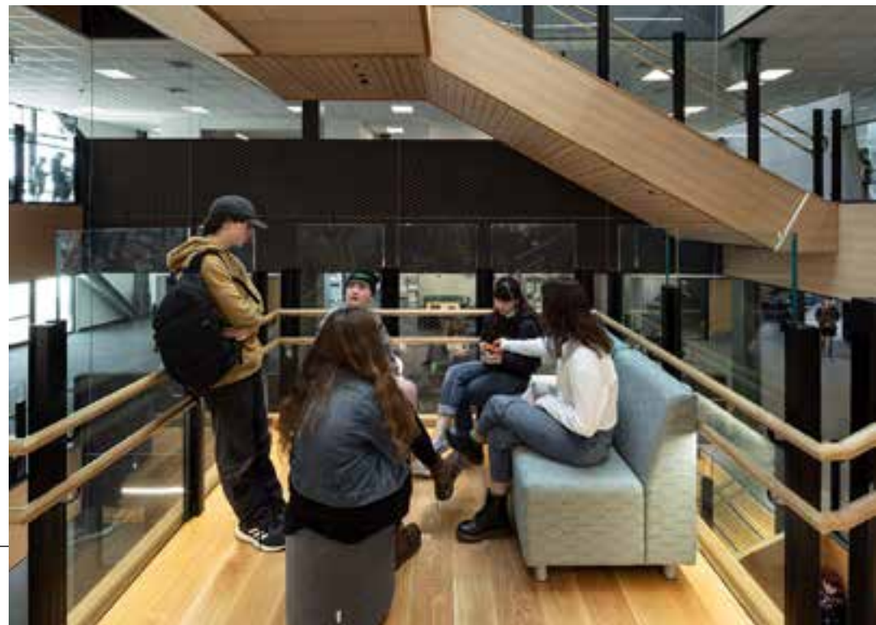
The impact of the "school in a community, and a community in a school" – and how the school promoted a symbiotic relationship within it's inner city location (using the collateral of the city for outreach programs, incursion programs from local businesses etc)

- The school's organisational model
- The functional zoning of the floors (Specialist Spaces, social areas, Student Commons, Learning Studios and Outdoor)
- The idea of "Learning Advisors" working from Learning Studio's forming the home bases
- The distribution of multi-purpose specialist spaces to support project-based learning
- The impact of the stage-based learning (rather than age-based models)
- The total removal of all staff work spaces and staff offices (all staff including the leadership group worked on the "shop floor")
- Vertical and horizontal movement and fluidity through the multiple floor levels
- The development of a "city school" with no outdoor play space, restricted outdoor connections, no car parking etc
- The porosity of the facility available for public access

Workshops were also supported by consultation sessions held in the two existing campuses, where issues, problems, aspirations and design requirements could all be explored firsthand. The outcome of the collaborative process was a unique design that responded to the very specific pedagogy of Ao Tawhiti Unlimited Discovery, and a creative design response that reflected and developed upon its unique inner-urban location.

As a result of this well-considered briefing and design process, and as evidenced since the building opened, students have instantly made it their home. Most of the learning advisors are happy, although some are struggling to adjust to a more tailor-made environment without traditional classroom walls. Having experienced the building for only a couple of months since the opening, teachers are now experiencing how the spaces enable focus and collaboration and how the building as a whole creates an integrated community.

Through this community-led project, the views of a diverse range of people were respected, captured and incorporated into the final design. The school was also able to realise a greater vision within a purpose-built property to advance its innovative teaching practices to a whole new level.



Educational Environment

The educational vision & goals of the school

As discussed earlier, the Discovery Education Trust had a very clear vision of a student-centric approach to learning that would make the best of what a city has to offer. That vision was to develop children in ways that best suited their learning and discovery process, while also focusing on their future goals and career aspirations.

The school's pedagogical approach was subsequently developed, with expert input from renowned educationalist Dr Julia Aitken, into what was unique in Australasia at the time.

A fundamental tenet of Ao Tawhiti Unlimited Discovery is that the child is central in directing his or her own learning, so that enthusiasm and a love of learning are retained. Five guiding principles define the school's special character:

1. Students are at the centre of their learning.
2. Learners are encouraged to be creative and innovative, and to take risks.
3. Diverse and flexible individual learning pathways are supported.
4. Learning is a partnership.
5. Everyone is a learner, and everyone is a teacher.

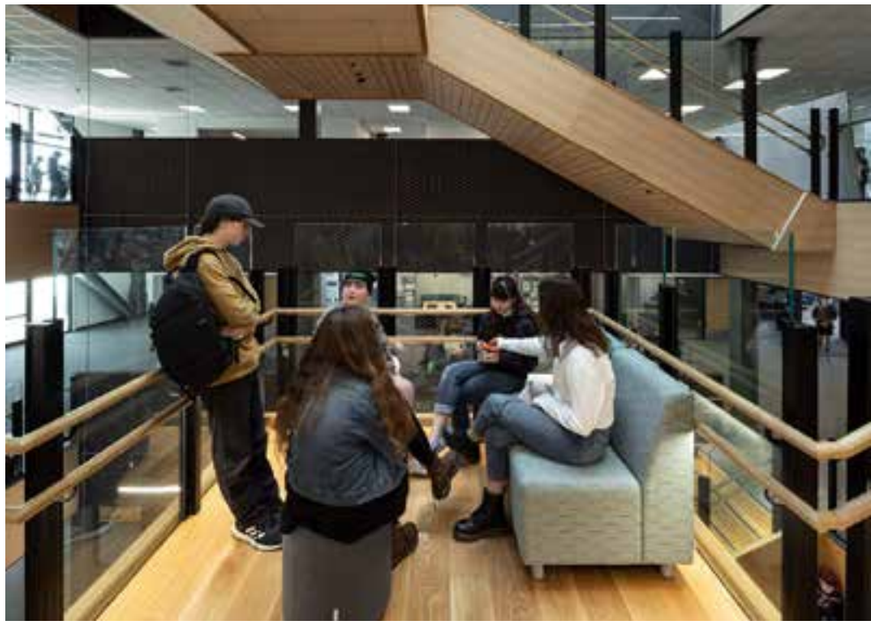
Personalised planning enables students to follow their passions, interests, needs and strengths. They take the lead in directing their learning, which is well supported by the:

- high value placed on students' ideas and opinions
- many opportunities for 'real life, hands on' learning
- the board's commitment to ensuring students have excellent, equitable access to digital technology.

A significant value of the school is the equal relationship between students, teachers and other adults. Extended family-like relationships with parents, whānau (extended family) and members of the wider community enable and enhance students' learning, and they are empowered to be directly involved in school life and curriculum delivery. Regular meetings between learning advisors (a term that emphasises their role of facilitation, mentorship and coaching, as well as teaching), students and parents mean that everyone is aware of each student's goals and desires.

Senior leaders have established, practical systems to monitor and go beyond typical curriculum coverage. Although staff follow the standard New Zealand teaching curriculum, students have a say in what and when they study, with sessions taught in classrooms, shared learning spaces or out in the city.

Cultural and educational values from New Zealand's indigenous people are core to the school's approach. Māori values are thoroughly reflected in the school's values and special character and in the school's whānau group. It employs models such as Tuakana/teina – the relationship between an older person (tuakana) and a younger person (teina) specific to teaching and learning – and Ako, where the educator is also learning from the student and where educators' practices are informed and reflective.



Educational Environment (Con'd)

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How the environment supports the curriculum

Core Competencies:

The New Zealand Standard Curriculum has the vision for young people to be confident, connected, actively involved, lifelong learners. It has a set of key competencies that align strongly with the school's own visions:

- thinking – making sense of information through thought through the inclusion of quiet space to 'think and collaborative' space to 'discuss' space to develop thinking
- using language, symbols and texts
- managing self – self-motivation, a can-do attitude and seeing oneself as a capable learner supported through spaces that allow children to work independently, be easily observed and close to mentoring support of others at all times
- relating to others – through an environment that encourages discussion in meeting spaces and casual interaction space, performance in music and drama space, and interactive learning throughout
- participating and contributing.

The design of the school supports learning spaces for flexibility, versatility and agility. The layout of spaces from arrival to all functional areas allows for clear identifiable navigation with good supervision and passive surveillance. The hierarchy and arrangement of functional areas clearly communicate community accessibility and engagement. The learning spaces reflect engaged spaces supporting experiential and inquiry-based learning.

The school is designed to support learning and personal growth opportunities for its students by making the learning process the centre (rather than the building). To develop independent, self-directed learners, interior spaces are designed to create opportunities for a multitude of learning activities and experiences in support of the school's vision for self-actualised learners. Instructional, collaborative and self-directed learning are encouraged in space that is well-connected and adaptable.

Architectural themes were developed to support these goals in the spaces and settings, and to include focus, inspiration, agility, adaptability, community, connection and collaboration. Inside the building, this is expressed in the open, permeable spaces; minimal doors and visual barriers to make learning visible; easy access to different opportunities and environments; and almost every space designed as a student space.

Open, visible spaces also mean students are inspired to get involved with various activities and enable different age groups to interact with and teach each other. Specialist spaces, such as the dance and drama studio, music room, science laboratory or hard materials workshop, are open to view, drawing in new participants. On the top floor there is a gymnasium for lunchtime activities and aspects of the sports curriculum. A more extensive gymnasium facility at Ara Institute of Canterbury is used to run the full sports curriculum.

Learning Areas

Beyond the core competencies, the curriculum focuses on eight key learning areas: English, the arts, health and physical education, mathematics and statistics, science, social sciences and technology. To support this, the school is broken down into four 'learning communities' (one per floor). Each learning community includes core space that is used for flexible and interactive learning, and specialist space that focuses on these core competencies and encourage students to move through the entire school.

Competencies that don't require specialist facilities are catered for in the flexible learning areas. The specialist spaces are arranged vertically: hospitality/food technology on the uppermost floor, science and drama on the third floor, music and arts on the second floor, and technology and performance at ground level.

Parental engagement is an important part of the curriculum, too, and the top-floor hospitality space is designed with parents in mind. They can run the café to make money, activating this top-floor community space. This area is strategically located at the top to attract and draw people up through the school.

In support of the floor-by-floor 'learning communities' is the way in which the building works as a whole. The central atrium, stairwell, social and eating spaces create a heart to the building. The

Educational Environment (Con'd)

community is visible, social and energetic. There's a real sense of learning going on and students are engaged and well behaved. The pedagogy makes this building work and the building enhances the pedagogy.

How the environment supports a variety of learning & teaching styles

Activity-based working

The school's approach to learning is to prepare the students for their futures. The design team replicated an activity-based approach to a school environment based on modern office design and mobile technology. This informed the design of functional working settings based on activities – i.e., activity-based working (ABW) and activity-based teaching practices. In keeping with a modern ABW office environment, the building includes a variety of space and furniture settings to provide for different working modes, from individual through to group, and from single-cell classrooms to common rooms for collaborative teaching. Furniture settings are also very flexible and can be rearranged according to need.

Single vs multi teacher approach

Teaching processes fundamentally affect the way children learn. At Ao Tawhiti Unlimited Discovery these are designed to be flexible in order to align with the school's philosophy of letting the student decide how they learn best. It's a two-way interaction. Teaching staff don't subscribe to any one style of teaching: instead, they use frameworks and methods according to students' needs. The flipped classroom, social collaborative learning, intensive mentoring or more traditional instructional approaches are interchangeable according to what brings best results for the topic, teacher and students.

The traditional boundaries between teaching and learning are purposefully blurred to encourage a more intuitive and activity-based way of learning. The teaching style allows learning advisors to work individually or in groups of two or three, sometimes supported by parents. A variety of spaces allows the different models to work in tandem, with quiet work spaces in between. Instructional-based learning is supported with spaces that allow one person to deliver to a large group with clarity. Interactive and collaborative learning is supported in spaces where the acoustics allow many people to converse without adversely affecting others.

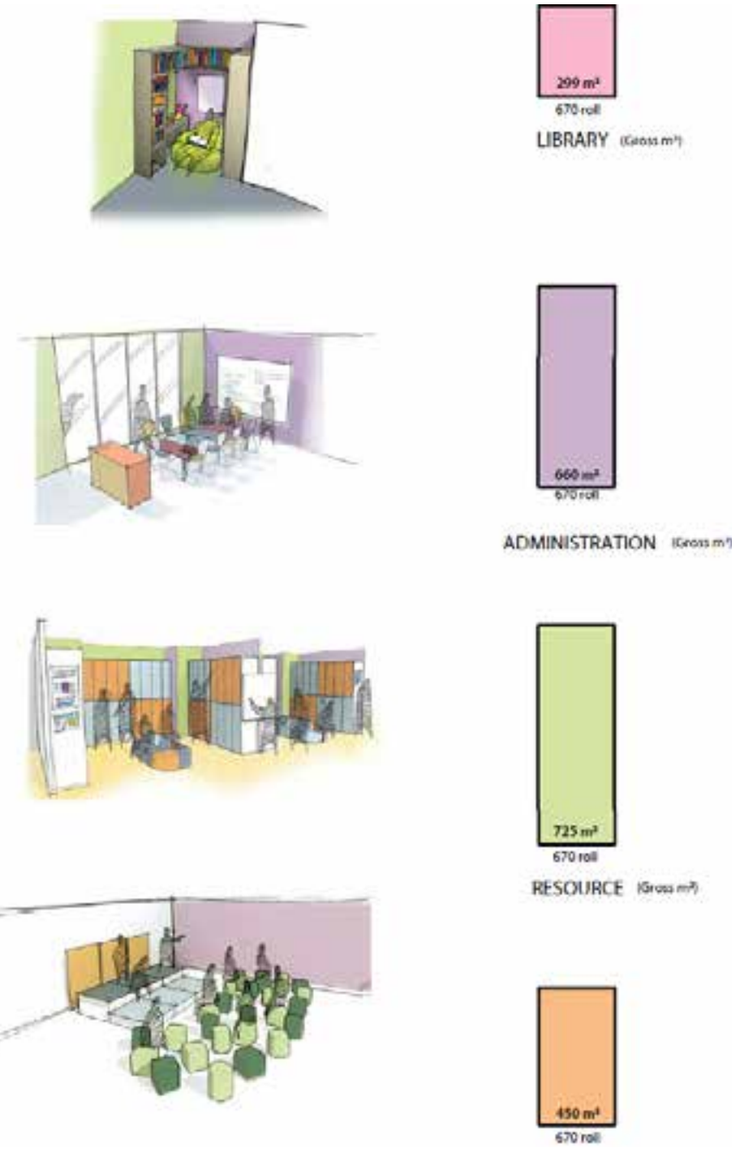
Typical teaching and learning

A typical class period will start with a briefing or instructional part and develop into self-learning or collaborative investigation before ending with review. The spatial configuration of the typical 'Learning Community' allows this to happen using a tidal flow process where the initial part of the period tends to be in spaces similar to typical classrooms then it flows to larger and smaller spaces, depending on the nature of investigation.

The use of space is supported by highly mobile furniture. Furniture in larger spaces needs to be flexible and is typically arranged by students in ways that best suits the way they listen, learn and interact. Furniture in specialist and smaller spaces is more constrained to suit the specific needs.

Specialist Learning

The school has a number of high- and specialist-needs students who need more support than others and often seek out quieter environments in which to work. The school's student-centred and nurturing approach to learning has ensured these students are not as affected by their physical environment as they are at traditional schools. With the teachers not being hidden away, they are able to support more and keep an eye on those who need extra attention.



Above: Floors share a common layout based on four zoned areas

Educational Environment (Con'd)

The upside of this has seen special-needs children (such as those with autism) to be able to flourish.The upside of this has seen special needs children such as those with autism, able to flourish.

City spaces for enrichment

The vision for Ao Tawhiti Unlimited Discovery – and the way the previous two schools operated – is a city school where the city is also a classroom. The school doesn't need or want to duplicate spaces the city already has on offer. Teachers use nearby facilities, such as the urban parks, public library and museum, to enrich the curriculum and experience. The students learn to be part of a connected city network, not isolated on a suburban campus. There is a more cosmopolitan influence at Ao Tawhiti Unlimited Discovery due to its urban environment, which naturally encourages independence and responsibility in the student population.

In order to support the urban educational environment, the school has been designed as a home-base, from which students can interact with outside activities and where they share their learnings when they return. Typically, students have external classes that are managed by teaching and support staff. Students' ability to venture into the city is very carefully managed and the issues of security and safety are well understood before students are given the opportunity to interact more independently. The school has a single point of entry, enabling a good level of control over who is coming and going.

How the environment is adaptable and flexible

Creating communities

There are four communities across the four storeys, with each floor designed for 180 to 200 students. Each of the first three levels has a community of grades 7 to 13, and the top floor provides for students in grades 1 to 6. Each floor has a similar layout of layered learning spaces, so there is a familiarity between floors. Each floor also houses one or two specialist classrooms to cross-pollinate the communities vertically. Specialist spaces are generally designed for grades 7 to 13, but can be used by interested younger students with the right (safe) support.

Planning

Floors share a common layout based on four zoned areas. At the centre is a generously proportioned atrium. Like a village square, this connection and collection space brings people up and through the building, and it offers a place to sit at breaktimes and a place to overlook from the edges.

Being a corner site, the interior has only one blind boundary, so this is where all the service spaces, ducts, bathrooms and lifts are located. Bordering these is a long linear space overlooking the atrium that houses the shared kitchens and the bag and coat racks. The specialist classrooms are located at the northern and southern ends of the atrium, while along the full length of the eastern wall – with views out across the city – are all the multi-purpose classrooms and shared learning spaces.

The unique classroom layering – from single-cell on the outside wall to meeting rooms to open-plan – allows learning advisors to begin group teaching first, then students filter out to open-plan spaces to work individually or in groups. And equally, it can run in reverse. Interestingly, on the top floor the year 1 to 6 teachers and students have done the reverse by setting up their desks in the open-plan area adjacent the atrium and using the more enclosed classrooms for less formal activities.

Inherent space flexibility and adaptability has come about not by having open spaces, but by offering a range of spaces affording different qualities and settings. Rooms are designed specifically to support teaching – connected and flexible rooms, rather than wide open spaces.

As a result, the acoustics are excellent and significantly better than a typical New Zealand school. During learning time the volume is noticeably lower and there is a useful level of white noise. The unique teaching style also means students are more engaged in what they are doing compared with a typical mainstream school and so tend to generate less disruptive noises.

"It feels like home"

– Year 2 Student

Physical Environment

The physical attributes of the environment described & Illustrated

City context: urban and civic spaces

Ao Tawhiti Unlimited Discovery is the first purpose-built, vertical state school in New Zealand, and is aligned with government priorities in building compact schools to meet the education needs of high-growth areas. Urban schools are allowed to have flexible opening hours and to share gyms and sports fields with local communities.

The inner-city location is also part of the school's special character and ethos, in that the whole city serves as a classroom. Because city amenities and experiences extend learning opportunities, the school can prioritise space for what it needs on site without having to duplicate (and pay to maintain) libraries and parks. These have always been a desired cost-benefit trade-off for this style of education.

The site was selected for its proximity to the city's new city bus interchange, which is less than one block away. Many students take the bus to school – even the some of the youngest students, who can easily navigate the two road crossings to reach the school's front door.

The Christchurch rebuild

Ao Tawhiti Unlimited Discovery is part of the CBD rebuild following the devastating 2010–11 earthquakes. Located within the South Frame precinct, the school makes up one of the edges of a renewed and condensed central city. The South Frame connects with the East Frame at one end and the Avon River and Hagley Park at the other, as part of a greener, more people-focused, connected city centre.

The South Frame is a master-planned precinct of several city blocks connected by a central pedestrian and cycling corridor called the Greenway. High-quality public space, urban gardens and public artworks are located along the corridor, which is activated by a council-run event and market programme. The Greenway opened a year before the school did and was designed as a catalyst to attract businesses and developers back to this part of town.

The Greenway runs directly in front of the school's front door on its sunny north side. The school has a small set-back plaza as an extension of this pedestrianised space, and students can go out to enjoy the laneway seating, gardens and artworks. Amongst other opportunities, the council's Māori herb garden is used by the school as a teaching garden. Ao Tawhiti Unlimited Discovery is one of the first buildings built in the block to connect into this new public amenity.

The Greenway pedestrian and cycle way also runs between two major commuter routes in Christchurch, providing further transport options for staff and students in and out of school.

The architectural character

The exterior architecture had to be 'out of the box' to show there was something different happening inside the school. Hero materials and

Physical Environment (Con'd)

silhouettes were drawn from the site's pre-earthquake buildings – brick warehouses and sawtooth roofs recreated with a youthful energy and playfulness fit for a school.

With a simple exterior form to keep costs down, architectural opportunities were found in the cladding, fenestration and roof profile. Window shapes are based on four standard modules placed (apparently) randomly across the façade. This allows different sill heights, lighting and spatial experiences inside, while still being highly worked out to disguise steel cross-bracing and suit daylight modelling. The resulting patterning recalls pieces of a jigsaw or a set of dominoes – a universal reference to fun, games and creativity.

Similarly, three colours of terracotta tile add layers of colour and pattern, while also providing mass on the façade for acoustic damping inside. Ministry of Education budgets are tight, yet the terracotta rain shield was a good solution to balance cost, durability and aesthetics.

Internal environment

The educational environments have been designed using the Ministry of Education's Designing for Quality Learning Spaces guidelines. These guidelines are intended to encourage the design of well-performing learning space with modern, more flexible pedagogy in mind.

Good acoustics

A common issue with open learning environments is a high level of noise, which makes communication and concentration difficult. So acoustics were a major concern for parents, especially with regard to the open atrium. The architects paid close attention to acoustic design, both in terms of external noise from the city and the reverberation of internal noise from the student population. Significant acoustic absorption in open areas is matched with good control of transmission noise. As a result, the acoustics are excellent and significantly better than a typical New Zealand school. During learning time, the volume is noticeably lower and there is a useful level of white noise. The unique teaching style also means students are more engaged in what they are doing compared with a typical mainstream school, and so they tend to generate less disruptive noise.

Neutral colours

The material palette is deliberately calm, muted and neutral, so the students' work can shine through. The school board wanted a relatively serious, corporate interior to help students concentrate and focus on their work and take the space seriously. While the exterior is playful, the interior is about the students brining about their creativity – the building as a neutral platform for their imagination.

The only real break to a palette of soft greys, blues and greens is the warm, golden timber lining of the atrium interior. Like a glowing lantern, the top-lit space reflects light right down through the building, an uplifting space that contrasts beautifully with the concentration and focus on the learning floors.

Natural Light

In line with recent Dutch research which shows that a singular lighting level is not as effective as a variety, the internal lighting environment has been computer modelled to ensure a rich variety of lighting environments is available to support different learning scenarios: high, even lighting is available where general learning predominates and low background with task lighting is available to areas where more focused work is expected. Away from the exterior, space is lit with a large skylight over the central atrium.

Physical Environment (Con'd)

Healthy environmental selections

All internal materials have been selected for their low environmental impact, with low VOC off-gassing being an important factor in selection. Where possible, materials have been left in their natural state. All timber used comes from sustainable resources.

How the facility fits within the larger context of the community

Urban community – bringing people back in to the city

It is difficult to describe the slow process of humanising a city. Since the earthquakes, the city has had no more than a dozen permanent residents and has had a completely different character between work and non-work times. Today, with the opening of a school in the CBD, the city is no longer the sole domain of office and retail workers.

Parent Community

The school's parents tend to be city-based office workers who commute from all parts of the local area. This allows an initial level of engagement with the rebuilding city. The parental engagement in the education programme is encouraging, and most parents who have been engaged so far have found the new facilities easy to get to and great to be in.

Engaged urban community

Now that the school is back in the city, local businesses have seen opportunities to re-engage. The local business association – which worked with the school prior to the earthquakes – has reignited discussions. Many local businesses have corporate responsibility programmes and they see the school as a way they can engage with community. For example, a local city hotel wants to support students interested in a hospitality career. And some senior students have had the opportunity to attend architecture meetings.

The possibilities are endless, and it will only be a matter of time before these partnerships grow and enrich student learning and career opportunities

How the project inspires and motivates

At the time of writing, the school has been open for seven weeks. The overwhelming comments from students and parents is that it immediately felt like home, that it feels like their space, and is inspiring and motivating. They knew how to use it, they found their own niches and helped set up the environment. The older students have asked for access on weekends. Parents come in to run workshops and spend time supporting their kids in their learning. The school's ethos is 'this is your space'. They want students and parents to feel ownership.

Some days, the interior looks like a messy teenager's bedroom, but ultimately, students have the responsibility to tidy it up. It breeds independence and personal responsibility for their school. Overall, they take good care of it and respect the furniture and building fabric.

To date, the director (principal) has shown 500 people through the school. He has to run a ballot system, as most of the parents who come through want to sign their kids up. As it is the first school of its kind, visitors from other schools are coming to see what Ao Tawhiti Unlimited Discovery is doing and how it is influencing others.

Permanence versus agility and adaptability

The school embraces the duality between permanence and adaptability. The building is a reflection of both in its permanent structure and open, adaptable interior. Inside, students quickly learn to adapt the environment to find ways in which they can learn to their potential.

Out of the box design

This isn't a school that will produce 'factory workers', but one that will grow the new thinkers of a collaborative world. The building's exterior design, too, is a step outside the traditional: few walls are straight, the roofline is more organic than architectural, the façade looks like a giant piece of camouflage. On the ground floor, you can see right into the school teaching spaces when walking along the footpath; no blinds are drawn.

Inspiring students to be a part of the city

This is a building that seeks to actively engage with its city. The school has a café on its top floor which overlooks the rebuilding city, encouraging the public into the school to be part of the education that happens within. Ground-floor performance space can open up into the new Greenway, allowing more dialogue with the passers-by in a city seeking to reactivate. This is the polar opposite of much new development that draws its shutters down at night and discourages the use of public space.

Inside, you'd be forgiven for thinking this is a modern office or library building. It has an actively used circulation atrium, a reception, and a general corporate appearance. The only difference is that it's filled with students.

Results of the Process & Project

Explain how the project achieves educational goals and objectives

Achieving the Educational Goals of the National Curriculum

The New Zealand curriculum presents a vision for all young New Zealanders that will provide them with the dispositions needed to succeed in a 21st-century global world – young people who will be confident, connected, actively involved, lifelong learners.
This vision was created from a consideration of the demographic, economic, social and technological changes impacting on all New Zealanders in the 21st century:

1. Our increasingly culturally diverse society;
2. The change from 'a job for life' to many short term vocational opportunities requiring a flexible response and greater individual enterprise from 'workers' than in the past;
3. Increasing global influences and a more strongly Pacific rim outlook to our economy; and
4. Rapid environmental change and increasing technological challenge.

Ao Tawhiti Unlimited Discovery school focuses on creating adaptive learners who are capable of setting their own learning pathways. This focused approach helps students gain the confidence and skill base to become real 'lifelong learners' by being able to set their own learning goals and programmes. In support of this pedagogical approach, the project allows a variety of outcomes, including: specialist spaces for learning in base and new technologies; supportive 'learning communities'; multiple spatial types that encourage a high degree of self-directed learning to take place; and students and teachers sharing the same space throughout the entire school day.

The interior space exceeds all expectations in its ability to support the innovative style of teaching at Ao Tawhiti Unlimited Discovery. Compared with a typical suburban school – and certainly more than the city sites used by the schools prior to the earthquakes – the multi-storey campus is a true enabler for exceptional teaching and learning experiences. This is due to a strong community feel, high levels of connectivity visually and socially, and a diverse and highly effective environment that ignites opportunity and creativity. All of these aspirations were envisioned from the beginning and have been brought to life by the design and architecture teams

Achieving the Goals set out in the School's vision

The school evolves its teaching vision and goals every year with the aim of living their philosophy of continual evolution. At the commencement of the current year the school's vision and goals were set to reflect their new home. The school is a (space) vessel for the journeys of its students.

Strategic Goal 1: Learning, "Build the rocket"
Strategic Goal 2: Relationships, "Draw a crowd"
Strategic Goal 3: Culture, "Light the fuse!"
Strategic Goal 4: Transition, "Returning home"
The school looks afresh at its teaching vision and goals every year with the aim of living its philosophy of continual evolution. At the start of the current year the school's vision and goals were set to reflect its new home. The school is a (space) vessel for the journeys of its students.

Strategic Goal 1: Learning, "Build the rocket"
Strategic Goal 2: Relationships, "Draw a crowd"
Strategic Goal 3: Culture, "Light the fuse!"
Strategic Goal 4: Transition, "Returning home"

Results of the Process & Project (Con'd)

The aims of the first year of operation are about setting a new baseline from which the school can grow. They are based on teaching; learning; and showing how the total focus of the school stays with the student at the start and finish, above the teaching and the school environment.

Annual Aim 1: To achieve aspirational and realistic literacy goals for our students
Annual Aim 2: To raise the number of students attaining a NCEA certificate or university entrance
Annual Aim 3: To become a coaching school
Annual Aim 4: To ensure all students have access to 1:1 mentoring
Annual Aim 5: To ensure that Māori students are supported in achieving educational success
Annual Aim 6: To promote a culture of leadership with our students
Annual Aim 7: To successfully transition to our CBD environment

How the project achieves school district goals

Christchurch is New Zealand's second most populous city. This school shares a general district with 144 other schools, most of which have specific zones restricting the entrance to their local neighbourhood. Its special character status allows Ao Tawhiti Unlimited Discovery to draw students from the greater urban region, so the project's district extends well beyond its urban neighbourhood. To reflect its wide district, the school engages with the city in order to provide learning opportunities well beyond the boundaries of its site. This allows the school to boast a high-achieving football academy in a school with no sports fields, for example. It achieves this feat simply by utilising the facilities of a professional team with superior funding and partially used facilities.

The ability to reach out and use facilities beyond the school's walls means the school must serve as a great home base where practical learning in the field is discussed and understood. This is a focus of the learning communities, each of which features a learning common/social 'kitchen' space, designed to support fieldwork, adjacent the main circulation space.

How the project achieves community goals

A school that interacts with the city and makes the city a safer place

The Christchurch City Council was keen to see this school make a positive contribution to urban space and the regeneration of a part of the city fringe. The school's student-led approach to learning requires significant input from beyond the normal teaching network, relying heavily on the extended school community. The project and its community are heavily intertwined as a result. Allowing the greater community to teach in the school has meant the school needs to be able to control secure access to the school with ease.

Located in a strip of developing city fringe, the school interacts with local businesses and activates the local pedestrian network, making the city more safe and liveable in return. Making the ground floor open and visible encourages interaction between the building and its immediate environment. This has the added bonus of making it safe through careful use of CPTED design principles, including passive surveillance of the pedestrianised areas, good lighting and lack of recessed hiding space.

Unintended results and achievements of the process & project

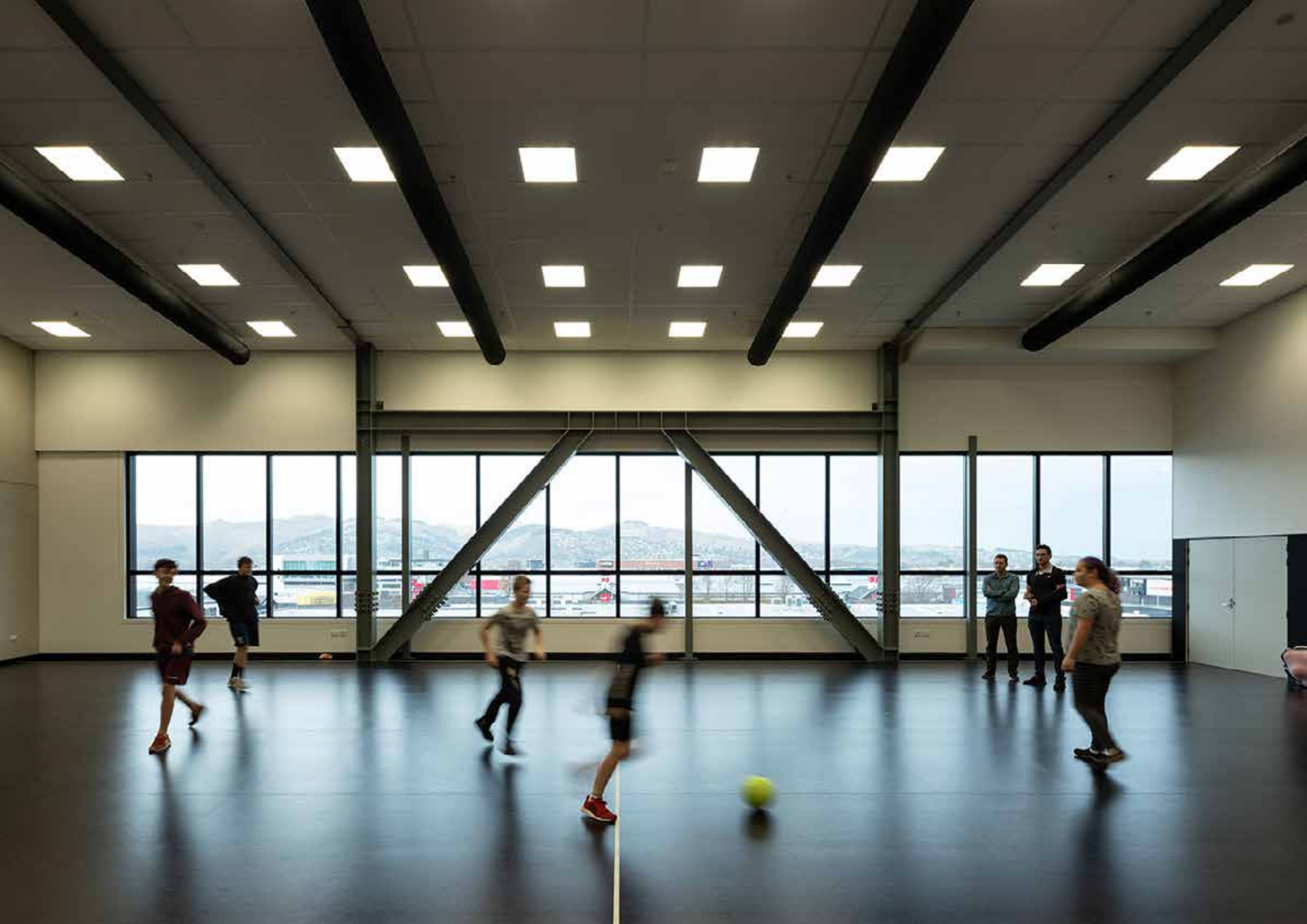
Children make a city more liveable

The rebuilding of Christchurch has been going on for eight years and will continue for another few decades. The planning of the rebuild has been based around simplistic, single-use precincts and lacks the grain of a well-developed city. As the city has rebuilt it has been largely occupied by adult working people and as such lacked a feel of normality.

Ao Tawhiti Unlimited Discovery students care about their city, and they care about how they are perceived. The reintroduction of the school, with its population spread across all ages, has helped to humanise the city. The school begins to break down the boundaries and perceptions of single-use precincts and makes the city feel more liveable, adding a real softening as the destroyed city undergoes its rebuild.

Local economic benefits

The school also brings a significant consumer population into the city who need to buy food and other goods. Local businesses have offered free parking one block away, as they see the value of the students and staff doing some of their weekly shopping at the local shops and supermarket. This welcoming of the school community will offer a win–win at an economic and local community level.



Educational Specification

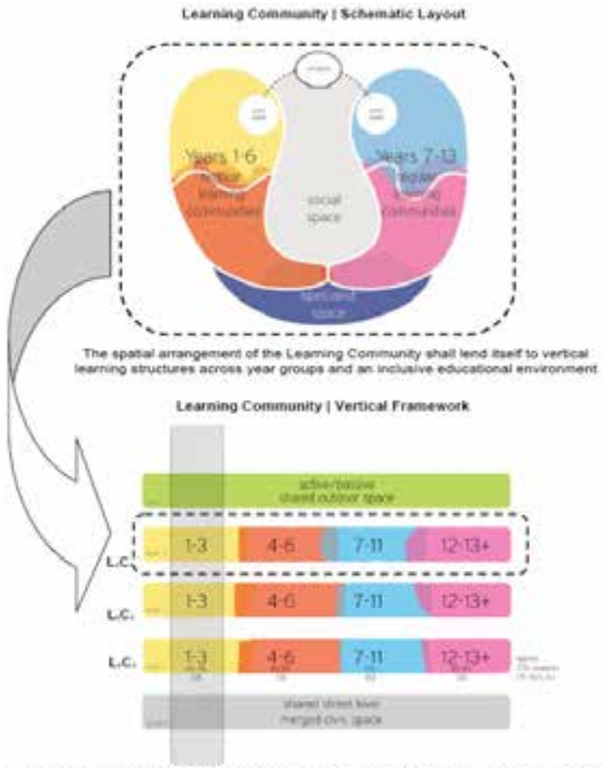
Ao Tawhiti is a Composite School for years 1 to 13, recently formed through merger of Unlimited Paenga Tawhiti secondary school and Discovery One primary school. It is currently housed in temporary accommodation, and has been since the Canterbury Earthquakes. A new premises for the school is to be provided within the Christchurch central business district (CBD) to accommodate approximately 800 students.

The Ao Tawhiti model for learning places the student at the centre. The learning program and courses will be student initiated alongside learning advisors. Students will customise their own learning program in partnership with their learning advisor, and will be encouraged to work on individual projects and team projects. Because of Ao Tawhiti's unique urban location, students will have access to other learning environments and opportunities outside of the facility.

The design of the school will need to support learning spaces for flexibility, versatility and agility. Good indoor to outdoor connection will be supported. The layout of spaces from arrival to all functional areas should allow for clear identifiable navigation with good supervision and passive surveillance. The hierarchy and arrangement of functional areas will clearly communicate community accessibility and engagement. The learning spaces will reflect engaged spaces supporting experiential and inquiry based learning.

Ao Tawhiti Learning Communities Vertical Framework

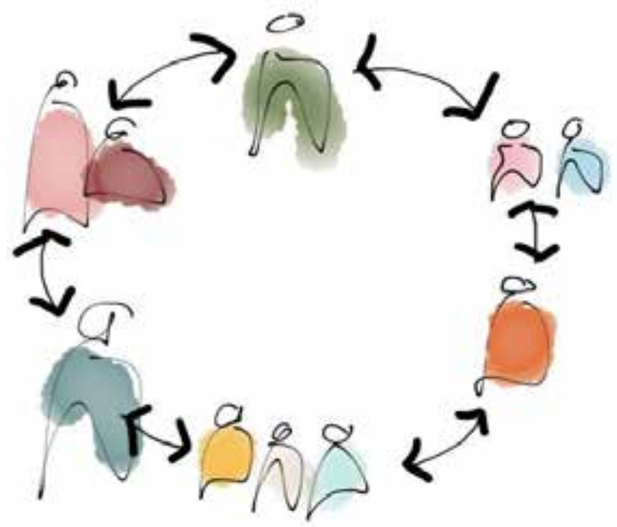
The nature of the building and population density of the CBD may require a vertical built response, comprised of stacked learning neighbourhoods that span from years 1 to 13+ and connect vertically and horizontally across levels. This presents an opportunity to develop a learning environment that reflects Ao Tawhiti's progressive educational stance by challenging design standards for educational facilities; building innovative new connections within the school and throughout the city.



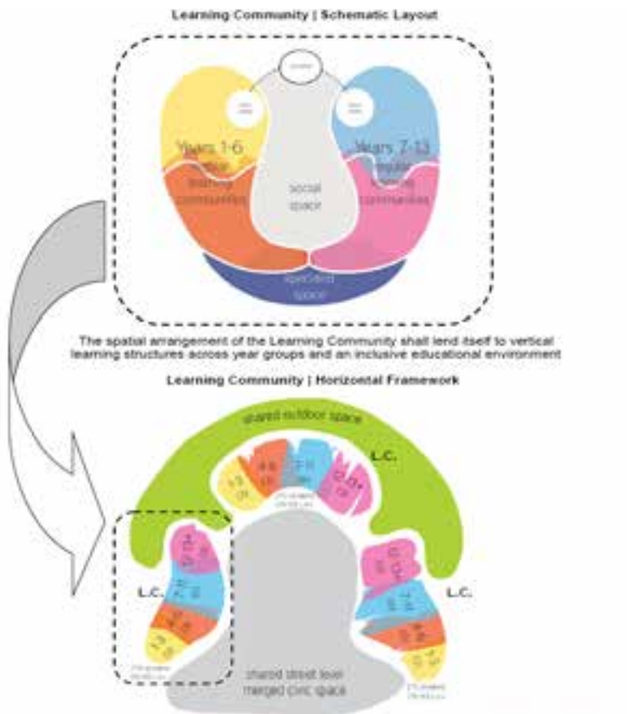
* These diagrams are not building plans but conceptual arrangements showing desired connections.

Ao Tawhiti Learning Communities Horizontal Framework

A Horizontal Framework of Learning Communities will integrate Ao Tawhiti into the community and form a strengthened relationship with the new CBD in a positive way by allowing the community greater ease of access to Ao Tawhiti's facilities. It will create more direct connections between adjacent learning neighbourhoods, and to the city as a learning resource. In both framework models, clarity



of navigation and purpose will be expressed to ensure an open dialogue with the urban fabric. Physical transparency will be key to ensure a sharing of space and facilities, and foster a welcoming, inclusive atmosphere.



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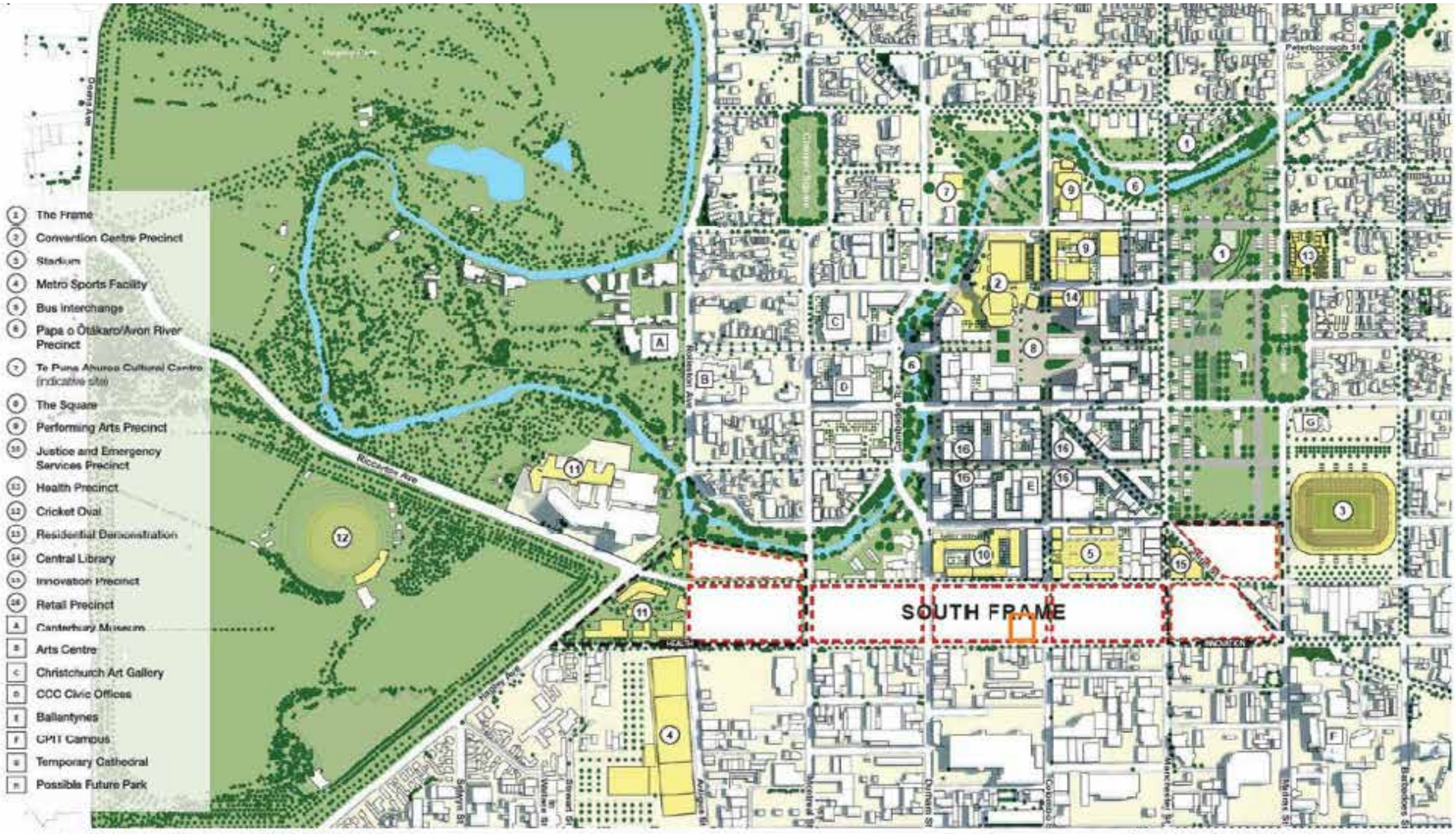
Urban Context – Christchurch Central, New Zealand



Map from: The South Frame/ Pūtahi Whakaterenga PUBLIC REALM DESIGN BRIEF
Published in January 2016 by Canterbury Earthquake Recovery Authority

(Above) A version of the Blueprint Plan, highlighting the south frame region and the 'Anchor' projects developed to 'help optimise the development and layout of a revitalised centre' (CCRP 2012).

Projects of note within the vicinity of the proposed site include the newly completed Bus Interchange, the proposed Central Library, Performing Arts Precinct and Metro Sports Facility.

APPENDIX 1

Photo Release Form

ASSOCIATION FOR LEARNING ENVIRONMENTS
Enhancing the Educational Experience

2019 LE Solutions Planning and Design Awards

Photo Release Form

Please initial all that apply

Name of Project: Ao Tawhiti Unlimited Discovery School
Location of Project: Christchurch Central, New Zealand
Occupancy Date, if applicable: May 2019

The Association for Learning Environments (A4LE) has our permission to:

- ✓ Send photos electronically to jury members (required for entry).
- ✓ Display photos in the award winners' area of the website, if selected as a finalist.
- ✓ Display photos on other sections of the website as representative A4LE projects.
- ✓ Print photos in A4LE newsletters.
- ✓ Print photos on A4LE marketing materials, i.e. brochures, awards, call for entries, etc.
- ✓ Print photos and project details in the A4LE Design Portfolio, if selected as a finalist.
- ✓ Special projects with prior permission.

Please Note: A4LE maintains an in-house archive of school designs as part of our research library. Your information will be entered and recorded as one of those designs.

Firm: Stephenson & Turner
Responsible Party/Photographer: Simon Devitt
Signature _____
Date of Release 20/06/19

APPENDIX 2

Confidential Information

2019 LEsolutions Awards
Project Data: Confidential Information

Project Name	Ao Tawhiti Unlimited Discovery School
School District Name	Christchurch Central
Project Address	5 Mollett St, Christchurch Central, Christchurch 8011
City/State/Zip/Country	Christchurch, New Zealand
Superintendent/President	Dennis Chippindale
Award Category—Please Identify the category of award.	2019 James D. MacConnell Award

Submitting Firm:	
Project Role (Architect, Planner, CM, Other)	Stephenson & Turner
Contact for this Award Application	Dennis Chippindale
Title	Principal/Chairman
Address	102 Cashel Street
City, State or Province, Country	Christchurch 8140, New Zealand
Phone	
Email Address	dchippindale@stephensonturner.com

Joint Partner Firm:	
Project Role (Architect, Planner, CM, Other)	
Project Contact	
Title	
Address	
City, State or Province, Country	
Phone	
Email Address	

Other Firm:	
Project Role (Architect, Planner, CM, Other)	
Title	
Address	
City, State or Province, Country	
Phone	
Email Address	

Other Firm:	
Project Role (Architect, Planner, CM, Other)	
Title	
Address	
City, State or Province, Country	
Phone	
Email Address	

APPENDIX 3

Educational Brief and/or Educational Visioning Documents

Functional Brief ~
Ao Tawhiti Integration Project

Ao Tawhiti Integration Project

Output Specification

Part A: Functional Brief

Revision E: 28th October 2014

Output Specification

Schedule 12	Output Specification
	Part A – Functional Brief
	Part B – Architectural Specification
	Part C – Technical Specification
	Part D – Furniture, Fittings and Equipment Specification
	Appendices

Contents

Table and Figures

Appendix

1. Introduction

This Output Specification outlines the Ministry's minimum design, functional, technical and furniture, fittings and equipment requirements for the Facilities. The Ministry encourages Respondents to develop innovative proposals that go beyond the minimum requirements and improve on the Project Outcomes for the Ministry in terms of functionality, efficiency, amenity and aesthetics – ultimately contributing to better educational outcomes.

In designing, building and fitting out the Facilities, the Contractor is required to satisfy all New Zealand Laws, Regulations, Building Standards, Ministry guidelines and standards and any other codes, standards or requirements applicable to the Facilities including furniture, fittings and equipment.

In the event of a conflict between any of these requirements, the more onerous requirement shall apply, that being the requirement which calls for the highest standard, unless otherwise agreed. For the avoidance of doubt, in applying this principle, the Project Director shall have the right to select, and the Contractor shall be required to provide, the option that may be the most costly or that which is most beneficial to the Ministry as determined by the Project Director in their absolute discretion.

Whilst every care has been taken to populate the Functional Area Data Sheets and Furniture, Fittings and Equipment Schedule as comprehensively as possible, these have been compiled in the absence of a design for the new Facilities and hence there may be additional requirements that go beyond those noted in these documents.

The obligation on the Contractor is to design, build and fit out the Facilities so that they are Fit for the Intended Purpose. This obligation will extend to the provision of any item of Furniture, Fittings and Equipment (FF&E) not noted within this Output Specification with the exception of any loose curriculum equipment and desktop and notebook computers (unless specified). Furthermore, this obligation will determine the requirements in relation to:

- the types of FF&E selected (noting that for the most part, the schedules do not refer to makes and models of each item); and
- quantities of FF&E.

The quantities of all FF&E items shall be sufficient to cater for the requirements of the school based on total school population for the school and to ensure the functionality of each Functional Area.

The Output Specification may not specify, for each and every requirement, that it is a requirement imposed on the Contractor. For the avoidance of doubt, unless the Output Specification specifically notes that the Ministry will be responsible for a particular action or requirement, the outcome is to impose an obligation on the Contractor.

This Output Specification:

- defines the outputs for construction services for the Facilities;
- describes the minimum standards and requirements which each Respondent must comply with in compiling their Proposals; and
- refers Respondents to supplementary sources of information in respect of the Project.

It is structured as set out in the following table.

Table 1 – Output Specification structure

Part	Heading	Contents
A	Functional Brief	Outlines the Ministry's key Design Principles for the Project, the understanding of and approach to educational design that forms the basis of the design requirements, and detailed accommodation requirements.
B	Architectural Specification	Details the minimum building and fabric performance standards that the Contractor must provide to all Facilities, as well as the Site constraints and compliance matters that the Contractor must meet when undertaking the Works on Site.
C	Technical Specification	Details the minimum performance standards for each element of the building engineering services, civil and structural requirements, utility, ICT and communication requirements that the Contractor must provide to all Facilities.
D	Furniture, Fittings and Equipment Specification	Details the furniture, fittings and equipment requirements for the Project.
Appendix A	Functional Area Data Sheets	Details the minimum performance standards and requirements for all Functional Areas and Units within the Project.
Appendix B	Areas Schedule	Details schedules of accommodation for the Facilities.

All terms in this Output Specification have the meaning given to them in the Project Agreement.

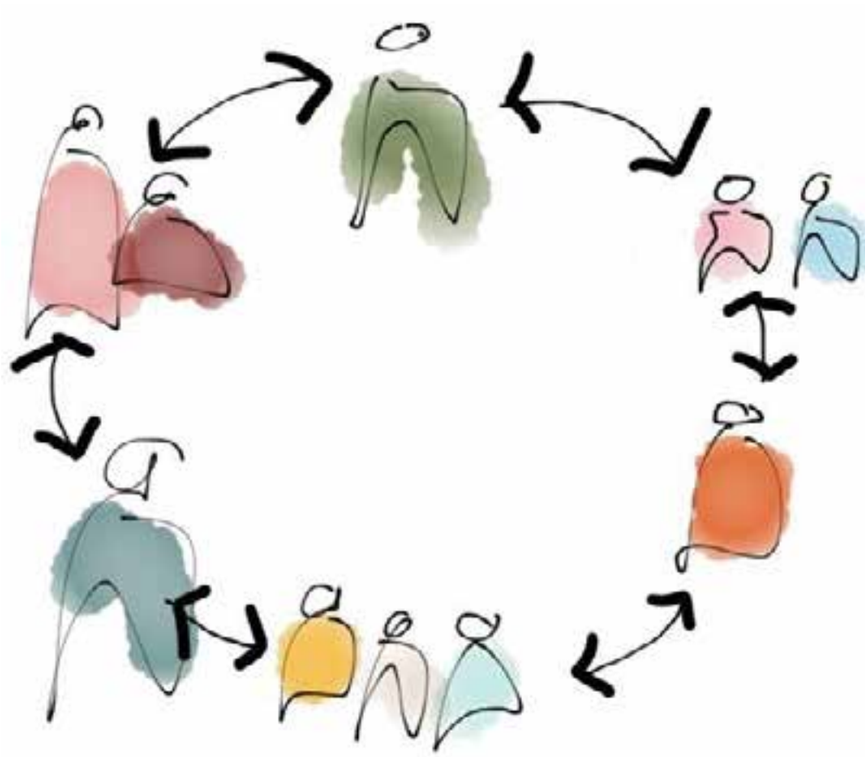
2. Project overview

2.1 The Project

Ao Tawhiti will have long term enrolments at the levels shown in Table 2 below. The School will, at a minimum, be required to accommodate the Long Term Enrolments. The specific school capacities are listed in the sections below.

Table 2 – The Project School

General identifier	School type	Long-Term Enrolments
Ao Tawhiti Unlimited Discovery	Composite Years 1 – 13	800



2.1.1 Ao Tawhiti Unlimited Discovery Overview

Ao Tawhiti is a Composite School for years 1 to 13, recently formed through merger of Unlimited Paenga Tawhiti secondary school and Discovery One primary school. It is currently housed in temporary accommodation, and has been since the Canterbury Earthquakes. A new premises for the school is to be provided within the Christchurch central business district (CBD) to accommodate approximately 800 students.

The Ao Tawhiti model for learning places the student at the centre. The learning program and courses will be student initiated alongside learning advisors. Students will customise their own learning program in partnership with their learning advisor, and will be encouraged to work on individual projects and team projects. Because of Ao Tawhiti's unique urban location, students will have access to other learning environments and opportunities outside of the facility.

The design of the school will need to support learning spaces for flexibility, versatility and agility. Good indoor to outdoor connection will be supported. The layout of spaces from arrival to all functional areas should allow for clear identifiable navigation with good supervision and passive surveillance. The hierarchy and arrangement of functional areas will clearly communicate community accessibility and engagement. The learning spaces will reflect engaged spaces supporting experiential and inquiry based learning.

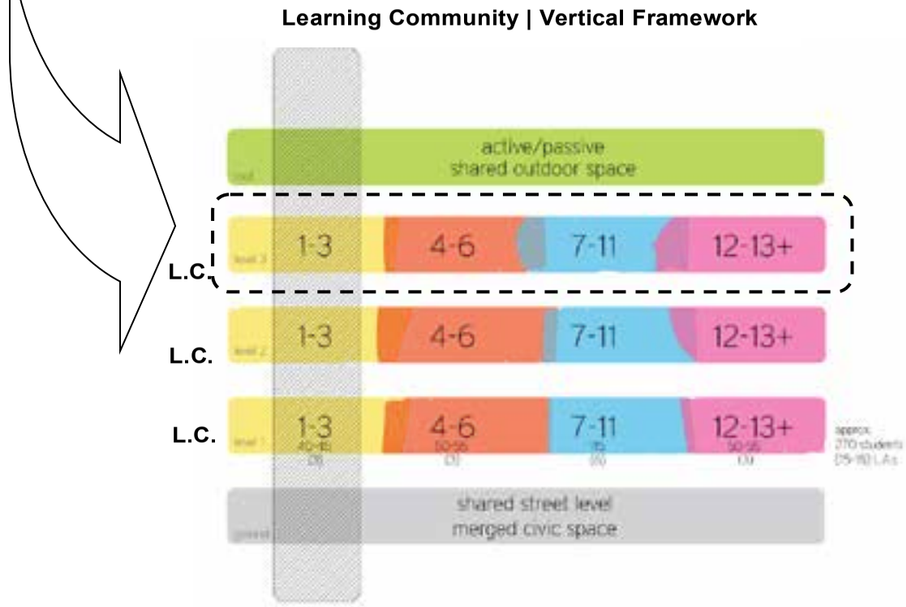
2.1.2 Ao Tawhiti Learning Communities Vertical Framework

The nature of the building and population density of the CBD may require a vertical built response, comprised of stacked learning neighbourhoods that span from years 1 to 13+ and connect vertically and horizontally across levels. This presents an opportunity to develop a learning environment that reflects Ao Tawhiti's progressive educational stance by challenging design standards for educational facilities; building innovative new connections within the school and throughout the city.

Learning Community | Schematic Layout

The spatial arrangement of the Learning Community shall lend itself to vertical learning structures across year groups and an inclusive educational environment

Learning Community | Vertical Framework



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2.1.3 Ao Tawhiti Learning Communities Horizontal Framework

A Horizontal Framework of Learning Communities will integrate Ao Tawhiti into the community and form a strengthened relationship with the new CBD in a positive way by allowing the community greater ease of access to Ao Tawhiti's facilities. It will create more direct connections between adjacent learning neighbourhoods, and to the city as a learning resource. In both framework models, clarity of navigation and purpose will be expressed to ensure an open dialogue with the urban fabric. Physical transparency will be key to ensure a sharing of space and facilities, and foster a welcoming, inclusive atmosphere.

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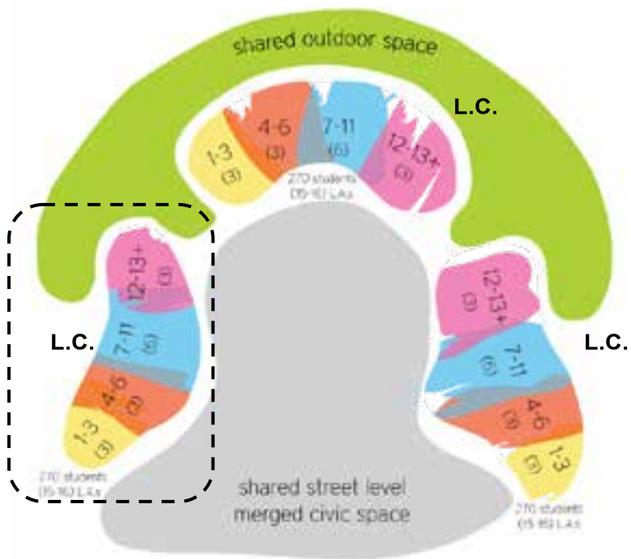
Learning Community | Horizontal Framework



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2.2 The NZ Curriculum Vision

The New Zealand Curriculum (2007)[1] presents a vision for all young New Zealanders that will provide them with the dispositions needed to succeed in a 21st century global world – young people who will be confident, connected, actively involved, lifelong learners.

This vision was created from a consideration of the demographic, economic, social and technological changes impacting on all New Zealanders in the 21st century:

(a) Our increasingly culturally diverse society;

(b) The change from 'a job for life' to many short term vocational opportunities requiring a flexible response and greater individual enterprise from 'workers' than in the past;

(c) Increasing global influences and a more strongly Pacific rim outlook to our economy; and

(d) Rapid environmental change and increasing technological challenge.

The New Zealand Curriculum has implications for all aspects of Education design for NZ schools which in turn have implications for the design of education facilities and learning environments.

[1] NZ Ministry of Education, *The New Zealand Curriculum for English-medium teaching and learning in years 1–13*, Ministry of Education, Wellington, 2007

3. Educational design for the Ao Tawhiti Integration Project

3.1 NZ Curriculum Vision for NZ Schools & the implications for the design of facilities & learning environments

VISION: *Young people who will be confident, connected, actively involved, lifelong learners.*

*The New Zealand Curriculum is a clear statement of what we deem important in education. It takes as its starting point a **vision** of our young people as lifelong learners who are confident and creative, connected, and actively involved. It includes a **clear set of principles** on which to base curriculum decision making. It sets out **values** that are to be encouraged, modelled, and explored. It defines **five key competencies** that are critical to sustained learning and effective participation in society and that underline the emphasis on lifelong learning.*[2]

NZ Curriculum http://nzcurriculum.tki.org.nz	**Implications for Educational Design**	**Implications for Facilities Design**
VALUES • Excellence • Innovation • Inquiry and curiosity • Diversity and equity • Community and participation • Ecological sustainability • Integrity • Respect	The NZ Curriculum makes clear that the development of the whole person is the educative purpose of schools. It represents a clearly articulated shift from a teacher and teaching-centric model of education to a **learner and learning –centric model.** This has implications for the deliberate re-design of many aspects of education: • curriculum design • pedagogical approach • organisational structures • professional learning • interpretation of the curriculum in each local context • provision of personally significant programmes that develop personal identity and agency • assessment and reporting • community interaction	The facilities will be designed in accord with the NZ Curriculum: **QUALITY** [V: Excellence, Innovation] • model **excellence in design and functionality** • be **innovative** and stimulate innovation in learning and teaching • be **aesthetically pleasing**, welcoming and **support the physical and emotional wellbeing** of the students and staff **FUTURE FOCUSSED** [P: Future focus] • embed the potential for **re-configurability** in the present for varied use • be **future focussed** and able to be adapted and reconfigured to accommodate changing needs into the future eg. ensure the facilities can adapt to a range of organisational models to be developed by the school leaders, staff and community **COMMUNITY and CULTURAL EXPRESSION** [V: Community and participation, Diversity and equity, Cultural diversity, Respect. P: Community engagement] • have a **strong presence in the community**, acknowledge the community's heritage and cultural make up and inspire pride and confidence in the community and Public Education • promote a **sense of community and belongin**g within the school as well as connection to the wider community by promoting human connectedness and a family feel not an institutional feel • **build community** and encourage participation and engagement in community and by the community • be integrated into and reflect and **express the values and aspirations of the community** • inspire **participation** in, and **responsibility** for the learner's community and **respect** for others and property • honour and celebrate **diversity** – diversity in learners, cultural diversity - within the school and wider community • ensure **inclusion** of all learners and provide equitable access to all facilities and equipment • **integration over segregation** • provide opportunities for students to develop integrity **ECOLOGICAL SUSTAINABILITY** [V: Ecological sustainability] • model **ecological sustainability** principles in all facets of the indoor and outdoor environments and buildings and encourage sustainable practices • be integrated into, and maximise the use of the **natural environment**
PRINCIPLES • High expectations • Treaty of Waitangi • Cultural diversity • Inclusion • Learning to learn • Community engagement • Coherence • Future focus	**The NZ Curriculum p 9.** *The NZ Curriculum Principles have significant implications for all aspects of education design and should be read in full and referred to regularly as a guide to ongoing development.*	

[2] NZ Ministry of Education, *The New Zealand Curriculum for English-medium teaching and learning in years 1–13*, Ministry of Education, Wellington, 2007

INTEGRATED ELEMENTS **Values** Exploration and development **Key Competencies** • Thinking • Using language symbols and texts • Managing self • Relating to others • Participating and contributing **Learning Areas** Representing each learner's entitlement to our intellectual heritage: The Arts, English, Health and physical education, Learning languages, Mathematics and statistics, Science, Social sciences, Technology **Official Languages** English Te Reo Maori New Zealand Sign Language	Learning 'about' them cannot develop Key Competencies. They need to be deliberately and explicitly taught, learned and their growth monitored through authentic, experiential participatory learning experiences and activities. Each teacher is a teacher of the whole person. Although this may have been an assumed position by early childhood and primary educators, teachers in secondary schools have not universally assumed this position. Each teacher plays their part in developing the whole person by developing learning experiences and teaching approaches that integrate values education, the development of the key competencies and engagement in learning through the learning areas.	**LEARNING and LEARNING TO LEARN** [P: Learning to learn, High expectations: inquiry and curiosity, Diversity and equity] Key Competencies, Learning Areas, Official Languages] The facilities will create **contemporary learning environments** that: • promote learning for students, professionals and community through **active investigation, social interaction and collaboration** • inspire **curiosity** • support a **full range of teaching strategies** from direct explicit instruction to facilitation of inquiry and engagement in authentic projects • support **disciplinary** [all Learning Areas] **and interdisciplinary** learning • include **multipurpose** spaces and **special purpose** spaces and facilities • support a **range of group sizes** from 1 to 1, small group and larger group learning • are **age-stage appropriate** for learning, recreation and socialisation • facilitate learning anywhere, anytime, by any means, through **seamless access to ICT** and distribution of learning resources throughout learning spaces • are virtually connected **globally**, **nationally** and **locally** • **activate and invigorate learning spaces** - indoor and outdoor • enable **all aspects of the buildings**, building design and outdoor spaces to be **learning tools in themselves** • incorporate the use of the **NZ Curriculum Official Languages**
EFFECTIVE PEDAGOGY	A learner and learning-centric pedagogical approach supplants a 'one size fits all' approach of the industrial model of schooling. It ensures personally significant learning through personal success and the development of identity and agency.	**EFFECTIVE PEDAGOGY** The facilities design will be designed around learning settings that support and enhance **specific learning activities in a range of group sizes.** **Layout** of the learning settings will provide for seamless access to and from required resources and ease of flow between spaces. The juxtaposition of spaces ensures continuity and appropriate merging of atmosphere and acoustic requirements. **Fit out** of the learning settings will be appropriate to the **Learning Area** and specific learning activity. **Specific Learning activities** • Direct, explicit teaching and demonstrations • Meetings for discussion and decision-making • Creative activities with media, general and specialised equipment, materials • Investigative activities with general and specialised equipment, materials • Construction, modelling and simulation • Dialogue, story telling, community of inquiry • Presentation • Display of learning resources and student work • Quiet reflective activities and/or individual research • Rehearsal and performance in the Arts and physical activity • Structured and free form interaction and collaboration • Gatherings, assemblies ceremonies

TEACHING AS INQUIRY	The vision of the NZ Curriculum has created a professional mandate for teachers. The principle of high expectations states: *The curriculum supports and empowers all students to learn and achieve personal excellence, regardless of their individual circumstances.* This, in turn, sets high expectations for teachers to model the values and principles and to develop their professional practice and ensure it is based on a learner and learning-centric approach. This requires 'deprivitisation' of teacher practice and collaborative learning and teaching – not simply collaborative planning. Professional Learning Groups to support teaching as inquiry.	**TEACHING AS INQUIRY** The facilities will support **professional learning** and collaborative learning and teaching by: • making provision for meeting spaces for **professional collaboration** and learning in small, medium and large groups • enabling **teacher modelling** by ensuring teaching is visible and can be observed unobtrusively *in situ* • design of spaces for **seamless flow** of students and teachers between integrated learning settings and spaces.

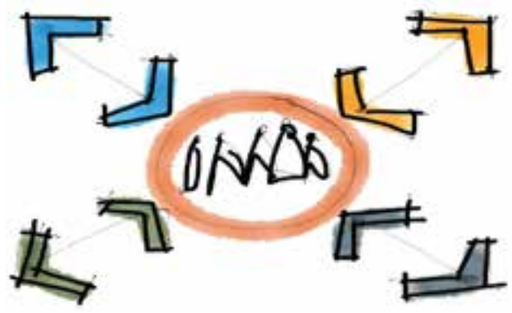
4. School Design Principles

4.1 Key Design Concepts

1. Contextual Connectedness

- The learning environment will integrate the school into the community, and support the urban fabric in a positive way. Clarity of navigation and purpose will be expressed to ensure an open dialogue with the urban fabric.
- Physical transparency will be key to ensure a sharing of space and facilities, and foster a welcoming, inclusive atmosphere.
- The Ao Tawhiti community will enjoy access to the city facilities and in return the city will enjoy access to the Ao Tawhiti facilities. Ao Tawhiti will be integrated into the inner city community and will contribute to the development of community in the new CBD.

2. Personalised Student-Centred Learning



- The Ao Tawhiti model for learning places the student at the centre.
- The learning program and courses will be student initiated alongside learning advisors.
- Students will customise their own learning program in partnership with their learning advisor. They will be encouraged to work on individual projects and team projects. Because of Ao Tawhiti's unique urban location, students will have access to other learning environments and opportunities outside of the facility.

3. Community of Learners

A strong guiding principle for students and learning advisors is a sense of community that:

- creates a sense of belonging;
- reduces isolation;
- enables the sharing of expertise;
- enriches;
- increases flexibility;
- builds consistency and alignment;
- develops strong connections with families;
- encourages all to contribute & participate in community, as well as the wider community.

4. One School

- with an overarching philosophy of learning from Year 1 - Year 13;
- where an individual's learning journey is known & guided throughout their school years.

4.1.1 General

The Ministry of Education has identified the following Design Principles to be applied in the design and master planning of the school, including both indoor and outdoor spaces:

(a) the design must promote active, student-centred learning for all students through the creation of flexible, varied, functional spaces;

(b) the anatomy of the school and its design elements must enable the buildings and outdoor spaces to be learning tools in themselves;

(c) the Facilities must exhibit characteristics of high quality design that promote delight, inspiration and belonging among students and the broader school community;

(d) the Facilities must consist of high quality, durable and adaptable buildings that are able to be expanded and / or reconfigured at a later time as required by the Ministry;

(e) ecological sustainability principles must be embedded in the design, construction and operation of the Facilities;

(f) the design must actively promote the safety and security of all students, staff and visitors and promote positive social interaction between students and collegiality amongst staff;

(g) create strong indoor / outdoor connections and visibility and provide defined, high quality outdoor learning spaces;

(h) the design must actively promote community access, engagement and use of the Facilities; and

(i) the design must actively promote safe and easy access by all modes of transport and encourage students and staff to travel by sustainable modes of transport wherever possible.

4.2 Internal Planning

The following principal must guide the design:

(a) co-location of similar and supporting services together to achieve optimal functional relationships and efficiencies through sharing of facilities and a focus on efficient flows and practices;

4.3 Sense of Place and Identity

The design for the Facility must address and develop a sense of place and identity. Issues that need to be developed are, but not limited to:

(a) the design of spaces and places between and surrounding buildings;

(b) the issues of scale and proportion, visual balance and order, architectural expression, detailing and the use of external materials and colour;

(c) creating places where people feel safe and that are easily accessible, places that reduce the possibility of violence and places that minimize opportunities for personal misbehaviour; and

(d) achieving the Design Principles as set out in this Section 4.1 of this document.

4.4 Aesthetics and Quality of Life

The principals that shall guide the aesthetics of the architectural design for the Facility are:

(a) to provide a design that responds to the local environment;

(b) to provide a design that responds to the educational model;

(c) to reinforce the character of a community by having a variety of scale, materials, texture and colour;

(d) to include external recreational facilities; and

(e) to maintain the overall security requirements of each of the Facilities.

4.5 Sustainability

The design of the Facility should address the following environmental design principles and provide facilities:

(a) that meets the New Zealand policy / guidelines;

(b) that provides significant reductions in energy and water consumption over current best practice for school facilities;

(c) that contributes to educational benefit through improved indoor environment quality; and

(d) that incentivizes behavioural change among students and staff.

4.6 Design of learning settings for specific learning activities

Section 3.1 described the learning activities that support the NZ Curriculum that promotes a learner and learning-centric pedagogy. Students engage in personally significant learning experiences that have an emphasis on inquiry, authentic projects and immersive, experiential learning. Within this approach students can at times be working alone and at other times working collaboratively in small to medium sized groups. Other occasions bring students together in small and large groups for explicit teaching and presentations. Learning advisors monitor, guide and challenge each student to ensure each learner aims for high standards and achieves personal success. Direct, explicit teaching and consolidation and reflection activities support deep immersive activities.

General requirements for design

- **Layout** of the learning settings will provide for seamless access to and from required resources and ease of flow between spaces. The juxtaposition of spaces will ensure continuity and appropriate merging of atmosphere and acoustic requirements.
- Some learning spaces will be quite **specific purpose** in terms of the learning activities they support while other learning spaces will be **more multi–purpose** and suit a variety of learning activities.
- **Fit out** of the learning settings will be appropriate to the **Learning Area** and specific learning activity.
- **ICT access is ubiquitous** including indoor and outdoor learning spaces.
- Abundant natural light.
- Visibility of learning and teaching; connectedness through connected spaces, open design and the use of glazing where enclosure is desirable.

Specific Requirements for learning activities

The facilities design will be designed around learning settings that support and enhance specific learning activities in a range of group sizes. One space must be adaptable and of appropriate size and fit out so that it can be used for a number of different learning activities either happening simultaneously or sequentially. Further requirements are set out below.

(a) **Direct, explicit teaching and demonstrations** can involve teachers with students, students with students, teachers with teachers. Group sizes can range from 1:1 to very large sizes.

Spatial layout: learners can be configured in a range of layouts from individual seating to small groups; sufficient space between learners or group of learners to avoid physical interference.

Fit out: a teaching or presentation focus – AV display, whiteboard, 'teaching wall'; comfortable seating; support for learner materials – mobile devices, writing support.

Visibility: learner view of teaching focus unobstructed.

Acoustics: learner and teacher voices clearly audible throughout the space.

(b) **Meetings for discussion and decision-making** can involve teachers with students and students with students. Group sizes can range from pairs to medium sized groups of 12–16.

Spatial layout: participants must be able to sit in the round or around a table.

Fit out: table size adaptable to suit different sized groups; seating readily rearranged to configure the seating to suit the size of the group; display area or wall.

Visibility: face-to-face view of all participants and clear line of sight to display or presentation focus.

Acoustics: learner and teacher voices clearly audible throughout the space; suppression of noise intrusion to and from the space.

(c) **Dialogue, story-telling, conversation pit, and community of inquiry** can involve teachers working teachers, teachers with students and students with students. Group sizes can range from small groups to groups up to 15-20.

Spatial layout: participants must be able to sit in the round facing each other.

Fit out: comfortable seating and an intimate, semi–enclosed, private feel.

Visibility: face-to-face view of all participants.

Acoustics: participant voices clearly audible throughout the space; suppression of noise intrusion to and from the space.

(d) **Presentation** can involve individuals presenting to small groups to very large groups and they can involve small to large groups presenting to medium to very large groups.

Spatial layout: the audience can be configured in a range of layouts from individual seating to small groups; sufficient space between learners or group of learners to avoid physical interference.

Fit out: a presentation focus—AV display, whiteboard, 'teaching wall'; 'stage' area; comfortable seating; retractable curtains or partitioning.

Visibility: audience view of presentation unobstructed.

Acoustics: presenter voice(s) and audio sources clearly audible throughout the space; suppression of noise intrusion to and from the space.

(e) **Rehearsal and performance in the arts, languages and physical activity** can involve individuals rehearsing in a variety of media and for a variety of purposes – language, music, dance, role play, drama, presentation, sport. This learning activity can involve individual, small group to very large groups in rehearsal and/or performance. Rehearsals can take place in 'makeshift' areas if acoustic and privacy requirements are met.

Spatial layout: the viewing areas for the audience (for performances) have individual seating.

Fit out: specialised fit out required by the performance activity; a performance focus— 'stage' area or court; seating.

Visibility: audience view of performance unobstructed.

Acoustics: performer voice(s) and audio sources clearly audible throughout the space; suppression of noise intrusion to and from the space.

(f) **Creative activities** generally involve individual or small groups working collaboratively with media, general and specialised equipment and a range of materials. Depending on the creative form (visual arts vs performing arts; textiles vs graphics; dance vs drama) and the size and nature of materials and the equipment–highly specialised or more general purpose, creative activities can require a range of settings from very specialised spaces to more generalist spaces.

Spatial layout: sufficient space between workspaces for ease or movement and safety in manipulating materials and equipment; semi–enclosure to create focus, purpose and order.

Fit out: needs vary according to the activities thus requiring adaptable height, size and positioning of work-benches; stools and chairs available to suit the activity and bench configurations; storage for ordered placement and ready access to materials, equipment and tools; storage for a range of sizes for works in progress.

Visibility: lighting appropriate to the nature of the activity–eg controllable for media work, direct lighting to workspace requiring good hand-eye co-ordination.

Acoustics: Suppression of noise associated with equipment and conversation from the space to adjoining spaces.

(g) **Investigative activities** with general and specialised equipment, materials can involve indoor and outdoor investigations with a range of materials and equipment. Activities can involve individual or small groups working collaboratively on projects. Depending on nature of the equipment–highly specialised or more general purpose, investigative activities can require a range of settings from very specialised spaces to more generalist spaces.

Spatial layout: sufficient space between workspaces for ease or movement and safety in manipulating materials and equipment; semi–enclosure to create focus, purpose and order or full enclosure when required for safety.

Fit out: needs vary according to the activities thus requiring adaptable height, size and positioning of work-benches; stools and chairs available to suit the possible work bench configurations; storage for ordered placement and ready access to materials, equipment; storage or space for investigative projects requiring extended time.

Visibility: lighting appropriate to the nature of the activity.

Acoustics: Suppression of noise associated with equipment and conversation from the space to adjoining spaces.

(h) **Construction, modelling and simulation activities** can involve construction and physical modelling with a range of materials and/or computer simulation and modelling. Activities can involve individual or small groups working collaboratively on projects. Depending on nature of the equipment – highly specialised or more general purpose, construction, modelling and simulation activities can require a range of settings from very specialised spaces to more generalist spaces.

Spatial layout: sufficient space between workspaces for ease or movement and safety in manipulating materials and equipment; semi–enclosure to create focus, purpose and order or full enclosure when required for safety or noise isolation.

Fit out: needs vary according to the activities thus requiring adaptable height, size and positioning of work-benches; stools and chairs available to suit the possible work bench configurations; storage for ordered placement and ready access to materials, equipment and tools; storage for a range of sizes for works in progress.

Visibility: lighting appropriate to the nature of the activity.

Acoustics: Suppression of noise associated with equipment and conversation from the space to adjoining spaces.

(i) **Display of learning resources and student work** to communicate and celebrate learning.

Spatial layout: distributed and focal displays; ready physical and visual access by the audience; height of display appropriate for the student age group(s).

Fit out: fixed and mobile settings; digital and 'hard copy' display; vertical and horizontal display surfaces; 2D and 3D display.

Visibility: capacity to highlight.

Acoustics: Suppression of noise associated with equipment and conversation from the space to adjoining spaces.

(j) **Quiet reflective activities and/or individual research** involving mostly individual work with occasional teacher interaction but possibly some pairs of learners.

Spatial layout: sufficient space between learners or group of learners to prevent visual distraction; general zoning of these settings in a more passive learning environment or a more passive environment created by a sense of enclosure and separation from high-intensity activity.

Fit out: desks, benches of a variety of sizes to facilitate the spread of resource material when required.

Visibility: minimal visual distractions.

Acoustics: suppression of noise intrusion to the space.

(k) **Structured and free–form interaction and collaboration** primarily involves small to medium sized groups of students working together either in a spontaneous, free-form student directed manner or by deliberate structuring of collaborative activities by the teacher. Students move to and from this open learning setting to access other resources and/or learning settings as needed.

Spatial layout: sufficient space between collaborative groups of learners to avoid physical and acoustic interference; an open–feel to the space that invites self-direction; flow through the space encourages spontaneous conversations.

Fit out: a variety of collaboration spots – stand and talk benches, tables that can be configured in a square or roughly circular shape to accommodate up to six in the group with adequate horizontal surface to support resources; café cubicles; some with shoulder height vertical partitioning; ready access to display screens and writeable surfaces.

Visibility: line of sight supervision from surrounding areas.

Acoustics: suppression of noise intrusion to and from the space.

(l) **Gatherings, assemblies, ceremonies** primarily involves large to very large groups of students and teachers to come together as a community to communicate information and ideas, to provide a common, collective experience, to celebrate and to acknowledge each other.

Spatial layout: ideally spaces that serve this purpose will have adjacent food preparation settings, be able to be adapted readily for the size and purpose of the group and be physically central or very readily accessible from other learning settings.

Fit out: since settings need to be adapted to specific purposes, minimal fixed furniture is required in the main space; furniture in adjoining spaces needs be able to be adapted or moved easily to open up the gathering space as needed.

Visibility: uninterrupted view throughout the space.

Acoustics: presenter and performer voice(s) and audio sources clearly audible throughout the space; suppression of noise intrusion to and from nearby learning communities.

5. General School Planning

5.1 Precinct Planning

5.1.1 The precinct

(a) The Precinct is the Site for the entire School.

(b) The master plan of the Precinct needs to take into consideration the location within the wider community and how the Precinct relates to the road network including bus service and any public transport.

(c) The location of school buildings must, to the extent practicable, contribute to the built form of any adjacent street with the placement of buildings aligned with, and located as close as practicable, to adjacent street facing boundaries;

(d) The principles of Crime Prevention Through Environmental Design, Injury Prevention Through Environmental Design and Universal Access must be considered and measures implemented as part of the design for the buildings.

5.2 Precinct Master planning

5.2.1 Ao Tawhiti Christchurch Campus

The facilities required to be included within the Master Plan are:

(a) A Composite School with accommodation for 800 students (refer section 2).

(b) Minimum number of Car Parks

(c) Foyer

(d) Administration

(e) Primary and Secondary Regular Learning Communities

(f) Performing Arts & Theatre

(g) Sciences

(h) Art & Technology – Production & Process

(i) Food Technology

(j) Information Communication Technology & Media

(k) Physical Education

(l) Social Space

(m) Circulation

(n) Car Park

(o) External Playing Areas

5.3 Precinct Design Principles

5.3.1 Urban Design Principles

(a) The urban design should address:

i. how the overall precinct responds to the surrounding urban, environmental and cultural context;

ii. how the Facility and the spaces are put together and how their parts relate to each other;

iii. how the Facility and the spaces provide for ease of access, safety and choice when moving between and through the spaces;

iv. how the way-finding and legibility of the Precinct helps people find their way around and understand how they work;

v. how the different spaces are shaped to support their intended uses;

vi. locating activities/spaces that have an interaction between them;

vii. recognizing and valuing the character and meaning between the Facility, places/spaces;

viii. balancing consistency and variety in the urban environment: and

ix. how the Facility respond to environmental responsibility in respect of orientation and building forms.

(b) The school must, to the extent practicable, facilitate connectivity from the school site to the surrounding street and pedestrian networks. Pedestrian and cyclist access points to the school must be provided from all street boundaries.

5.3.2 Public Image

(a) The principal facades for the main school entrance and Foyer Functional Area should be clearly identifiable from the main street frontage.

(b) The design should address:

i. how the external visible elements, including the built form, lighting and landscape are integrated into the design; and

ii. how the public image of each of the Facility can be addressed through the urban design principles.

(c) The treatment of building facades and massing shall to the extent practicable contribute to the surrounding Christchurch City context and address the planning requirements of the Christchurch City Plan. The school should create a dialogue with the surrounding built environment that relates the vision of the school and desire for connectedness with the local community and infrastructure.

(d) Where fencing is required it shall be low height, permeable and recessive in colour and design.

5.3.3 Security

(a) All buildings facing the street, open space, and on-site car parking areas must interact with these spaces with openings such as doors and windows to provide passive surveillance.

5.3.4 Vehicular Access

(a) The Contractor must provide suitable road geometry and road reserve including intersections to accommodate the anticipated activity associated with the construction of each Facility.

(b) The Contractor must provide:

i. access arrangements designed in accordance with the applicable standards and through consultation with the local authority;

ii. an approach road arrangement that physically limits traffic speeds;

iii. road geometry that accommodates the swept path of emergency and large vehicles;

iv. a bus area near to the entry of the Facility.

v. access for emergency vehicles throughout the Precinct;

vi. hardstand areas for emergency vehicles that do not impede the movements of other Precinct Users; and

vii. road and other directional signs in accordance with Land Transport Rule– Traffic Control Devices 2004. Road signage must clearly designate staff and visitor parking areas.

(c) The Contractor must ensure speed limits within the Precinct are limited to those for safe operation.

5.3.5 Sustainability and ESD Principles

(a) The Contractor must provide a leading example of ESD at the Precinct level.

(b) The Contractor must include and instigate ESD as a whole, including master planning and building orientation.

(c) The master planning must use orientation to maximize the potential passive solar gain and minimize energy losses except where this may compromise the security requirements of the Output Specification.

(d) The Ministry of Education believes that there are significant social and environmental benefits that result from an integrated ESD design of the services, structure and architecture. It is an objective of the Project to demonstrate leadership in ESD for schools.

(e) The following ESD principles are to be applied to the sustainable design of each of the Facilities:

i. a design that encompasses Industry Best Practice;

ii. a design in line with New Zealand Urban Design Protocol; (http://www.mfe.govt.nz/publications/urban/design-protocol-