COLLISION COURSE

An investigation into live, learn and work environments enabling better transition from student to profession.

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ABSTRACT

The availability and quality of student housing is daunting, particularly in Auckland. While developers move quickly, extending university campuses and building fast, cheap apartments, a blind eye is turned to the rapid changes in post-compulsory education, influenced particularly by digital technology. As student numbers continue to increase within tertiary institutes, as well as outside through online courses, an increasing pressure is placed on the quality and location of where learning might actually take place.

Too many graduate students cannot find work, either due to little work available in their industry or employers’ anxiety at hiring a graduate with little or no work experience. The question for the architectural profession is: Does architecture have a role to play in helping students make a smoother transition from tertiary studies into the working world?

This project is an exploration, based on literature reviews and precedent studies, into how live, learn and work environment can be designed to encourage students to integrate with one another, form relationships and gain experience from a co-operative working community, thus preparing them better for their future at work.

Throughout the design process, various concepts and attempts to resolve issues are made. The final design will aim to provide a glimpse into the future of student residences, supportive live-learn-work spaces that create interactive and co-operative communities, enhancing individual growth and development, research and innovation. Whilst various research and design findings have been identified in the text, the final outcome of the design process is indicative in nature, with scope for further architectural and interior development to be presented at the final design presentation.
ACKNOWLEDGMENTS

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**INTRODUCTION**

**RESEARCH QUESTION**

Can a live, learn and work environment, which responds to student housing demands and low graduate employment rates, be designed to encourage students to integrate and gain experience in a co-operative working community, enabling better transition from student to profession?

**PROJECT AIM**

The aim of this project is to demonstrate that mixed-use, medium-density student housing can be designed with a spatial connectivity that encourages further learning and work experience outside of the formal ‘classroom’, bringing both students and related practicing industries together in a collaborative learning environment.

This project, seeks to meet Auckland’s student housing demands, whilst simultaneously improving current student living standards. The final design aims to provide a glimpse into the future of student residences, supportive live-learn-work spaces that create interactive and co-operative communities, enhancing individual growth and development, research and innovation. These like-minded student communities will contribute to the overall student life experience by offering opportunity and space to learn and work side by side with practicing industry.

**PROJECT LIMITATIONS**

The daunting question for this project is; how can one piece of architecture improve student living environments, while also increasing graduate employment numbers? Realistically, the construction and use of one building, even with its live-learn-work design, will not have an immediate impact on employment issues. This is because graduate employment rates are highly dependent on the current economic situation, as well as the participation and co-operation of the students and partner companies, or ‘start-ups’, that will inhabit the building.

Additionally, as an architectural research project, time limits a detailed investigation into the systematic educational and economical programming. A successful project must adapt and support a variety of student study and industries that may tenant the building in the future. However, intended use must support the cooperation of students and businesses within the same or related industries, at one time. For the purposes of this document, whilst we may identify the immediate users, the hybrid typologies’ intent is to be used in a number of areas throughout Auckland City, and for a range of industries.
2. Survey of Current Knowledge
Fig. 2  Oxford, Balliol College, Great Hall. One of Oxford’s first colleges, which began as medieval ‘halls of residence’ established between 1249 and 1264.
STUDENTS IN RESIDENCE

The New Zealand Tertiary Education Strategy 2014-2019\(^1\) does little to investigate strengthening the educational role of student housing. The authors of Student Housing and Residential Life\(^2\) believe that living on campus can be a quintessential part of a students’ educational experience. In particular they state that “effective residence halls are not educationally neutral”\(^3\), and that, in addition to providing a safe and comfortable environment, student residences promote development academically, socially, physically and spiritually. Student housing’s first purpose is to provide a satisfactory place for students to live, whilst secondly helping students to learn and grow outside of their educational institute.

Student residential education dates back to 12\(^{th}\) century European Universities, where two basic educational systems emerged: the English and the German. Oxford University, described as the “old university of the guilds”\(^4\), was at the forefront of the English educational model as being committed to both the education and development of the “total student”\(^5\). Faculty and students share accommodation, spending time together outside class hours as well as coming together during formal instruction. On the other hand, German students were expected to make their own off campus living arrangements. Frederiksen describes Harvard University as the first American College influenced by the English residential model, becoming the centre of both informal and formal education, providing a social atmosphere that enveloped both students and faculty. However, during the 19\(^{th}\) century, residence halls declined in popularity as well as effectiveness as an educational tool. Rather than fulfilling their purpose as an extension of the classroom, the residential unit of this time became purely a means to shelter\(^6\). Various leading American educators condemned residence halls, calling them inappropriate, a waste of money, and not vital to a university. After WW2, the rapid increase in higher education enrolments caused concerns, particularly regarding limited facilities to house and feed students. This resulted in the outbreak of the dormitory typology: a race to maximize bed numbers, with little or no regard for the quality of students’ educational experience or personal development. It was not until the 1970’s that “there was a realization that dormitories and other housing facilities were not fulfilling their potential as living-learning centres”\(^7\).

LIVING-LEARNING COMMUNITIES

‘Living-learning centres’ are communities that represent the intentional restructuring of students’ time, and learning experiences to build community, enhance learning, and foster connections among students and their teachers\(^8\). These centres result in enriched academic and cultural experiences, by providing designated study areas for particular subjects, recognising high achieving residents, making resource materials, computers and tutors all readily available, grouping students together who share one or more classes, or encouraging residents to participate in extensive extracurricular activities. In a living-learning centre interaction takes place in all available common areas, where, because of the live in nature of the program, a mutually beneficial partnership between all building users arises. An effective living-learning centre enhances individual growth and development, while also acting and reacting to student and group needs, provided that staffing is available to support and run the program and facilities are designed well. \(^9\) In this type of environment, students are encouraged to participate in activities and to gain experiences by living co-operatively with others, exploring and improving interpersonal relationships, and making educational and career decisions. \(^10\)

\(^3\) Ibid., xiii.
\(^6\) Ibid., 169.
\(^7\) Ibid., 173.
\(^9\) Winston, Jr. and Scott Anchors & Associates, Student Housing and Residential Life. 536.
\(^10\) Ibid., 254-256.
THE SUITE VS. THE CORRIDOR

Ann Delvin et al.\textsuperscript{11} respond to the increasing concerns that students spend too much time alone in their rooms with technology, rather than socializing with others face to face, outlining significant differences between the type, scale and formation of residence halls, and demonstrating how these might foster or restrict social interaction.

Delvin begins by questioning Martin Heilweil’s theory that the concept of the ‘suite’, characterized as a small and intimate space creates a supportive social climate. Her research shows that students living in residence halls with pocket style designs such as pods, or suite-like clusters, reflect a lower sense of community, particularly as a result of a lack of ‘total’ interaction. She states that it is these types of isolated groupings that create spatial segregation, limiting moments of close contact only to those within one’s cluster. This in turn reduces the possibility of mingling with adjacent suites, leading residents to be less well integrated into the dorm as a whole.

Delvin's research shows that traditional corridors were in fact highly flexible, creating a sense of “homeliness, aesthetic appeal, freedom to alter, to socialize and the opportunity to make friends”\textsuperscript{12}. By taking these benefits, the ‘corridor-plex’, namely, the traditional corridor type only with more commonly shared spaces around the central core, showed an increase in user overlap, encouraged group activities, interaction between students, and friendship formation outside of one’s private space. Delvin concludes by stating that to build a sense of community, “the importance of community and the need to provide social space, even along corridors, to enhance opportunity for students to interact with one another”\textsuperscript{13} will be necessary, or at least highly beneficial, for future student residence projects.

\begin{itemize}
  \item The Suite
  \begin{itemize}
    \item individual rooms
    \item suite commons
    \item toilet
    \item kitchen
  \end{itemize}
  \texttt{NB: no hallway}

  \item Corridor Plex
  \begin{itemize}
    \item individual rooms
    \item hallway circulation
    \item service/commons combined
    \item stairs
    \item toilets
    \item kitchen
    \item lounge
  \end{itemize}
\end{itemize}

Fig. 3 Bubble diagram: Relationship between individual room, shared space and hallway circulation

\textsuperscript{12} Ibid., 499.
\textsuperscript{13} Ibid., 488.
Te Puni Village is a New Zealand precedent that begins to combine the ideas outlined in Delvins research by considering the use of the traditional corridor coupled with a larger common zone for shared activities and amenities. The linear "community" level, which is connected in a different floor in each building, is what grabs the attention in this student accommodation. In three otherwise separate buildings, the common level joins and encourages students to gather, socialize and study outside of their rooms. Whilst this element does recognize the benefits of such a shared space, the Tietgen Student Housing example as analysed in the precedent section exemplifies this provided students with shared spaces on each floor.
**Sasaki’s Live and Learn on Campus**

Sasaki Associates believe that one way to help foster and promote education that is relevant after graduation is to “strengthen the bond between academic disciplines and the campus residential life experience.” Studies show that this is best accomplished by physically integrating living and learning on campus where students’ social and academic lives are directly connected. Sasaki Associates describe six simple strategies on how to foster living/learning on campus by providing:

1. **Living/Learning District** – by distributing academic spaces throughout residence halls to encourage the mixtures of students between halls.
2. **Communal First Floor** – including organised academic and learning spaces distributed across the larger institutional landscape and connecting directly to surrounding greenscape.
3. **Intimate Spaces** – by distributing comfortable lounge spaces throughout residential floors, complementing academic and recreation programs on the first floor to foster intimate but flexible communities.
4. **Active Innovation Hub** – located at the core of the building to foster collaboration and success.

**Fordham University Residential Hall**

Described as the ‘celebatory gateway’ to the campus, Sasaki designs the halls articulated as two towers with a shared lobby supporting smaller student neighborhoods at each floor, and reinforcing the university’s focus on community. At the heart of each residential level, are double-height lounges which offer opportunities for socializing and group learning between students of two consecutive levels. The shared spaces are expressed with a fully glazed tower structure that lights up in the night, like a beacon that identifies student life as the social crossroads of the campus. On the first floor, the buildings house a café, a multipurpose room, and two integrated learning centers—key components of the halls’ living & learning programs. Even the laundry room—an often overlooked space—is designed as a social place, located adjacent to casual study areas and with direct visual connection to the exterior via a glazed arcade. For Sasaki, “The most active spaces are located in highly visible areas of the building, resulting in a meaningful connection to the exterior landscape and the campus as a whole.”

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15 Ibid.,
18 Riera Ojeda, Sasaki, 130.
Fig. 6  Fordham University Residence with glazed tower

Fig. 7  Fordham University Residence floor plans incorporating Sasaki’s 6 strategies

Fordham University Residential Hall Plans

Ground Plan
- faculty apartment
- integrated learning centre
- cafe
- laundry
- multi purpose room

Student Apartment Plan
- common lounge
- learn zones
- live communal zones

1. student apartment
2. study room
3. student apartment
4. student apartment
5. student apartment
6. student apartment
7. student apartment
8. student apartment
9. student apartment
10. student apartment
11. student apartment
12. student apartment
13. student apartment

COHOUSING

Since the first cohousing projects that emerged in Denmark in the 1970’s, Chris and Kelly ScottHanson19 state that the perils of a fast-paced world of competition and lonely individualism, has further influenced the need, and search for greater community and belonging. By identifying active and public experiences, they describe “Cohousing” as a response and an end to isolation in the home, by building community as a place to live, exposing the socially active aspects of the community place within the home. In a living community, “knowing your neighbors, feeling like we belong, being a part of something that we care about and that cares about us”20, becomes a key component in a successful co-housing program.

Co-housing is a group of residents that come together to share common facilities, to participate, socialise, prepare and share meals, and to share values of living sustainably.21 Emphasizing community, without the expense of privacy, private owner-occupied dwellings are designed with their own facilities, supplementing common zones. Co-housing communities are between 12-36 households, designed around a central located “Common House” connected by pedestrian walkways or village greens. Communities smaller than 12 units can create claustrophobic intimacy and “tend to work best in an urban area where there is less dependence on the personal relationships within the community.”22 On the other hand, communities over 36 units can inhibit the ability of residents getting to know each other, are administratively complex, and “tend to work best in suburban or rural areas.”23

To facilitate ongoing interaction between residents, The Cohousing Handbook outlines four important guidelines:

1. separate the car from the private dwelling
2. designate pedestrian pathways linking access to each dwelling
3. face private kitchens on the pedestrian pathway side of the house
4. to build a common house.24

Claimed to be responsible for social alienation, replacing cars, driveways and streets with pedestrian pathways physically re-connects residences, provides more space for gardens and gathering, as well as increasing people presence.25 Residents are then exposed to spontaneous interactions with neighbours while crossing paths to and from their cars. Facing private kitchens so that they overlook the pedestrian pathway creates security and safety, with the sense of a visual and physical connection between residents. Described as having positive “long-term effects on social sustainability,”26 the four guidelines increase interaction opportunities, create community integration and a feeling of comfort by getting to know one’s neighbours.

20 Ibid., 1.
21 Ibid., 2-4.
22 Ibid., 128.
23 Ibid.
24 Ibid., 5.
25 Ibid., 12.
26 Ibid., 127.
The “Common House”, centrally the “heart of your community,” includes activities that are intended to attract residents. By providing covered walkways between private and public spaces, coupled with the idea that “Activity breeds activity,” attracting residents to a common house “will keep your community alive.” ‘Common’ functions include a dining and gathering space seating most of the community, a common kitchen that is convenient for collective use, a children’s area visually connected but acoustically isolated, and a mail room with bulletin boards and personal cubbies for internal communication. Other functions to support specific group needs might include, a teen lounge, guest rooms, laundry, storage, workshops, gym or music room and even work spaces for the direct community, or to rent to members.

**Earthsong Eco-neighbourhood**

A prime example of the cohousing model that supports the synergies between social and sustainable living that continues to thrive today, the design and development processes of ‘Earthsong Eco-neighbourhood’ established in 1995, West Auckland, were developed with guidance from the Cohousing Handbook, whilst adapting elements with their own ideas to suit the conditions and culture of New Zealand. Earthsong is complete with rainwater and daylight harvesting, solar photovoltaic, energy efficient lighting and appliances, re-used and non toxic low energy materials, construction waste separation, organic waste management and more, with both self-contained dwellings and extensive common facilities, collectively a much wider range of facilities are available for the benefit of the community. With such an extensive environmental strategy, and sufficiently better than standard construction, in 2001, the Earthsong homes were awarded an ‘8’ Star rating, New Zealand’s highest at the time, achieving Home Scheme ‘Excellent’, from the Building Research Association.

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27 Ibid., 140.
28 Ibid., 138.
29 Ibid.
30 Ibid., 138-140.
32 Ibid.
CO-OPERATIVE LIVE-LEARN-WORK COMMUNITIES

Perhaps student housing design would benefit by taking a look at cooperative organisations that support live-work-learn environments, and that have been operating in other countries for quite some time. Formed to pursue the various goals of like-minded individuals, and those with similar needs, the most prominent of these would be the kibbutz in Israel and the hakka in China.

The Hakka Village, China

Found scattered through the Fujian Provinces of Southern China between the 13th-17th Centuries, the Hakka Villages are large, multi-family communal living structures, holding up to 80 families, and around 600 northern Chinese immigrants. As a result of various population pressures creating conflicts between neighbours and hostilities within the local communities, the Tulou housing were typically characterised by their prominent rectangle or cylindrical forms and heavy 1.8m rammed earth external walls, surrounding a naturally lit and ventilated central courtyard, “exemplifying a particular type of communal living and defensive organization...” In these entirely self sufficient communities, families were encouraged to congregate with one another in order to familiarise with local cultures and practices. Arranged horizontally, each level served a different function; the ground floor housed the water-well and livestock, the first level stored food, and the upper levels were designed for living spaces. The spatial arrangements of the living levels were in fact divided vertically between families, each disposing of two or three rooms on each floor. This allowed for a greater level of interaction and cross contact between residents on other floors. Communal life usually takes place in the central courtyard. The void may work at the same time as a marketplace, as a site for worship and celebration, as the space for children’s play or as an outdoor kitchen in the summertime.

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33 “Cooperative”, defined here as a group of individuals that have come together to form an organisation.
The Kibbutz

The kibbutz is an Israeli settlement, traditionally based on agriculture and characterised by its collective, community lifestyle, democratic management, equality and co-operation of production, consumption and education. Founded in 1910, the kibbutz population has grown with over 117,300 members within 268 communities in 2000.\(^{37}\)

At the core of each community, residential areas include member homes and gardens, children’s houses and playgrounds, as well as communal facilities such as dining halls, auditoriums, libraries, swimming pools, tennis courts, medical clinics, laundries, grocery stores and so on. Adjacent to these, are sheds for dairy cattle and chicken coops as well as industrial plants, whilst agricultural fields and orchards are located around the perimeter, accessible by tractor, bike or on foot.

Most kibbutzim belong to one of three national movements; the ‘co-operative’, the ‘renewed’, and the ‘urban’ co-operative community, each identified with a particular ideology. The urban kibbutz, retains the kibbutz lifestyle whilst moving into mainstream society located within an existing city. The urban kibbutz supports underprivileged neighbourhoods focusing primarily on social and educational activities.\(^{38}\) Traditionally, the children were required to perform age appropriate tasks, assume certain jobs and devote some days to work in a branch, so that they “grow up knowing the value and importance of work and that everyone must do their share”.\(^{39}\) These days, however, more opportunities are available to participate in higher education. In the kibbutz, individuals are encouraged to develop to their fullest potential, while demanding responsibility and commitment from each person to contribute to the total welfare of the community. For some, the feelings of security and satisfaction engendered by belonging to a small, closed community are among the advantages of kibbutz living.

\(^{39}\) Jewish Virtual Library “Kibbutz & Moshav.”

Fig. 12 The urban planning of a kibbutz community, with a spatial arrangement that places living at the centre, learning in the middle and heavy industry work on the outer perimeters.
PAULO SOLERI

Italian Architect Paolo Soleri’s vision was to turn Architecture into the physical definition of a multi-level, human ecology, to create a hyper dense city, designed to maximise human interaction, the use of energy, raw materials and land, to reduce waste and environmental pollution, and allow interaction with the surrounding environment. Dedicating his life to research and experimentation in urban planning around the 60’s, Soleri produced over 30 schemes based on his theoretical propositions. As can be seen in Figure 14, Soleri’s mega structures remove the need for cars, decrease distances, and combine everyday needs such as housing, workplace, heavy industry, green spaces and public spaces all in one. The concept of Arcology (the fusion of Architecture and Ecology) was first tested in 1970 by beginning the build of Arcosanti - the urban laboratory.40

Fig. 13 Vertical City No. 9, Babel II B. in section with annotation showing vast variety of everyday functions in one mega structural community.
At Arcosanti, various mixed-use buildings and public spaces are provided for residences and visitors to live, work, visit, and participate in educational and cultural programs. Soleri says that “The Arcosanti Workshop program appeals for a frugal commitment, so as to induce a more equitable and sustainable development of the human experience.”

At Arcosanti student residents are taught Arcology ideals whilst participating in the on-going construction to build the live and learn community. Visitors and full time interns receive lectures in different departments such as planning, construction and facilities maintenance, as well as history and the geography of the surrounding region. Students are practically engaged, and are encouraged to explore and experiment with Soleri’s unique construction techniques such as earth casting. Arcosanti’s permanent residents work in a diverse group of planning, design, construction, agriculture, landscaping, carpentry, metal work, maintenance, teaching, hospitality, and communications. The individual responsibilities contribute to the collaborative society.

As can be seen in Figure 15, Soleri’s vision was that one day, the mega structures of his utopian city might house 5,000 people. However, as it stands, Arcosanti is only 5% complete. The gigantic semi-circular structures are designed in response to urban sprawl of which tends to isolate people from each other and the community. The highly integrated and compact three-dimensional forms host a large spectrum of urban activities, as well as acting as passive solar collectors heavily based on the concept of the exedra.

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42 “Arcosanti” https://arcosanti.org/
CONCLUDING STATEMENT

Multi-functioning communities function because they share one common goal. That goal is to enhance the growth and development of each individual whilst simultaneously supporting the everyday needs of all. In a live-learn centre, students are encouraged to participate in activities, gain experiences by living co-operatively with others, explore and improve interpersonal relationships and to make decisions in regards to their education and career. Similarly, in live-work communities, each resident is required to maintain a certain level of responsibility and commitment in order to contribute daily to the welfare of the entire community.

Design attributes that support these goals and encourage various levels of social interaction between community members are to be considered throughout the design development of this research paper.

These design features are identified as the concentric forms, the centrally located ‘common zone’ where shared facilities encourage community to congregate, the visual proximity between users and finally the use of circulation paths as places for unplanned encounters either along corridors or within the complex. Here, an important factor is the distance between sleeping quarters and the ‘common zone’. Research shows that by designing all rooms to be at an equal distance to communal spaces, a greater sense of community is achieved.

With this in mind, and the fact that this is a community of learning, it is clear that it is specifically the academic and collaboration spaces that must be distributed in such a way to encourage students and other building users to mingle.
Fig. 15 Students on bean bags on the ground floor library at the London School of Economics
Although producing intriguing design, Boys highlights three major problems:

1. they are based on simplified – and often idealistic or metaphorical - notions of learning spaces,
2. they fail to engage with the wide panoply of learning spaces from academic workplaces, to research settings, and ignore the continuing need for better-designed formal (and other hybrid) learning spaces,
3. they fail to enable us to engage with key issues and contemporary shift in educational ideas and perspectives.

In addition to the formal/informal debate, other issues include, for example, concerns with widening participation, communities of practice, community engagement, entrepreneurship, new technologies, wellbeing and sustainability. By looking beyond the beanbag approach to space learning, Boys aims to open up and develop more appropriate theoretical frameworks for examining and re-thinking the relationships between space and the activities that go on within it. Boys wants to open up to view the un-thought through assumptions that the ‘answer’ lies mainly in providing more informal, flexible, and social learning spaces in tertiary institutes, and also to explore some learning spaces beyond that, in libraries, museums, homes and the workplace.

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45 Ibid.
46 Boys, Towards Creative Learning Spaces, 19.
47 Boys, “Beyond the Beanbag,” 11-12.
48 Boys, Towards Creative Learning Spaces, 1.
Described currently, as one of the most articulated and developed concepts within broader social theories of learning, the ‘Communities of Practice’, approach is essentially “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise by interacting on an ongoing basis.”

Communities of practice treat formal education as being about social meaning–making relating to the situated cognition that emphasizes apprenticeship, coaching, collaboration, multiple practice, articulation of learning skills, stories, and technology, as well as engaging learners in various forms of exchange and confrontation as members of a community of practice.

Rather than individual learning conversations between tutor and student, authors and practitioners are exploring the wider processes through which a community of ‘knowers’ come to inculcate not just knowledge.

For example, the Unitec Architecture and Design departments to a large degree, are taught as a community of practice through studio based classes, where studio groups, approximately 10-20 come together to collaborate and coach, often with guest practitioners.

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51 Boys, Towards Creative Learning Spaces, 73.
DESIGNING LEARNING AS A TRANSITIONAL SPACE

In her chapter ‘Designing Learning as a Transitional Space’, Boys refers to Lennie Scott-Webber and her articulation of knowledge exchange is described as central to learning spaces. By referring to the importance of the ‘communities of practice’ literature, Scott-Webber outlines the different levels of knowledge sharing, development and creation, and the relationship between explicit and tacit knowledge. Explicit knowledge is defined as impersonal, shared in objective forms such as a textbook, in documents, or in a database, whereas tacit knowledge, is personal intuitive knowledge rooted in context, practice, and values exchanged in experiential and social settings. While experiential education is described as the process that occurs between a teacher and student infusing direct experience with the learning environment and context, for Boys, learning “requires an integration of explicit with implicit – unspoken – engagements; that is, both about knowledge content and also its social modes of exchange.” In this type of environment, where the exchange of knowledge among collaborators is by doing, with conscious reflection, the role of the learner, not only the teacher is to take control over the physical adaptation, flexibility and transformation of their immediate environments. Boys describes this exchange among collaborators as interaction rather than feedback, because each participant is equal in the construction of shared knowledge.

For Scott-Webber, such ‘knowledge-applying’ spaces are a hybrid between formal and informal learning, involving a hands-on relationship between the “master” and the “learner” through discovery and practice. The cognitive processes, between all those involved within the group, depend on the total knowledge distributed across the group, and how it is delivered within its environment. Collaborators research to gain knowledge of the problem, define the innovation opportunity, generate options and new solutions, incubate and interpret a product idea.

In order to support this type of knowledge creation space, involves two distinct areas which “must be included and yet interrelated: (1) a place to refuge to think and incubate, and (2) a place to collaborate and share information”.

“This kind of learning needs to enable both individual and group activities, personal and interactive engagement; to provide a variety of degrees of privacy/protection and proximity/collaboration/social engagement.”

knowledge creation space

Fig. 17 Functional relationship between refuge and collaborative spaces

52 Ibid., 121.
53 Ibid., 123.
BEYOND THE CAMPUS

In the chapter “Creating Learning Spaces – Towards the Porous Campus?”, Boys begins to explore what learning spaces in post-compulsory education might become in the future by conducting an initial exploration of some relevant spaces beyond the university, as well as of some new kinds of spaces within it such as ‘learning commons’ where students may choose to work collaboratively, or on their own in a flexible student-centric learning space. Here, Boys explores the physical and social potential for cross-site collaborations, analyzing not simply the user occupation, but expressions of how the boundary conditions, social and spatial practices and repertoires of learning are being re-thought in specific situations, across workplace, educational and other public provision. Based on the analysis, Boys states, “What it does reflect is an increasing interest – from governments and colleges as more ‘porous’ organisations, where both practitioner learning and knowledge creation can happen across many locations, potentially producing new intersections between work, leisure, study and research”\(^{56}\). This articulation of learning is referred to as a process between and beyond the campus that is the patterning of education across our lives and the landscape of spaces where learning can occur across employment, professional organisations, museums, galleries, cafes, homes and various others. Engaging very directly with the broadest conceptual assumptions about what learning is, and how and where it ‘should’ take place, Boys refers in particular, to the debates about lifelong learning and widening participation, university ‘locations’ within the wider context and of different pedagogic models and their spatial implications. Finally, she adds, “there is considerable potential to re-think learning spaces at the scale of the pedagogic model by exploring not only how-other spaces could be linked to campus based education, but also how educational involvement in community and work-related activities can constructively blur some of the conventional boundaries about what learning in higher education is and where it happens.”\(^{57}\)

\(^{56}\) Ibid., 73
\(^{57}\) Boys, “Beyond the Beanbag,” 12.

OMA’s winning design for Ecole Centrale engineering school in Saclay, France, “integrates urbanism with the school, supplanting the homogeneous experience of the campus...”\(^{58}\)

A diagonal main street slices through the grid, connecting with a future metro station for Paris at one end, and the existing engineering school, Supelec, at the other. In the centre of the project, a forum rises above the grid, offering a focal point of activity for the school.

TERTIARY EDUCATION STRATEGY

The porous campus as described by Boys seems to be appearing closer to home. In early 2014 the New Zealand Tertiary Education Strategy 2014-2019 was released outlining aims to foster new and improved collaborative education methods outside of the traditional classroom. The strategy is to guide tertiary education and its users (learners and businesses) towards a more outward New Zealand education system, creating strong links to industry, community, schools, and the global economy.⁵⁹ Tertiary providers are expected to “take advantage of relationships across organisations and between the tertiary and business sectors, to maximize returns”⁶⁰, and to “better equip individuals with the skills and qualifications needed to participate effectively in the labour market and in an innovative and successful New Zealand.”⁶¹ New vocational pathways aim to improve the learners’ ability to move through education and into jobs, strengthening relationships between graduates, employers and industry encouraging “better employment outcomes for students.”⁶² Playing an important part in fostering an innovative and productive economy, the strategy’s underlying goal particularly relevant here, is to achieve greater transfer of knowledge, ideas and expertise to industry and the wider community, supporting both student and businesses to grow.⁶³

PROVIDING A DYNAMIC ENVIRONMENT RESPONSIVE TO CHANGE AND INNOVATION

“if colleges are to survive as dynamic educational institutions, the organizational structures of their various sub-units, especially residence hall settings, must be examined in light of their ability to respond to changing circumstances (strange, 1981, 1983)”⁶⁴. This may be as simple as the selection of student residents and their study fields, evolving e-technologies and their built connection, or the complete change in physical programming and future use, such as residence halls that may be refurbished into office space.

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⁶⁰ Ibid.
⁶¹ Ibid.
⁶² Ibid., 10.
⁶³ Ibid., 16.
CONCLUDING STATEMENT

Whilst many contemporary learning spaces attempt to enable collaboration and interaction by providing a variety of informal group and individual learning spaces, they fail to engage with the potential learning spaces found outside of the institute. Based on this notion, we consider how post-compulsory education might be designed in combination with various industries, particularly those with academic and research settings. With this in mind, the following statements are to be considered throughout the design process:

Rather than designing for flexible and informal learning spaces, this research paper will address the need for formal and hybrid spaces of better design.

For an ideal learning environment that seeks innovation and incubation, the design process must contemplate providing both a place of refuge and a place to collaborate and share.

As cross-collaboration is an event created by the crossing of two social groups, both learner and teacher must be thought of as equally interactive contributors.
Fig. 20 The dreaded, row after orthogonal row of office cubicles.
WORK

WORKPLACE AS...

Looking at historical and modern models that are applied to the organisation of a workplace, we can begin to understand the trends and innovations in both the strategic planning and detailing of workplace interiors that set aside the preconceptions of the cubicle style office, and focused instead on “communicating, learning, humane workspaces”\(^{65}\). In 1960’s Germany, ‘office as landscape’ represented the first modern alternative to the then standard office pattern of enclosed individual office space. The landscape model did away with partitioned barriers and instead offered wide, open spaces, informally arranged furniture, plants and screens defining modestly sized groups.\(^{66}\) People began to think about the real needs of the office worker, customizing models accordingly.

Raymond and Cunliffe describe the impact and progressive capabilities of the internet and the telecommunication technologies of the 21st Century, as one of the largest contributing factors to an array of new and creative workplace concepts. New workplace concepts combine the standard office with other building typologies in order to create vibrant, interactive and collaborative workspaces.

For example, ‘College as office’ is described as the archetype of the ‘learning organization’ that provides a variety of work spaces, including lecture and seminar rooms, laboratories and workshops, libraries and places for quiet study. It also has common rooms, dining halls and bars for social interaction and fitness centers for physical recreation. “The college is a place focused on pushing outward the boundaries of knowledge – both for the individual, and for the society at large.”\(^{67}\)

‘Laboratory as office’ reflects the shift towards project teams in office work and, while offices can be expensive to reconfigure every time a new team is formed, this model suggests that perhaps serviced workspaces, large enough for flexibility of use but small enough to provide the intimacy that a committed workgroup needs are more effective. If these were then arranged around circulation routes and common areas, perhaps an informal cross-fertilization between groups would be more likely to happen. ‘Village street as office’ may be no more than a spacious main route, linking focal points, or a place of casual encounter with the warmth and privacy of adjoining homes or shops. ‘Home as Office’ emerged in the early 21st Century when the definition between the ‘comfortable home’ and the ‘efficient office’ began to overlap due to the huge amount of time people spent at work. In many contemporary workplaces ‘home’ has become a metaphor for assigning different levels of formality and function to different spaces where rooms may be assigned domestic titles, such as Bloomberg’s ‘Pantry’ and H2e’s ‘Living Room.’\(^{68}\)

\(^{65}\) Raymond and Cunliffe, Tomorrow’s Office, 3.
\(^{66}\) Ibid., 24.
\(^{67}\) Ibid., 25.
CO-WORKING

As a result of the Global Financial Crisis of 2007-2008 many companies were forced to abandon office spaces, giving rise to an increase in freelancers looking for shared workspace. It was also during this time that many technologists, programmers, and creative professionals began to demand workspace flexibility, wanting to work outside of confining workplace environments, but also to avoid the isolation of home offices. Instead, freelancers chose to work side by side in what are known as co-working spaces.

Co-working spaces are built around the idea of community-building and sustainability; they bring individuals and freelancers out of isolation. These workers benefit from the physical proximity to others, encouraging creative environments between like-minded professionals, they increase performance and productivity, expand business and social networks, and co-workers have a greater sense of trusting others within their workspace. Typically open plan, sharing communal facilities, including kitchen, bathroom and office equipment, co-working spaces are often a café-like collaboration space, gallery, or a productivity-enhancing multi-functional space. However, it could be an office-like setting or even someone’s home or loft. Co-working spaces are economically and socially feasible serving as a model that supports the individual, the start up and the established, creating better workplace communities at large. In 2013, five established co-working spaces were up and running in Auckland: Movers and Shakers, Loft503, Generator, The Kitchen and Biz dojo.

Movers and Shakers_Auckland

With an open and flexible floor plan of over 400² metres, Movers and Shakers is a co-working ‘playground’ with unique meeting and event space, including a fit-out that uses recycled palettes for desks, a creative 30ft inflatable brain-shaped breakout space, kitchen and lounge area.
THE CORPORATE CAMPUS

Whilst the co-working model provides the exploration that independent workers and small groups need, when teams reach a critical size, usually around 10 members, they need to increase their engagement with one another which is where private workspace, boxes, conference and presentation rooms become necessary parts of the workday. In co-working, what started as small spaces for a few independent workers grew into start-up accelerators—groups of start-ups sharing some of the private collaboration space available to them, experiencing “high collision rates and accelerated learning.” Eventually, large corporations mimicked the idea by creating shared spaces where their employees could work with partners, researchers, and customers. In Silicon Valley, corporate giants such as Google and Samsung are building workplace communities of the future with the concept that “some of the best decisions and insights come from hallway and cafeteria discussions.”

Google Campus

From playful employee lounges to environmentally sensitive design, Google’s spectacular work environments breathe innovation, optimize efficiency, and boast employee satisfaction. Their proposed California HQ, maximizes chance encounters based on the understanding of current employee daily work habits, what type of environments workers prefer, the logistics of department layouts in relation to which groups work best with each other, and more. The bent forms are clustered to maximize the “casual collisions of the work force,” with a subtle mix of quiet workspaces, naturally lit communal and social space, cafés, and more. Spaces are connected by a series of bridges, leading workers across pathways and lush courtyards, with one bridge providing workers access to a green roof with an outdoor café and gathering space.

Fig. 24 Proposed design for Google's new campus

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76 Waber, Magnolfi and Lindsay, “Workspaces that Move People.”
77 Ibid.
Samsung Headquarters

The concept for Samsung’s new US headquarters boasts vast outdoor areas sandwiched between floors to lure workers into public spaces, encouraging both engineers and salespeople to mingle. Scott Birnbaum, a Samsung vice president says that “The most creative ideas aren’t going to come while sitting in front of your monitor,” and so the new building is “designed to spark not just collaboration but that innovation you see when people collide.” The internally glazed courtyard is designed so that workers can see each other even when they are on separate floors, from across the courtyard, or by gazing at levels above and below.

Fig. 25 Internal Courtyard at Samsung’s US Headquarters

Fig. 26 Sandwiched outdoor area concept at Samsung’s US Headquarters

79 Waber, Magnolfi and Lindsay, “Workspaces That Move People.”
80 Ibid.
WORKPLACE AS A COMMUNICATION TOOL

How do we design workspace to improve employee performance and communication?

In the article “Work spaces that move people”, the authors indicate that emerging evidence is beginning to show that new performance data can capture interaction, communication, and location information unlocking the secrets of good workplace design in terms of density, proximity of people, and social nature. They say that “face-to-face interactions are by far the most important activity in an office.”\textsuperscript{82} Getting employees to collide, “creating collisions—chance encounters and unplanned interactions between knowledge workers, both inside and outside the organization—improves performance.”\textsuperscript{83}

So how do we do this?

Alex Pentland conducted a recent study, supplying badges that tracked how employees talk to one another, who talks with whom, how they move around the workplace, and where they spend time. Pentland was able to identify three key elements of communication that pattern successful teamwork and overall improved workplace communication: energy, engagement, and exploration. Energy is measured by the number and nature of interactions among team members communicating by a range of modes, including face-to-face interactions, followed by either telephone, video conferencing or emails. Engagement reflects the distribution of energy and interaction among team members, and the overall performance based on the level of participation from each member. Exploration is communication that members engage in, interacting with other groups outside of their teams, to form connections that will improve performance when the new information is bought back to the team.\textsuperscript{84}

\textsuperscript{82} Waber, Magnolfi and Lindsay, “Workspaces That Move People.”
\textsuperscript{83} Ibid.
Pentland states that it is not the interaction content that matters, “When collisions occur, regardless of their content, improvement typically follows.” However, depending on the workplace needs and the type of work taking place, spaces can be designed to favour exploration, engagement or energy to achieve certain outcomes. For example, in a design or advertising firm a higher level of engagement is typically accomplished not with expansive open social space but with tight workstations and adjacent spaces for small-group collaboration and interaction, such as a booth space. Here, the team’s breakout becomes a crucial space where the time spent hanging out with colleagues, whilst on break, helps to increase productivity by pulling employees momentarily away from their desks to a space where knowledge circulates freely within the group. On the other hand, for a company that is trying to innovate or change, increasing engagement could be detrimental, because it takes time away from crucial exploration with other groups and outsiders.

While both exploration and engagement are good, they do not easily coexist because the more energy a team member devotes to their own team (engagement) the less they have outside their team (exploration), and vice versa. However, Pentland states that successful teams, especially successful creative teams responsible for innovation, oscillate between exploration for discovery and engagement for integration of the ideas gathered from outside sources.

The type of interaction that is most valuable will change according to the goals of the office in question (higher productivity? more creativity?). “What doesn’t change is that interaction in itself is far more valuable than we realize. Sometimes circulating, exploring, engaging, and increasing the number of people’s collisions is more important than individual productivity or creativity.” In Figure 24, the reconfiguration of an office space to improve performance considers two important factors. The degree of relative openness and seating flexibility can be used as a guide suggesting a configuration that will lead to one of four distinct outcomes suitable to the desired office environment.

In addition, movement between spaces, i.e. the cross pollination of space, can also be increased by simply changing the location and number of internal furnishings, such as having a centrally located water cooler or coffee machine, rather than each team having their own.

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85 Waber, Magnolfi and Lindsay, “Workspaces That Move People.”
87 Waber, Magnolfi and Lindsay, “Workspaces That Move People.”

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CASUAL, UNPLANNED AND PLANNED ENCOUNTERS

Matthew Stewart suggests that another way to increase communication and social encounters is to have as few private offices as possible, "to exchange private space for public space." A small apartment is compensated for by the wealth of nearby amenities, cafés, bars, parks, which complement space for social events. In an office, this is when employees are encouraged to move around, to change desks, and use various social spaces to "invite a particular kind of social interaction – the casual, nonthreatening encounter that makes it easy for relative strangers to talk to one another." This is difficult to achieve when an individual is positioned at their workstation where they are generally assumed to be 'busy' and not to be disturbed. However, once in movement, they are seen as being ‘free’ to contact. Raymond and Cunliffe say that free to contact spaces, that is spaces for casual encounters, can take place in almost all useable work space; in cafeterias, breakout spaces, casual seated areas, in toilets or just by passing through circulation spaces. They say that "Conversations in a corridor are visible to all, but so are potential eavesdroppers: a good place for brief but confidential exchanges." Casual seated areas designed for acoustical insulation and comfort provide greater levels of confidentiality, whilst appearing to invite casual encounters with others. Planned encounters are those typically which occur in private meeting rooms, conference spaces, or in the public lobby.

DEFINING WORKSPACE

In the workplace it is important to design for a range of spaces that reflect and accommodate a number of activities and communication needs. They must be suitable for all current user requirements and easily adaptable for future use.

Primary Spaces

Solitary spaces

In spaces for solitary work, when completing reflective tasks that require no distraction or when confidentiality is necessary, people nearby can be a disadvantage; a space might restrict overlooking and overhearing. Solitary spaces, such as the workstation, typically consist of a desk, chair and computer. They are dedicated to a single individual performing a particular task, whilst transient spaces are shared desk spaces, typically for ‘flexitime’, non-stationary users. In a transient space, people have no personal territory; they are new to their neighbours and surroundings. Orientation and arrangements need to be clear and simple, so that they are quickly grasped by the occasional user.

Enclosed solitary spaces, such as the booth, are for peace and contemplation. Provided for both transient and general use, it can be minimal in size, without permanent storage and can be either fully enclosed or well screened, and acoustically insulated. The hierarchies of private office spaces are becoming less common in modern office spaces due to the provision of similar equipment, space requirements and treatment between employees. In solitary spaces, users are generally seen as ‘occupied’, and therefore considered to be spaces that restrict social encounters.
Spaces for collective work

Collective work spaces are more common in the office of today, where individuals share the same space to complete their own tasks. In some offices, this may be referred to as ‘hot desking’ where individuals have no assigned desk space, seating wherever is free. Perhaps grouped in ‘pools’ according to department, as seen in the ASB precedent, pool spaces as long as working conditions are constant, can vary in terms of design; furniture, IT, lighting and acoustics. However, in an open office, with numerous pools, each pool user benefits from a “sense of place and orientation – a chain of pools rather than a vast sea.”92 Due to the irregularity of the seating plan, these types of spaces are more suited for organisations where solitary work, as opposed to interactive group work, is required.

Group spaces

Group spaces are where people meet to talk, listen and to create and implement solutions together. “They may be in the open – at a workstation or the whole team space – or in a dedicated and enclosed room”93. Group spaces, such as meeting points, are small and casual areas extending from a cluster of workstations providing perhaps only a few extra chairs and desk spaces arranged so that discussions do not disturb other nearby workers. Team spaces are larger focal points where members may gather and should be located to minimize cross-circulation by other staff with a variety of unconventional furniture aimed at encouraging a high level of relaxed discussion. As interaction may be in pairs, small groups might split off into meeting rooms because as office spaces become more flexible, private and confidential enclosed space becomes increasingly valued. However, meeting rooms may also be used as cells for concentrated work, or for a quick phone call and may vary in size to facilitate different types of communication between groups. Whilst presentation room furniture must be flexible to accommodate complex video conferencing and projection technologies, as well as regular advances in technology, contemporary meeting rooms seek a more comfortable and informal atmosphere. By locating conveniently adjacent to a kitchenette or by providing space for a built in fridge or food trolley, users may sustain productivity and enjoy long meetings. Lastly, boxes, as opposed to booths, are sound proofed rooms used to eliminate any disruption to the surrounding spaces due to noisy creative activities.

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92 Ibid., 62.
93 Ibid., 62.
Secondary

Ancillary spaces
Ancillary spaces contain functions that support an individual work group or a department, such as printing/copying station, personal care and refreshment points, providing opportunities for unplanned social interaction both by people in the same work group and a wider mix. In today’s self-service office, a range of facilities, from water fountains to kitchenettes and small local cafés, areas of tables and chairs are provided for casual informal meeting places. Printing/coping stations and refreshment points can be positioned to encourage interaction between groups and teams that would not normally have contact with each other.

Support spaces
Support spaces contain functions that support the work of the whole organization, and may also present a public face. Reception areas must accommodate a variety of functions where visitors are greeted and seated in a waiting area, and packages are delivered. “Seated areas to the side of the main circulation...allow visitors to converse discreetly – and even to have a brief meeting with their host.” In modern offices placing a touch screen computer for staff or guests to log in, may also be used to locate people, or to find an available hot desk space. The library, traditionally a place to work alone is today a resource centre where collaborative study is encouraged. The design of the library should reflect the material, whether books, magazines, drawings or large format documentation. Library seating and work surfaces should be comfortable, particularly if there is a demand for computer use. Where learning is permanent to the organization, training is a continuous activity that may require temporary or permanent space. Training space must be flexible and well equipped with mobile furniture, equipment and acoustic isolation.

Social spaces
Social spaces contain functions for non-work activities, and may include cafés, bars, atria and terraces. In the office today, “the most common formalized social activity is eating.” Cafés typically take pride of place on an upper level, with views, enjoyed by a grand void in the atrium, or with the fresh breeze of an outdoor terrace. In an office the café eating areas should be designed to encourage a “relaxing change of pace”, separating circulation to the serving areas, so that seating areas are relaxed and private, as well as encouraging building users to visit throughout the day, not only at meal times.

Atria, as well as “External green spaces – terraces, courtyards and gardens – can be designed as extensions to the office interior”, with the benefits of fresh air and eternal views. “Not only can they act as over flow space in balmy weather, but even in winter a brisk walk can generate an equally crisp discussion.”

See the next section for circulation spaces.

84 Ibid., 68.
85 Ibid..
86 Ibid., 69.
87 Ibid., 71.
88 Ibid..
89 Ibid., 74.
90 Ibid., 72.
CONCLUDING STATEMENT

Contemporary workplaces have come a long way from the traditional box offices and the rows of cubicle seating designed for rapid production. Today, ‘offices’ are based on building community and sustainability, and can be designed specifically to suit the goals of the workplace.

The goals of the workplace within this research paper, are to facilitate and encourage face to face interactions between all users of the workplace, as well as to cause collisions, chance encounters and unplanned interactions. Design attributes that support these aims are identified and considered throughout the design process by:

At first, identifying the type of interaction that is most valuable to the workplace by using communication elements outlined as energy, engagement and exploration.

Then designing a workplace where users share facilities and communal space.

Next, where the notion of ‘hot-desking’ encourages users to move throughout the office, relocating workstations to facilitate not only movement but the opportunity to meet new people while seated at that days station. Finally, by increasing public space, reducing solitary space and designing for a variety of communication spaces that consider not only social zones, but support ancillary, group and collective areas where various levels of encounters can occur.
CIRCULATION

HISTORY

In the essay “Figures, Doors and Passages” Robin Evans, an architectural historian, describes the evolution of figures, doors and passages, as methods used over time for restricting and facilitating social interactions between members of a household.

For those who valued privacy in the 16th Century and found the mixing of servants, family, children and woman unacceptable, an alternative architectural method of planning was explored that would overcome what architects began to refer to as a strategy that detested interference. For Alberti it was a matter of arranging proximity which involved moving tiresome members and the most offensive at the greatest distance from the main rooms. This was his method of solving chaotic and loud households, a method to disperse, rather than to silence. By arranging rooms that were connected directly, movement through the space was by filtration, rather than by canalization. Physical walls and doors between spaces became subtle barriers, and only those who had reason to enter those rooms passed through. Robert Kerr’s aims were to mobilize the architecture in its entirety against the possibility of commotion and distraction. Kerr’s strategy, his meticulous planning and furnishing of each part of the building, involved compartmentalization on the one hand, coupled with the universal accessibility of all household members. However, he states that for a compartmentalized building to succeed, would involve continual movement through it, because movement was the one remaining thing that could give it any coherence.

In 19th Century England, changing social structures became particularly evident in houses for the rich, where internal room arrangements notably segregated social interactions between public and private spaces. Although entrance halls, grand open stairs, passages and back stairs all joined to form a penetrating network of circulation space, adjoining rooms were connected by only one door to reduce users, and rather to specify respective users. Similarly, in Victorian country homes of the late 19th Century, it was considered that servants should be out of sight, out of mind. A common pattern formed where servants would enter the house through their own entrance, often below street level and to the rear of the house. A below-ground corridor, namely the servants’ corridor, ran the full length of the building, which provided internal access to separate courtyards. Here, were the majority of servants’ rooms and other work areas. The servants used back stairs to enter the upper levels, and used additional hallways dedicated for servant use. The role of the architectural plan separated social interactions between servant and master to further facilitate the unbalance of working lifestyles. In fact, it was not uncommon that many of the lower servants never encountered the family during their years of service.

Fig. 31 Circulation by filtration
Fig. 32 Circulation by canalisation

102 Ibid., 78
103 Ibid., 70-71
By contrast, 16th Century Japanese architecture uses a number of basic principles that encourage social interaction, typically set out in such a way that the floor plan is divided with the use of sliding doors (fusuma), used in place of solid walls. This technique provides an internal configuration that could be customized to suit different social occasions.104 As shown in Figures 30 and 31, the Katsura Imperial Villa, constructed early to mid-seventeenth century open and close fusuma forming public and private spaces, where room function, such as bedrooms, may be easily converted to more public use.105 These elements of ease and convenient design suggest encouraging social interactions through their freedom of flexible space. The alignment of room beside room, without designated circulation space, suggests members of the household are more likely to cross paths, and, perhaps in some cases, are forced to pass through the mixtures of public and private space, increasing unplanned encounters. Today, modern Japanese architecture continues to exemplify these characteristics and can be seen as a predominant feature in many new office and residential homes.

For centuries social structures have evolved, determining the spatial layout and circulation of the architectural floor plan. Here, we consider the social structures that are in place today, and the relationship between student and industry worker. The following examples/precedents illustrate ways that begin to overlap and cross contaminate the routes between different user (rather than singular) groups.

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Atria

In “Designing Circulation Areas” Schittich states the relationship between circulation and functional space was traditionally and typically defined as: ‘spaces for movement/spaces for resting’ OR ‘transitional spaces/destination spaces’. That is, the occupation of a space was either stationary, or with a level of momentum, representing two binary opposites with no overlap, and no in-between. For Schittich, this old idea of, “a route is not a place, and a place is not a route” turns a blind eye to the mixtures and superimpositions of functions occurring in everyday life. Taking the functionality of spaces within a building, and designing by splitting up human activities and spatial requirements into functions is contradictory to our behaviour, feeling and perception.

Consider various-commercial and civic buildings; a large entrance hall of a railway station, the lobby of an office building or a museum foyer. Although commonly perceived or intended as circulation areas, these spaces can equally invite people to linger; “as if a living room providing enough space for movement.”

However, Schittich states that these “generous pathways through buildings that have always been places for encountering others” may only be possible with significant technical and constructional expenditure. He suggests that perhaps it is the costs associated with compliant stairs, halls and corridors, undermined as simply functional elements, that have influenced the move toward circulation design that results in minimal area and volume specifications, often accompanied with negative design and space quality.

As a common feature in many commercial and civic buildings of the 21st Century, the once ‘generous’ atrium, is a significant example affected by various regulations. Atria today “are in fact not really essential for circulation, with the employees seldom accessing their offices through the publicly visible entrance, but rather through a very conservative circulation – stairs, elevator and corridor – from the underground parking space straight to their required office floor.”

Fortunately, it is becoming more common to see Architectural designs that reinterpret the atrium. The following examples use the space as a part of the building’s environmental concept as well as spaces of transparency, and social interaction. In Dessau The Ministry of Education is a dynamic 460 metre long development, containing some 800 workplaces. The winding form creates an internal courtyard, covered by a fully glazed solar sunscreen roof structure. As well as allowing light to reach the internal offices, the deep atrium style courtyard serves to optimize the energy balance and indoor climate control. Here, the atrium is a sheltered space where workers may escape the enclosed confines of their workspace.

Similarly, at the new ASB Building in Wynyard Quarter, the distinctive funnel that shoots out of the roof above the atrium space acts as a gigantic extractor. The atrium functions as the building’s ‘lungs’ by cross ventilating fresh air from the open windows along the façade, drawn up into the top of the building through the funnel. The funnel and light reflector on the building’s roof capture and reflect natural light deep into the building. Between the atrium void, levels are laced with bridges that overlap and connect so much as to expose various building users and visitors to the view of others, creating a strong and active sense of workplace community.

107 Ibid., 20.
108 Ibid., 15.
109 Ibid., 16.
110 Ibid., 17.
111 InDETAIL: Façades Materials, January 1, 2005, 1260.
Fig. 35 Ministry for the Environment - Atrium

Fig. 36 ASB - Atrium showing transparency both in the workplace, and in the design with structural glazing to reveal the day-to-day functioning of ASB's community.
Schittich states that above all, “Circulation should be much more than a pure necessity”\textsuperscript{112}. It can be a concept on which a design is based, providing spaces that offer a specific experience, serving as a communication zone or an area to linger in. It is the circulation routes weaving through a building that should not only connect rooms, but facilitate the desire for social exchange.

Access routes are vertical and horizontal elements that determine the accessibility of areas between and across levels. Vertical elements include stairs, ramps, lifts and escalators whereas horizontal elements, are much less clearly definable, including but not limited to, vestibules, corridors, access balconies, moving walkways, and open areas, or whole sequences of rooms. Access routes may be direct and parallel, intersect only at certain points, or, may be “not limited to prescribed paths”\textsuperscript{113} allowing the user freedom to follow his own path. In an open office plan we assume that pathways without a material change or barrier in some form may be traversed by the shortest route, regardless of the functions between. Schittich says that, in a traversable space, “Each individual determines for themselves the manner in which they negotiate these spaces and the speed at which they do so: in this way, a supposedly transitory area can become a space in which to linger or to wait, that is to say a space for communication”.\textsuperscript{114} Depending on the principal function that the access space assumes, the architectural design, such as the arrangement of building volumes, visual axes and spatial relationships, materials used, lighting, etc, will have an effect on the quality and the atmosphere of that space. Schittich suggests that it is the ways in which these components result that affect the way the spaces will be used. When the resultant components are considered to improve the quality and atmosphere of the access space, then we are able to ensure that the route becomes more than a transit space. It becomes a space to experience.

\textsuperscript{112} Schittich, Designing Circulation Areas, 13.
\textsuperscript{113} Ibid., 13.
\textsuperscript{114} Ibid., 41.
MOVEMENT AND FLEXIBILITY WITHIN THE WORKPLACE

Raymond and Cunliffe state that, “Circulation routes are like rivers and their tributaries, and it is their eddies as much as their flow that are important to office life. They are not just about facilitating the movement of people; their quiet corners are essential for social interaction.” As a result of organizational flexibility in the modern workplace, the transfer of tasks, activities and outsourcing, organisations have opened up where people no longer hide in their own rooms within specific borders of authority. Organizational flexibility has encouraged group interaction, and the promotion of discussion, not only in meetings, but also spontaneously and interdepartmentally, increasing opportunities for social interaction between colleagues and other building users. In support of this, Schittich says that primary routes, typically lined with group work areas and support facilities such as kitchens, toilets and paper processing areas, are where maximum movement should be channelled, with space for stopping and talking without blocking the way, but with an ambience that should sometimes encourage dawdling. Secondary routes are the smaller branches that serve teams with twigs to each individual workplace to allow for casual interchange, but not disruption – as within a department. Tertiary routes are for the briefest movements – as within a team.

COLLISIONS IN RESIDENCE (DISTANCE AND DESTINATION)

In “Student Housing and Residential Life” the Heilweil Review states that the patterns of friendship in student residence are often defined by adjacency and traffic flow. It is suggested that perhaps the concept of “functional distance”, that is the distance which must actually be traveled rather than the sheer physical distance and destination, should be considered as an important intermediate zone separating areas of intended isolation, and required inclusion. For example, physical features may limit certain behaviours, such as the frequency of interaction between two students residing on two levels, separated by a set of stairs and a fire door. On the other hand, they may encourage certain behaviours, such as bare worn paths (instead of sidewalks, or closed hallways) that chart the shortest distance between two points. Although the physical environment may not directly cause specific behaviours or attitudes, its limitations present challenges that must be negotiated by those within. On the other hand, spatial arrangements that are too concerned with enforcing social interaction by joining facilities, as opposed to joining circulation paths, and fail to provide sufficient opportunities for absence and solitude raise concerning issues of privacy.

115 Ibid., 76.
116 Raymond and Cunliffe, Tomorrow’s Office, 51.
118 Ibid., 137.
STRATEGIES OF THE IN-BETWEEN

EVENTS

A lot of contemporary architecture theory explores ways to articulate relationships between space and occupation, less as a stimuli-response mechanism and much more as a dynamic interaction of social and spatial practices. In Event-cities, Tschumi describes the concept of the ‘event’, affirming, “there is no architecture without action or without program...architecture’s importance resides in its ability to accelerate society’s transformation through a careful agencing of spaces and events”.

For Tschumi, modernist ideas “...by which form follows function (or vice versa) needs to be abandoned in favor of promiscuous collisions of programs and spaces, in which terms intermingle, combine and implicate one another in the production of a new architectural reality” He argues that the juxtaposition of function and scale in contemporary culture is not a negative phenomenon but rather belongs to the logic of a new urban society. Exploring the concepts of “cross-programming”, and “dis-programming” where by the “imbrications of elements”, alter the once stable “contours of institutions”, and the “city”, becomes “a complex and interactive web of events”, accelerating the process of change and leading to a new set of social relations.

Dis-programming is the combining of two programs whereby a required spatial configuration of program A contaminates program B and B’s possible configuration. A predominant example, is Tschumi’s 1990 Kyoto Railway Station. Broken down at first into main constituent elements and lined along the Kyoto grid, the most ‘eventful’ functions or activities of each program were then extracted collectively producing the ‘event’, a ‘staged’ combination of theatre, sky lounge, wedding chapel, athletic club, arcade, gourmet market and historical museum. Selected by level of social activity, the events are located within the horizontal and vertical intersections of the “skyframe”, which define the public space of the railway station below and the space of the city above.

Fig. 38 Dis-programming the horizontal and the vertical

120 Ibid., 13.
121 Ibid.
122 Ibid.
123 Ibid.
124 Ibid., 221.
125 Ibid.
Fig. 39 Kyoto Railway Station, 1990 - Dis-programming
3. Precedents
“The principle inspiration for the project is the meeting of the collective and the individual, a characteristic inherent to the dormitory building type.”

With a form inspired by Hakka architecture, the Tietgen Student Hall showcases particular design principles that foster a collective student live and learn community. While successful in this aspect, it also adapts its spaces to suit local events, making itself a vibrant part of the neighbourhood community. The building can be described in two components; the ground floor (communal), and the student hall (shared communal living).

On the ground floor areas are dedicated to a mixture of common living and learning facilities, including an assembly hall, gym, discussion and study spaces, workshops, music room, computer café and an office with reception to manage student residence. Many of these spaces are provided for students to learn outside the classroom within the comforts of a homely environment. The large assembly hall provides a space for functions, exhibitions and parties where students and visitors may participate in both social and educational programs. At Tietgen shared use facilities, such as the wash room, post and bike parks, are located within common spaces, heightening social interaction.

The second component, the student hall, is made up of residential units, each including 12 bedrooms that share one kitchen and one common room. The kitchens play a central role in the community design of Tietgen by providing facilities for cooking and relaxing within the unit’s kitchen itself, its adjoining terraces, common room and smaller study spaces. The main circulation path that dissects room and common space encourages the cross-contamination of all residential units on every floor. At Tietgen “No hallways are a dead end; no doors are locked. The house does not turn its back on anyone.”

The communal zones project towards the centre of the circle, increasing proximity and visual connection between residential groups at either end of the courtyard. One resident states, “You feel a sense of community across the kitchens, not because you necessarily know them but because you can see them across the circle. If I see a party going on somewhere in the building, I would definitely consider going over there.”

This diagram analyses the arrangement of private and public spaces. Communal spaces face toward the inner courtyard whilst student rooms are on the outer perimeter with views external views. Here, the private rooms and public communal spaces, are separated by the circulation path.

Due to the buildings cylindrical form, the communal spaces become spatially closer to one another further supporting the concept that fosters an open and vibrant community.

**circulation spaces**

The ground floor, with its open courtyard allows for a high level of free circulation. Here, five open entry points lead to the centre of the circle without any gates or locked doors. Within the courtyard, residents and other visitors are free to roam, relax and meet friends.

Each entry point has stairs and an elevator reaching up to level 6. On all residential floors, the main circulation route is vividly defined around the perimeter with no end and residents are no further than 20metres to the nearest escape route.

**repetition**

The dorm is made up of six levels with five residential groups located around the perimeter. It is the repetition of these units that form a strong boundary between the internal and external spaces building a sense of privacy and security within the inner courtyard.

12 units x 5 groups x 6 levels = 360 units

**rotation**

Internal facing communal spaces including the kitchen, lounge, and study are carefully rotated around the circulation path of each level. Whilst creating visual intrigue, the overlapping units and their respective roofs are able to be used as open terraces.

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**Fig. 41 Tietgen Building Form Analysis**

**Fig. 42 Tietgen Building Circulation Analysis**

**Fig. 43 Tietgen Building Intimacy Gradient Analysis**
INTEGRATING WORK
Can commercial working spaces be incorporated to introduce student residents with related industries early on in their professional careers?

Being primarily built to accommodate student housing, the incorporation of commercial working spaces is an element that Tietgen does not consider. However, the model does open its ground floor spaces to surrounding businesses who are now regular users of the café and the carparks.

Could a variety of public work spaces be introduced on the lower levels? Would we increase the potential for social overlap by raising the infiltration of user types?

The following diagrams explore the use of vertical projection to include new workspace and introduce mingling of student and industry.

EXISTING LIVE + LEARN

The ground floor contains various living amenities including bike storage, washing room, letter boxes, as well as fitness rooms. Learning spaces include, study rooms, workshops and rooms for events. The entire ground floor including public cafe, face inward toward the central courtyard.

Levels one to six are primarily living spaces, however, each room contains a desk for private study, while each residential unit has a larger shared study space, accessible all users. Students are provided with three study areas ranging from private, semi private, and the public on the ground floor.
1. PROXIMITY

By inserting an additional level to the existing, we are creating an intermediate zone where both student and employee may come together for shared facilities. It is the intent to reduce the proximity between working, living and learning spaces.

Fig. 47 Using proximity and vertical projection to insert work component

2. VERTICAL PROJECTION

By dispersing different types of commercial, co-work and student study spaces with various intensities, open voids begin to visually connect each space. This intends to improve the physical and visual contact between student and worker, as well as the overlap of co-working space that intends to increase the likelihood of casual encounters.

Fig. 48 Creating concentrating working volumes

3. WORKING VOLUMES

Perhaps larger volumes shall be divided into zones, to centralise working communities in order to facilitate efficiency and intensity. Each volume might hold one or two commercial companies with office space for permanent employees, and connected co-working spaces where students will come to work, collaborate and gain experience in a co-operative a work-learn situation. In this case, it is by providing common facilities such as a cafe, gym or library that all users may use that might stimulate social interactions outside of the work zones.
ADVERTISING AGENCY // TOKYO // 2007

Use: Work / Circulation  
Architects: Klein Dytham Architecture  
Access: Staircase, “walkways” in white  
Room height: 5.50m

Formerly used as a bowling alley, Tokyo advertising agency is a two storey high space that extends over the whole floor. Due to the existing construction, and limited columns, the architects chose to design a landscaped office, “reminiscent of a small village” 5. The layout of the circulation zones; the parallel ‘footpaths’, and adjacent workplaces, follow the rhythm of the dominant white ceiling beams. White and green pods are used as “meeting rooms and individual offices with accessible roofs on which the employees can relax, exchange ideas or have a picnic” 6. While these raised platforms make for “pleasant breakout spaces,” 7 the central stair well; “runs through the middle of the space like a central park.” 8 The wide stair descends directly to the small “village square” adjoining a small café, becoming the communicative centre of the entire open-plan office space. Confidential and private spaces, including larger meeting and conference rooms, as well as administration and bathroom facilities, are located on the top floor, not in view of the active main office floor.

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6 Ibid.  
8 Ibid, p
At ASB, particular design principles are used to organize internal spaces. These principles were derived from ASB’s work culture aspirations and specific work practices. The four that underpinned all design decisions can be outlined as choice, collaboration, community and transparency.

Activity Based Working

Influenced by the concept of ‘Activity Based Working’ (ABW), workplace strategists Veldhoen + Company designed a strategy that would support everyday tasks by combining technology design principles to effectively mobilise information, freeing staff from any dependency on permanent, individual workstations. Employees are allowed the fluidity to work where they want and need to throughout the day.

Shifting from an office of information processing to a hub of collaboration, sharing and learning, the non-hierarchical principles of ABW mandate equality of access to workplace resources so that, no matter an individual’s floor or position, they are able to share a range of task-pertinent worksettings.

The philosophy of ABW is, “to give every employee the freedom to work in the most natural way to produce quality outcomes for their clients and organisation. In doing so, work becomes more enjoyable, more efficient and more effective, thus benefitting employee, client and business.” ABW “promotes knowledge sharing, more pervasive collaboration…and encourages entrepreneurship. From this should come increased engagement, more dynamic and focused collaboration, cross-functional collaboration, improved employee satisfaction and therefore increased productivity.”

Sustainability and Technology

ABW aligns with sustainable design principles, emphasising spatial efficiency, minimising all forms of waste, creating healthy and humane environments. Since shifting to mobile technology business-wide, ASB’s paper use has reduced by a staggering 70%.

To increase flexibility and mobility all ASB staff are provided with a portable technology device (either laptop, mobile phone, or iPAD) as well as access to a vast array of fixed technology such as AV screens and worksettings when required. Computer software is then used to locate any staff member by linking to their current logged in workstation. When a visitor arrives in reception they can log in on a touch screen, notifying the staff member they would like to see.

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10 Ibid., 53
11 Ibid.,
12 Ibid., 48
Fig. 53 ASB Wynyard Quarter, Transparent overlapping atrium space

Fig. 54 ASB Wynyard Quarter, Informal employee and client meeting rooms
Neighbourhoods and Boathouses

At ASB two distinct work spaces are identified as; ‘boathouses’, the public spaces; and ‘neighbourhoods’, the free working spaces. The boathouses are diverse bringing a “quirky character” to the perimeter of the main atrium space. Each boathouse imitates a nautical, waterfront theme resulting in a selection of vibrant café, public, training and meeting social spaces. These spaces experience high levels of foot traffic as people pass through and up to reach their designated neighbourhoods. Five neighbourhoods are demarcated between floors 4 to 6.

**WORKPLACE STRATEGY - FOCUS**

High focus  
Medium focus  
Low focus

Fig. 55 High - Low focus worksetting arrangements

‘Focus’ on Worksettings

Within each neighbourhood, ASB staff have the flexibility to choose between fifteen work settings (as can be seen in Figure 56), located and categorised according to the degree concentration that the work setting encourages. The spatial arrangement is similar to that used on the residential levels at the Tietgen Student Housing complex.

**Low focus** settings are in areas where there is constant through traffic and little or no privacy required. Here, areas are considered collaborative where users work together at ‘window seat tables’, ‘oriental lounges’... 

**Medium focus** settings are in areas slightly away from the through traffic, but still visible. These areas allow for work that requires only a medium level of concentration, typically workstations equipped with monitor screens, keyboard and chairs where users work alone, occasionally breaking away for small group work.

**High focus** settings are at the periphery of the floor so that people are not disturbed by the passage of others, allowing for total concentration and privacy typically in the form of a meeting room, booth or cockpit etc.
Fig. 56 Diagrammatic analysis of furniture types and relationship between level of focus and interaction
THE SHIBAURA HOUSE

Use: Office / Circulation
Shibaura, Tokyo, Japan
Architect: Kazuyo Sejima

The ‘Shibaura House’ is a multi storey office block that stacks spaces in so that they have a relationship with one another. Sejima states that “The spatial qualities of public and private spaces are different. However, there are opportunities for private spaces to exist within a public space. Though the function and the quality are quite different, there is a relationship and continuity between the two types of spaces.”  

By scattering a number of single and double height volumes, she creates a collection of subtle overlapping spaces that support a wide range of functions and activities. The intersecting volumes encourage employees to filter through each space, mingling with peers on other levels. Sejima’s concept fuses the spaces where activity occurs, composing one large space.

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15 Ibid.
Fig. 58 Shibaura House, double height circulation zones, with steep and thin staircase

Fig. 59 Shibaura House, Street View
ORESTAD COLLEGE, COPENHAGEN 2006, 3XN

Use: Learning / Circulation
Access: Central spiral staircase, service core with emergency stairs, lifts
Space Arrangement: Open plan
No of floors: 5 +1 basement
GFA: 12,000

EDUCATION
Ørestad College breaks all conventions of a traditional school design because there are no classrooms, no communication barriers and no corridors. The entire school consists of a single large room. The architecture was implemented as a requirement specified by the Danish school reform, demanding a venue for flexible, open and independent learning. A central cascading stair system is the defining element of a vertical learning landscape, composed of circular platforms, stairs and open space. Each open-plan is assigned to a different area of knowledge. Only those rooms that require a conventionally enclosed classroom, such as the music room and administration are lined up along the façade. The project interprets new ways of learning and expresses these through an architecture, providing open and flexible spaces that consider the fluctuating dynamics of a traditional class. Here, the architects design for a life-like education where day to day activities vary in size from individual, to groups, and to assemblies.

FLEXIBILITY
While externally the college building appears standard, with a combined vertical and horizontal circulation system with each floor plate rotating around a central spiral staircase, the internal spaces become highly flexible. Moving away from traditional classroom spaces, instead, cylindrical pod like forms are scattered between floors. Some pods accommodate emergency stairs, toilets and lifts, while others provide quiet studies with ‘roof’ space attached by small stairs and bridges above, connecting to the next level. Here, bean bags and casual seating are provided for informal study and social space. The arrangement of pods, floating in the middle of the circulation spaces, step back from the building’s façade creating traditionally awkward and inhabitable spaces. It is these spaces, that in fact become inhabitable, with the combination of furniture, including couches, and desks to encourage a variety of informal and formal meeting and study space with a varying level of privacy. Susceptible to noise, the architects used acoustic ceilings and walls as well as noise-absorbent surfaces on the fixtures and fittings, including acoustic plaster under the stairs, preventing distracting levels of background noise.

16 Schmitt, Designing Circulation Areas, 10.
18 Ibid.
Fig. 60 Orestad College, Geometrical Form

Fig. 61 Orestad College, Informal learning zones located on the roofs of the service or classroom pods

Fig. 62 Orestad College, Open circulation zones
DILLER SCOFIDIO + RENFRO

Diller Scofidio + Renfro design distinctive circulation routes that zigzag, fold and overlap to develop a range of wide, expansive spaces for public and collaborative use. Circulation spaces are intended to gradually progress the user’s movement through a building. Levels and platforms are used at either end to indicate subtle moments of diversion, reflection and social interaction. These folding circulation spaces are commonly located towards the front of the buildings façade where transparency allows not only the user, but those on the streets to see all the commotion. The case studies below have been chosen, both for their programming, and their specific design elements that facilitate social interactive spaces through circulation.

COLUMBIA UNIVERSITY MEDICAL CENTER// NEW YORK //2016

The Columbia University Medical Center combines students from four schools in a 14 storey building. The concept - a “study cascade”19, is represented by the network of social and study spaces distributed across a number of oversized landings. The study cascade creates a single interconnected space that weaves from side to side, climbing up the building from the ground floor to the top. Each landing creates space conducive to collaborative, team-based learning and teaching. The interiors are complemented by a distributed network of south-facing outdoor rooms and terraces, providing an addition to the overall urban gesture of a transparent façade that exposes internal actions as was also done with Shibauru House.

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4. Programming
WHAT IS COLLISION COURSE?

“Collision Course” is a living-learning centre that brings academia and industry together to share infrastructure, facilities and expertise. It is an educational continuum that bridges the gap between study, experience and employment. As a ‘live-in’ research centre, the transfer of knowledge becomes a part of the intricate network, embedded in both the organizational, the spatial and social structure. Actively linking research, to industry needs, “Collision Course” drives student and professional development in parallel as an important part of facilitating an innovative and productive micro-economy.

“Collision Course” responds to local economic fluctuations and market needs, supporting growth in science, technology, engineering and mathematics. Environmental Engineering\textsuperscript{126} has been identified as a key discipline for the design pilot due to qualification scarcity, and currently listed on New Zealand’s long-term and immediate skill shortage lists with only 325 qualified and paid employees.\textsuperscript{127}

The building design must, therefore, adapt for change in occupation and future use, responding to sustainability as an integral part of the design process. The building aims to lead by example, targeting a minimum 5 Green Star Certified Rating signifying ‘New Zealand Excellence’.\textsuperscript{128}

\textsuperscript{126} “Environmental Engineers assess the impact of projects on water, soil, air and noise levels, as well as advising, and designing systems to minimise, treat and remove waste,” Careers NZ, s.v. “Environmental Engineer,” last updated March 17, 2014. http://www.careers.govt.nz/jobs/engineering/environmental-engineer/

\textsuperscript{127} Ibid.

Program Requirements

‘Collision Course’ is a hybrid typology supporting two social groups:
Students in residence–live/learn
Industry groups in the workplace–work/learn

‘Collision Course’ is for ambitious Master students, and industry groups in the fields of Environmental Engineering

Due to the fact that hybridizing student residence with shared workspace is an uncommon building typology (or perhaps new) in New Zealand, it was important first, to understand the strategic of how residence and course programming might actually work. To do this a structure was formulated that outlines contractual and educational obligations required by all participating parties, including the education provider, industry professionals, tertiary educators (teachers/lecturers) and students.

It is important to note that “Collision Course” does not aim to replace the educational institute; it acts as a supplementary programme that continues to support education outside the institute.
Parties Involved

Education Provider
- Position: Administrators

Education Providers are tertiary institutes, such as universities and polytechnics, who advertise, manage and facilitate “Collision Course” - as a combined student residence, and experience based learning program outside the institute. Education providers process applications, and work experience contracts between student and industry professionals. A Programme Manager, and administrative staff are located on site, providing advice and other needs to all building and programme participants.

Industry professionals
- Position: Tenant Educator

Industry professionals are participating groups of research and innovation departments sourced from developed companies, such as AECOM. Industry professional groups act on behalf of their companies, committing to a 12 month contract. Industry groups collaborate and support student research and innovation projects. Contributing to real world learning, industry groups seek future employees, while developing innovative projects, benefiting from young talent.

Tertiary Educators
- Position: Visiting Educator

Visiting Educators commute to the Collision Course site to meet with students for progress reports, meetings, events and workshops, accounting for 10% of the students’ workload. If students are required to complete courses outside the Collision Course programme they can be taught at a participating educational institute. Lectures and course notes will be accessible either online, or on commute to campus.

Masters Student
- Position: Resident Learner

Master students are ambitious learners and driven entrepreneurs, who have applied for a one semester residency placement. Students gain experience, complete work hours, and build networking with industry professionals. Students in residence are required to participate in: regular tertiary course work on campus or online (30%), collision course work on site with visiting educators (10%), and co-working hours with industry professionals (60%).

Other users
- Position: Transitory

Other users are external professionals, individuals or groups that require temporary working space. Taking after the “co-working” model, other users including start-ups may rent workspace when there is room. Co-working spaces are provided for students, industry professionals and others to work in a collective and collaborative environment. These spaces will be designed to facilitate social networking opportunities.
5. Site Selection
Fig. 67 NEW LYNN CENTRE_2013
SITE SELECTION

In order to foster a continuum of learning, research, innovation and future employment opportunities, it is the aim of Collision Course, not only to design the building for an interactive community, but to grasp opportunities that may be associated with the natural and built environment surrounding the site location. Locating the site within an “active community” will play an important role in facilitating the educational continuum throughout daily life.

Active communities are listed in the “Proposed Auckland Unitary Plan” as Metropolitan Centres “where shops, jobs and facilities such as public transport, libraries and public spaces are already concentrated”¹²⁹. Encouraging further intensification within these zones will boost Auckland’s economy, offering more jobs and more activities because “businesses are more efficient and productive when near other businesses, and good opportunities come from being in attractive, well-connected locations.”¹³⁰ The design pilot, “Collision Course”, shall, therefore, be located within one of Auckland’s Metropolitan Centres, selected by the following urban criteria:

- be attractive for students, start-ups and businesses
- be linked to a public transit infrastructure, to ease commutes between educational institutes and to reduce vehicle use.
- support urban sprawl recovery by increasing density, supporting surrounding infrastructure and contributing to community activity
- be surrounded by a variety of working industries, to support employment and experience opportunities, provided by regular exposure, and industry networking


¹³⁰ Ibid.
NEW LYNN METROPOLITAN CENTRE

Location

New Lynn is an important, developing sub-regional Metro located approximately 35 minutes west of Auckland Central. Situated at one of the two narrowest points joining the North Auckland Isthmus to the rest of the North Island, New Lynn acts as the service centre for a large catchment that extends to Titirangi and all surrounding suburbs. Currently in progress, New Lynn’s urban core intensification strategy will become the first regional and national example of a TOD (Transit-Oriented Development) based intensification/regeneration project in New Zealand.  

Employment

Socio-economic statistics for 2013, showed that less than 1,200 people lived within 10 minutes walking distance from the rail interchange, and a mere 400 paid employees worked in industries within the wider New Lynn area. In 2014 the completion of the new transit hub, healthcare, retail and apartment block, as well as proposed plans for various mixed use building developments, began the road to urban densification leading to an increase in residents and employment. Based on New Lynn’s role as a sub-regional centre, accommodating a share of the region’s employment and population growth, by 2030, New Lynn’s vision is to create a unique sustainable urban place centred on a world class transit interchange that is capable of attracting and maintaining a population of 20,000 residents and 14,000 workers.

Transport

In 2011 the construction of the Clark Street extension over bridge, which acts as a bypass, relieves the historic Totara Avenue with an expected vehicle reduction from 20,000 to 3,500 per day. In 2021 the completion of the City Rail Link will assist

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users traveling from New Lynn to the new Aotea Station, and near associated tertiary institutes, reducing transit times from 51min to 23min. In addition, the New Zealand Green Building Council states that, to be located in a zone that encourages alternative forms of transport such as walking or cycling instead of driving benefits the New Zealand environment, provides substantial health and economic benefits to all users, and helps to reduce road congestion. Fortunately, New Lynn’s flat terrain presents ideal conditions for such modes of transport. Increased pedestrian numbers on the public pathways may benefit public activity, increasing casual encounters and opportunities for networking within the wider community.

An entrepreneurial culture

New Lynn is “a place that has always had great ambition,” having a tendency to be the first in New Zealand to do things. It has a rich heritage of making things, most notably the once thriving industries of Crown Lynn Potteries.

Crown Lynn Pottery was established in 1854 when entrepreneur Rice Owen Clark decided to drain his land, innovatively making his own clay pipes. In 1925, the plant moved to New Lynn which offered better clay, more access to workers and a convenient railway. Responsible for the plant expansion in 1937 his Great Grandson, Tom Clark, “was an employer who always encouraged his staff to experiment with new products.” In 1938 the establishment of a research department investigating the viability of producing tableware from NZ clays lead to the production of Crown Lynn’s New Zealand Railways cup and saucer which became one of the most famous Kiwi icons of the twentieth century.

Clark continued to test clay samples and a variety of other scientific tasks with the expansion and formation of branches specialising in areas such as brick

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manufacturing, mining, precision engineering, and crane hire. From 1961 - 1978, Crown Lynn was the Southern Hemisphere's largest producer of household pottery employing 650 staff.142

After almost a century of driving New Lynn’s industry and employment Crown Lynn closed doors in 1989 due to trading losses and inability to compete with the speed of more advanced manufacturing technologies used and cheaper labour costs found in Asia and Europe. Sir Tom Clark, pioneer industrialist, died aged 88, with a legacy that lies in his enthusiastic championing of building New Zealand’s exports beyond primary produce.143 His legacy is the cornerstone of the New Lynn vision which “calls for a collective effort of all those who have a stake in its future to be creative and bold”144, to support the emergence of innovation and entrepreneurship.

Whilst almost two decades of industry have been lost, Crown Lynn bricks remains today a significant material feature of New Lynn’s built environment.

Zoning

The New Lynn Development Plan presents the Metro Centre as having five distinct character areas: Merchant Quarter, Crown Lynn, The Mall, Western Gateway and the Industrial zone. The Industrial zone is considered a transitional zone between urban and suburban and is excluded from future Metro developments. Crown Lynn, “once the location of the famous Crown Lynn Potteries, represents the largest single residential-led development opportunity in New Lynn.”145 The Western Gateway is identified as becoming the ‘front door’ to New Lynn’s town centre with intensely urban mixed uses. The vision set out by the Development Plan sees Merchant Quarter and The Mall precincts as being intensely mixed-use commercial, and mixed-use high density residential zones, with surrounding zones supporting mixed-use medium-high density residential. It is for these reasons that an investigation led to the possible siting of “Collision Course” within Merchant Quarter.

Merchant Quarter

Merchant Quarter “has always been the ‘heart’ of New Lynn and today presents one of the most significant mixed-use redevelopment opportunities in New Zealand.”146 It is the oldest part of New Lynn, with a long history of trade and retail, containing numerous built and natural heritage assets. As the location of the new transit hub, Merchant Quarter’s vision is to drive change by attracting new business and residents into a vibrantly walkable area with exceptional shared spaces and a range of new shops, bars, restaurants, cafés and places for work. Current development plans expect 4,000 new inhabitants within five minutes walk of the transit interchange and at least 2,000 new jobs.147 It is for these reasons that Merchant Quarter has been identified as a suitable site, and the first to support this supportive student hybrid housing typology.

Site specifics

The chosen site, between Totara Ave and the Clark Street Extension bridge is currently used as a carpark by employees and visitors of the surrounding retail and business industries. It is proposed that in future this site shall provide a new, mixed-use building, with occupied frontage to Clark Street Extension, and designed in a way that can be converted over time into other uses. The New Lynn Development Plan, proposes a minimum of four storeys with a minimum ground height of 4.5m to ensure future robustness for conversion to a usable space for possible community use.148

142 Wikipedia, s.v. “Crown Lynn.”
144 Waitakere Council, New Lynn Urban Plan, 4.
145 Ibid., 109.
146 Ibid., 97.
147 Ibid., 7.
148 Ibid., 105.
PROXIMITY // AMENITIES

Analysis shows that a wide variety of amenities supporting day to day life in an urban centre, are found within 10 minutes of the site’s central location. Proximity, and time taken to travel from “Collision Course” to each amenity, has been calculated by foot, and by bike in order to express the non-necessity of a private motor vehicle while living within the Metropolitan Centre of New Lynn.

Supermarkets - 5W / 2B
- located 5 minutes by foot, two large chain supermarkets; New World and Countdown are open 24/7.

Avondale Food Markets - 9B
- located 9 minutes by bike, the Avondale Sunday market is New Zealand’s biggest and oldest one day market.149 The multicultural market offers an alternative range of products and cheap food produce for New Lynn residence.

Entertainment - 2W / 1B
- located along Totara Ave, and around the centre of Merchant Quarter, are a selection of bars, cafés and restaurants. In addition, the completion of the Merchant Quarter Development Phase 1 will see a number of new food, retail and clothing stores scheduled to open in late 2014.

Community Centre - 1W / 1B
- designed by Architectus, the Community Centre is a venue for regular community events, gym classes, shows, meetings, and the weekly New Lynn night food markets. This is a place where the community comes together.

Outdoor Leisure - 9W / 3B
- Manawa Wetland Reserve is a park nearby that provides areas for relaxation or exercise.

Healthcare - 3W / 1B
- designed by Jasmax, Totara Health is a new practice established from the amalgamation of four local medical centres. Open 7 days per week, Totara Health offers an extensive range of services.

Transit Centre - 3W / 1B
- designed by Architectus, The Transit Centre is the pick-up and drop-off zone for all train and bus users, connecting residents and employees to all wider Auckland areas.

Fig. 77 SITE SECTIONS_NATURAL AND BUILT TOPOGRAPHY

Fig. 78 MERCHANT QUARTER_SITE AXONOMETRIC

Fig. 77 SITE SECTIONS_NATURAL AND BUILT TOPOGRAPHY
PHYSICAL, CLIMATIC AND BIOTIC SITE CHARACTERISTICS

Character Buildings
- **Ceramco House**
  
  Designed by Neville H Price in 1967\(^1\)\(^{150}\) Ceramco House, once the Head Quarters of Crown Lynn Potteries, showcases brick, and clay pipe building techniques. Situated on the chosen site’s North-West border, the octagonal heritage building is an important visual and historic characteristic in close proximity to the design of this project.

- **The Potters Post**
  
  Local brick makers built a new post office, the quaint Potters Post\(^2\)\(^{151}\) which sits at 43 Totara Ave, in 1913. It is currently occupied by BirthWest. This is another important historic building, particularly, as it is situated at one of the two access routes to the chosen site.

Access
- Currently used as a carpark and located at the rear of an existing row of buildings, there is no direct street frontage from Totara Ave.
- Two small one way streets used primarily by carpark users are identified as high priority access routes. A third possible entry point is located behind Ceramco House, currently used for customer parking.

Views
- At ground level, the building has limited views, being surrounded by the community centre, the row of retail stores along Totara Ave, the railway trench, and the over-bridge. Above ground level, due to current building density, views are unconstrained.
- North facing views look toward Auckland City and the Whau River inlet
- South facing views look across the train tracks, over the Manawa Wetland Reserve, Public Park and toward the Waitakere Ranges in the distance.

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Heavy Traffic Corridor
- High traffic volumes, associated noise and fumes received across the Clark Street extension, and dual train tracks entrenched underground may cause disruption to residences, and the workplace. The adjacent community centre suffers vibration disturbance due to their close proximity to the train tracks.

Geology and soil:
- The Manawa Wetland Reserve, located on the other side of the bridge, forms an extensive landform depression as the result of clay quarrying once carried out in the area. This depression creates a floodplain landscape, sustainably managing storm water flows in an inner urban situation. The floodplain has no direct affect on the chosen site. However it contains preserved fragments of ceramics from Crown Lynn incorporated into ground plane; an historically remnant feature.

Topography
- The site contours step 4m from the southern end of the site, up against the train tracks, down towards Ceramco House. These are terraced to retain the current use as a carpark.

South Westerly Winds
- The site is sheltered by the rise of the 4m maximum height of the Clark Street Bridge. However, above this height, a building’s South and Western facades become highly exposed to New Zealand’s strong South Westerly winds. This is amplified here due to the buildings on the South West quarter being primarily residential, reaching three storeys at maximum, and due to the low level terrain of the Manawa Wetland Reserve.
6. Design Development
PHASE 1

SOCIAL / SPATIAL RELATIONSHIPS

What spaces are required for student living; for quiet study areas; for collaborative creation? What are the needs for all building users; do functions overlap in some way?

Figure 57 outlines three main functional areas paramount to the “collision course” programme - to live, to learn and to work. The process and location of learning crosses the borders between both live and work functions. The last sketch, stretches live and learn spaces in parallel, suggesting an opportunity to blur separation between functions. Here, the living zone dissects vertically and suggests a potential connection through the shared use of an atrium where communal spaces may begin to collide.

PROGRAM MASSING

By firstly outlining the functional requirements for live, learn, work and management it is possible to determine approximate space massing. These can then be further analyzed in terms of the functional relationship between space, overlap, and cross contamination, as seen in Figure 58. At this point it becomes important to identify whether space flexibility might further support the mixture of functions, of private and public space, and of student and worker.

Functional overlap, that is areas that may be connected or combined in some way, prompted massing configurations. Figure 59, begins to show scale, and the functional relationship between spaces as well as combined functions, which become heavily reliant on a variety of connecting ancillary and supporting spaces. The level of ‘Activity’, as shown, indicates spaces that may experience a high level of foot traffic and potential overlap between users, suggesting intensified social interaction zones. For example, the E-vent Auditorium, and CaféBar may be operated separately at different times, or together during an event.

The mixtures of activities may very well collide, cause encounters or create conflict - social confrontation – however perhaps this is our intent?
### PROGRAMMING REQUIREMENTS

#### To live

<table>
<thead>
<tr>
<th>Activity</th>
<th>No.</th>
<th>Overlap</th>
<th>Flexible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Room incl WC</td>
<td>66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communal Lounge</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kitchen</td>
<td>4</td>
<td></td>
<td></td>
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<tr>
<td>Informal Study</td>
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<tr>
<td>Lobby</td>
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</tr>
<tr>
<td>Reception</td>
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</tr>
<tr>
<td>Courtyard / Roof Gardens</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fitness Centre</td>
<td>1</td>
<td>f</td>
<td></td>
</tr>
<tr>
<td>Showers/Lockers</td>
<td>1 (12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Espresso Stop</td>
<td>1</td>
<td>f</td>
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#### To learn

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Think Tanks</td>
<td>8</td>
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<td></td>
</tr>
<tr>
<td>Chatting Chambers</td>
<td>4</td>
<td>f</td>
<td></td>
</tr>
<tr>
<td>SoundLab</td>
<td>1</td>
<td>f</td>
<td></td>
</tr>
<tr>
<td>E-vent/Gallery</td>
<td>1</td>
<td>f</td>
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<tr>
<td>Cafe/Bar</td>
<td>1</td>
<td>f</td>
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<td>Bathrooms</td>
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</tr>
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<td>Silent Studies</td>
<td>1 (12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library/Resource Realm</td>
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#### To work

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<tbody>
<tr>
<td>Workplaces</td>
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<td>f</td>
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</tr>
<tr>
<td>CO-work/CO- Lab</td>
<td>4</td>
<td>f</td>
<td></td>
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<tr>
<td>Breakout Space</td>
<td>3</td>
<td>f</td>
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<tr>
<td>Workers Bathrooms</td>
<td>3</td>
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<tr>
<td>Workers Kitchens</td>
<td>3</td>
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<td>Workers Lockers</td>
<td>3</td>
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</tr>
<tr>
<td>Program Manager’s Office</td>
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<td>Facilities Manager</td>
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#### To manage

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<td>Storage Rooms</td>
<td>1</td>
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<td>Laundry Room</td>
<td>1 (8)</td>
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</tr>
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<td>Cleaners Closet</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>Comm/Equipment Room</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste Management</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Organic/Recycling/Inorganics</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>Bike parks</td>
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<tr>
<td>Car park/car share</td>
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</table>
In Figure 61 space organization, begins to take place, indicating three important zones that became apparent during the space requirement and massing process: 'the residential group', 'the workplace', and 'the E-vent zone' which is a place for shared social use. Zones are explored and defined in greater detail throughout the development process.
ACTIVITY PROGRAMMING

In order to understand the spatial and social overlap that might occur within and between each zone the following investigations explore the spectrums of ‘activity’ and the finer social and physical implications.

Using the activity, modes and needs analysis outlined in Tomorrow’s Office, a selection of activities of which might occur throughout Collision Course were analyzed and refined. Types of activities: solo, collective, group, congenial and social, are used to further understand the social and spatial planning relationships. These will be used to develop mixed zones that consider various encounters by appropriating levels of proximity, interaction and distraction between spaces and their users’ needs.

Types of Activities (adapted to suit collision course programming):

Solo Activities
- usually alone, but may include moments of shared activity: writing, computing, reading, thinking, reflecting, researching.

Collective Activities
- typically solo activities that do not require solitude and can take place in a collective (open) environment, providing moments of shared activity that allow individual feedback and interaction when required: researching, innovation.

Group Activities
- several users participate, interact and share a common purpose: mentoring, meeting, team working, brainstorming, informing, briefing.

Congenial Activities
- activities with a distinct social element where socializing is possible while carrying out a task: circulating, getting supplies, printing/copying, coffee-making and preparing lunch.

Social Activities
- casual or formal; social activities keep users happy, while encouraging the invaluable exchange of ideas: entertainment, eating, chatting, exercising.

Raymond and Cunliffe, Tomorrow’s Office, 34 – 41.
DESIGN PHASE 1

BUILDING FORM

The initial design phase progressed formally, beginning with two traditionally separate typologies, namely student housing and workplace. Influenced by Tschumi’s idea of ‘dis-programming’, these two starkly different forms collided, making the spatial configuration of the student apartments infiltrate those of the workplace causing a fusion – or ‘con’fusion of space programming. The hallway circulation paths along the southern façade of the residence, act as a buffer to diffuse traffic noise. The roof’s downward slope creates an opening within the central void space bringing light and revealing the activity within the workplace.

‘THE EVENT’

The collision point of these two forms creates what might be considered the ‘common zone’, where all building users are able to congregate. The ‘common zone’, spread between the level above and below the green roof, is designed to facilitate social functions, with activities that would appeal to all building users, in work, in study and in residence. This encourages the overlap of space use throughout the course of everyday life.

The ‘common zone’, would become the ‘backyard’ to the residence and the ‘breakout’ for the workplace, collectively, a zone to meet and interact.

In this initial concept, the ‘common’ zone is represented as the single most important point of cross contact between users.
GREEN CONCEPT

The initial concept investigated the use of a green roof for rainwater harvesting and irrigation and how this might affect the design for workplace flexibility. Among those things contemplated were the structural implications including roof weight and roof spans, where water was to drain and collect along the inner edge, and finally the concept of an internal courtyard space as an oasis and visual break between workplaces.

The sloping angle of the green roof acts as a barrier, (a BERM) to the noise of the over bridge. At the lower point, the green is sheltered, by the sloping angle of the workspace component. Perhaps as a precaution, additional barriers should be considered around the green roof to stop users falling as well as to shield noise, smell and pollution. To treat the student residence component above the green roof, the façade, positioning of fire stairs, materials, and circulation areas (the hallway) can act as buffers against over bridge noise, smell and pollution by separating spaces.

ACCESS

Challenging the traditional thinking that “a route is not a place, and a place is not a route”, phase one investigates horizontal workplace access routes and how they may be designed to influence the user’s movement, their speed and the number of encounters that might occur between them.

The site’s existing walkways have two distinct access points. It is from the first that a sloping ramp is designed to extend from the community centre, loop around the central courtyard and return to the second access point behind the Totara Ave shops.

Due to the lack of street frontage located behind Totara Ave, the ramp itself has been developed into a type of streetscape. Wide enough for foot and bike traffic, ramps are zoned frontages (much like shop frontages), accompanied by platforms waiting areas, to slow the pace of building users and public alike, inviting them to linger, watching the commotion inside the workplace or perhaps encountering someone new whilst on their way.

**ZONES**

This model investigates the idea of zoning, by creating five, evenly spaced entry points with landings along the ramp walkway. These landings, wide enough to allow small congregations whilst allowing others to pass by, lead directly into the workplace. The intention here is to increase the level of collisions by providing additional entry points.

The open plan workspace is intended to facilitate flexibility, encouraging the user to flow between spaces and allowing them to choose where they would like to work that day. This did, however, raise questions of orientation which were explored later on in the project development.

Figure 71 was used to analyze the possible connections between users. Physical contact, eye contact and the acoustical transfer of conversations were all considered. Figure 70 on the other hand, shows there is little cross over occurring between the two social groups.
VERTICAL CIRCULATION – ‘ANCHOR POINT’

The anchor point is a glazed stairwell that dissect and connects each floor level. Its vertical corridor is an open space that connects and increases communication between all floor levels of the complex. Each stair landing is a space that becomes a platform for a casual meeting or a comfortable spot for rest, inviting users to slow down their pace.

To design these landings in this way, stairwell width is considered and how the congestion and expansion might affect the speed of users.

Fig. 97 Diagrammatic analysis showing the movement paths of the users and the potential zones of interference

Fig. 98 Diagrammatic analysis testing for physical, visual and acoustical points of collision in model phase 1

Fig. 99 Anchor Point - Horizontal and vertical collision point
DISTRIBUTING SOCIAL SPACES

As the core point of the residence hall, the anchor point space is the centre of all student facilities including kitchen, lounge and casual study areas. These spaces are arranged in such a way that students from both sides of the hall will congregate and interact within this ‘common zone’.

The form of the shared zone introduces angles and projections, exploring the idea of intensifying proximity and the notion of connectedness. By projecting the communal spaces towards one another, as opposed to facing away from the building, students are visually connected to other spaces and are inclined to cross over and to investigate.

To encourage a greater mixture of students not only within one floor but across multiple, one side of the residence hall is lowered by half a level, reducing the height and the physical proximity of each staircase between social spaces. In doing so, offset vision lines allow students to spot other users on the floor above or below, encouraging the potential overlap of space use and a general feeling of community.
REFLECTION

Whilst envisaged as a point where both students and workers could collide before dispersing into either the workplace, residential or common zones, analysis showed that by focusing the ‘common’ zones around the anchor point, the range and displacement of users dispersing throughout the remaining workplace spaces is weakened. In particular, this was an issue around the ‘dead ends’ of the workplace block and on the outer perimeters, meaning the opportunity for mixed encounters is reduced.

The linear form of the student residence block is designed to give students unrestricted views facing north. However, the consequence of this is that the rooms themselves have little physical and social connection with each other, therefore decreasing the feeling of a sense of community.

The south façade’s ability to be an access point was not considered due to the already busy traffic of the Clark Street Bridge, but instead as a façade to act as an alternative form of street frontage, providing an opportunity for visual advertisement, i.e. a billboard. However, could this be better used to display the activities and encounters occurring between users within? Here it will be important to keep in mind the privacy of the student living areas.

Another point of access that was not considered is the green roof. If this were lowered on an angle to create a direct connection with the ground, we create a direct link for the public, primarily the community centre nearby, to gain equal access to the shared ‘common’ zones. However, at this point in the development, it was unclear whether accessibility referred to the building users or to the public. The assumption was made that building access is primarily for the use of those outlined in the programming analysis, students, industry professionals and visiting tertiary educators.

The primary access ramp, the anchor point and the vertical arrangements of the student shared spaces have been identified as elements that will be developed further during the design process.
PHASE 2

BUILDING FORM

Fig. 102  Phase Two: Sketches expressing the continued development of the student residential component.
Evolving past the monolithic aesthetics of the initial concept described in phase 1, various village renditions were tested that had multiple penetration points with the aim of evenly distributing students into the workplace spaces below each living unit. By creating multiple penetration points and, consequently, a number of possible social collision points, cross contamination was assumed to be strengthened. However, it became clear that the village concept lacked connectivity and, therefore, the ‘sense of community’ between the residential units themselves was harmed. In fact, the concept had triggered a cluster of ‘suites’, described earlier in this paper as a typology that restricts social interaction between users and increases levels of solitude.

As a result of the renditions of both the monolithic and village type design forms, two key points were discovered that required further consideration; firstly, the importance of distributing and creating multiple points of penetration between programs, and secondly, maintaining the social connectedness between the living quarters themselves.
Fig. 106  Phase Two: Sketches expressing the continued development of the student residential component.
THE CORRIDOR

Referring to Delvin’s research that combines the traditional corridor with communal spaces to improve the total social experience, this design phase reconsidered the level of connectivity within the student residences themselves and developed the residence into two living units which bend and ‘hug’ at either end, forming a central void space. To encourage a ‘sense of community’, widened hallways were devised to follow along the inner edge of the courtyard façade. Here, students will cross paths, whilst being visible to others that may be on the other wing, across the courtyard, while walking to and from apartments and shared zones. The two hallways are connected at either end with shared social spaces that bridge over to the adjacent living unit. The connection between these collective zones completes the loop of the living units, connecting circulation paths and allowing students to walk the entire perimeter of each floor and each level (due to split levels). Students would be encouraged to cross over between units, to share and to choose their level of social dispersal. For example, a student may choose to use the kitchen on levels 3, or 4, or they may choose the lounge on levels 1, or 5.

By arranging all communal spaces around each anchor point of the living units, hallways on either wing connect level to level, meaning there are no dead ends. For example, a student living on the top floor can circulate down to the ground floor without requiring the use of the fire stair or the elevator. In this way, what formally might appear as two residential wings, are in fact entirely whole. Communal spaces are designed to cover the depth of the floor plate so that one side faces the central void, whilst the other gains external views. With the new form of the student residence, it was decided that two kitchens at either end of the wings would be excessive for the proposed number of users. Providing only one kitchen per floor, the level of concentration in shared spaces would increase and thus increase the level of social activity.

In addition, by providing two anchor points the distribution of users within the workplace and within the living zones is shared equally between wings. Particularly in the living zones, the anchor points, heavily lined with shared spaces, face in toward the courtyard, visually connecting users and increasing the sense of community.

Fig. 107 Locating shared use spaces on either side of each anchor point
EXPRESSING COLLISION WITH FORM

The goal of this model was to visually strengthen the idea of two typologies colliding. To do this, the student residences were raised by one level, allowing the event zone, also referred to as the ‘common spaces’, to rise above the workplace module and out into natural light. Emphasizing this zone with set backs and the extension of the green roof, a sheltered and intimate community zone is created for all users. In addition, two levels are added to the western wing of the student residence to accentuate the ‘drop’ of the residence form into the lower spaces. This formal concept is an expression of the spatial relationships between each building typology.

REFLECTION

It was not until the struggle of the model’s second phase that it was realized that the concept of student residences dissecting through workspace was not working. Spatially, students were extremely segregated living in residences above, whilst work and learn spaces were equally as segregated below.

Multiple new concerns came into being. For example, if a student living on the first floor were to require the use of the study space on ground or first floors, they may find that the functional distance was too small, resulting in the student choosing to study in their room for convenience. The current program, therefore, increases possible seclusion and lack of wider social connection with other students and the working community.

In the workplace, segregation is particularly evident within the end spaces of the wrapping U form, which were extended out in an attempt to connect to the external community, the site with a green roof and to the sloping ramp. However, the workspaces not being directly below living areas, weakens the overall concept – the concept of collision. The main intersection points are located closest to the anchor points and the workplace should be concentrated here.
**PROGRAMMING REVUE**

The programming model outlined in phase one of this section has been found continually troublesome, separating live and work rather than creating a relationship between them as asked by the research question. This prompted the redesign and move to a new model. As can be seen in Figure 110, the revision is a study of each building user and spaces particular to each user group compared to those common between all users.

From here, the spatial physical development continues with this new model.

**SPACE REQUIREMENTS**

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<td>Waste Management</td>
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<td>Facility Manager Office</td>
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<tr>
<td>Car Share</td>
<td>Car Share</td>
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</tbody>
</table>

Fig. 110  Space Requirements - a brief analysis of and reprogramming of private and shared spaces
The restructuring of the program in the previous section outlined two additional discoveries. First, that the phase two building form provided too little space for the number of shared facilities desired. Second, that although many shared spaces are equally as important for the industry professional as for the student, the current building form separates these users, increasing the distance that students must travel to reach each shared zone, and, therefore, escalating inconvenience.

This model aims to reconstruct the physical distribution of programming so that all users have equal access and proximity to workplace and social zones. It also explores how these developments might increase physical contact between students, industry and educators.

**MERGING USE**

The need for more shared space resulted in the design of two things; the decision that all live, learn and work spaces should be scattered among all levels, and the provision of an additional ‘common zone’ elevated within the central levels of the building. By layering space types, functional distance is reduced and the likelihood that a variety of users will cross paths is increased. This also improves the amount of visual connections between differently used areas.

In Figure 113, diagrams based on workstation standards (of 5.6-10.2m²) are used to calculate and design the most suitable mixture of live, learn and work spaces. For the purpose of this analysis, 7m² was used as the preferred size. This was based on the idea that for ‘hot desking’, providing fewer desks encourages a more dynamic space use, where users move around more, using a variety of either solitary, group, casual meeting or formal meeting spaces.

At this stage, combining student live and workspace raised questions of security. It was decided that for access afterhours security could be maintained by grouping living and working on either wing of each floor so that offices could be secured after hours, whilst retaining student access to the kitchen and living spaces.
PROGRAMME STUDY - LIVE VS WORK

Tower A  
GFA = 535  
UFA = 323  
UFA - Circ = 226  
Shared Space = 172

Tower B  
GFA = 630  
UFA = 435  
UFA - Circ = 305  
Shared Space = 155

Diagram A was chosen as the model to continue throughout the following sections. It is based on security, reduced energy use, ease of construction, ease of services, overall cohesion and orientation.

Here, it is assumed that learn and workspaces are combined. This will be further defined in the later stages of the interior design concept.

Fig. 113  Workplace and Student Apartment relationships
By using the spatial layout of Diagram A, both living and workplace are on one level. This means that what were solely student lounge, kitchen and study areas in earlier phases are now spaces connected and shared with the office levels. Users may float between either side of the shared living areas with subtle stair rises and glazing that openly separate each wing. Here, no security doors or swipe cards would be required for entry.

The idea of ‘Neighbourhoods’ as a type of spatial planning method is used here specifically to locate and quantify facilities required for each zone. In Figure 114, we begin to see that not all functions need to be on each floor. In fact, limiting functions to one per two floors is encouraged as this becomes a way of creating movement and thoroughfare between neighbourhood levels. In a neighbourhood that consists of two levels, by arranging specific shared use facilities, such as the kitchen in the workplace, and the lounge in the residence, users are further inclined to overlap to the other side.
**COMMON ZONES**

This diagram shows the primary social spaces, now distributed throughout three ‘common zones’. These will support the higher levels, so that proximity is once again reduced.

As can be seen in Figure 118, Heavy workshop spaces are located on the lower levels, whilst resource and learning zones are arranged in the middle. The roof level is somewhat smaller in size and will provide fitness and yoga spaces, as well as an entire roof plan with solar panels.

The Primary Shared Spaces will be described further on in the development section.
EXPOSURE

Can the outer façades express the commotion that takes place within the combined live and workplace, so as to expose that internal activity to those passing by? What are the aims of the building and how can this be articulated to all users and external viewers?

Here, we investigate the principles laid out by Diller Scofidio + Renfro. These principles place circulation on the front of the main outer façade so that everyone outside may see. For the purpose of this research we have trialled having the main circulation paths run inside, around the courtyard façade, as well as outside the main façade, as inspired by Diller Scofidio + Renfro.

Figure 119 shows a rough blueprint of how the building façade might be detailed. By wrapping the social spaces in box-like forms, zones are visually accentuated. A similar treatment was also tested in the workspace areas, where the both the façade and a setback void would be designed to show motion and commotion to those passing by. However, it was found that, with the current floor plate depth, adding voids to the external façade of the workplace would only reduce much needed internal space. In addition, double height voids that face the outer façade towards the motorway did little to create connection between the actual building users themselves. For now, this idea was disregarded.
Fig. 120  Facade Design - Vertical Louvers tested on the shared use space.

Fig. 121  Facade Design - Green facade to accentuate shared use zones.
**INTERIOR BOXES**

Can we perhaps use a similar design method to accentuate movement and speed across the circulation spaces that surround the internal atrium? Can this movement be slowed down? How can users be encouraged to meander through corridors in order to heighten casual encounters with other users?

Figure ( ) sketches show that the building form creates strong internal viewpoints that cross over between both living and workplace components. Further intensifying these views by projecting small boxes and, therefore, bring the box users in closer proximity to those on the opposite side was investigated. The boxes are located against the façade with the inner circulation path running parallel. The boxes could be configured not only for seating or standing, but also for a variety of activity based working. These may be for casual encounters, informal meetings, as breakout spaces or simply to make a phone call. This new design element was tested on both workplace and living quarters, increasing their proximity more than ever before.
Fig. 124  Central void space - image to express the possible visual connections
ACCESS AND COURTYARD

As a result of the now compact and mixed use building form, some of the ‘office block’ spaces on the lower levels had to be removed. This resulted in the removal of the five entrances, as access is now centralized at the two anchor points. The ramp itself remain as an access way for all who utilize the workshop, conference, café and administrative workplaces on the ground levels. However, the provision of a courtyard would require further modification to the ramp’s design and purpose.

Reflecting on all previous student housing, collective and cohousing research, a distinct element portrayed by all projects was the concentric formations that centralize in a middle zone. The Hakka had the livestock, the Tietgen a courtyard and the CoHousing the ‘common house’. These spaces were designed to encourage the gathering of all of the community at one central point.

Whilst this phase model already provides common zones on various levels, consideration of this repeated centralized zone based on research examples led to the development of a courtyard space, located above the end loop of the ramp. Here, we extend the green roof space to fill the void, creating an elevated and internal courtyard space to be used as a central meeting point and an activated green zone. Provisional seating for spontaneous meetings and outdoor lectures will be provided as the space is reasonably shaded and both extremely intimate whilst also being physically and visually open to those who would like to join in or watch.

A number of plant species for landscaping the courtyard were considered that would cooperate with the research question. One such plant is the bamboo, as it is a species that grows tall but thin, allowing users to peer through at the happenings occurring within the courtyard.
Fig. 127 Developing floor plan layouts
DEFINING THE FLOOR PLAN

At this point in the design development the floor plan consists of two parts, including the living and the workplace wings. Both of these sections are connected and overlapped by shared use kitchens, lounges, meetings and games rooms.

Whilst the floor plan of the student residence may be more standard, the possible flexibility of the workplace floor plan must be considered. What is it that distinguishes office space from living space? Where apartment rooms will have walls, will workspaces have walls? Perhaps on work levels, walls will imitate the sliding Japanese fusuma - movable and flexible to allow for the adaption of space and user requirements. On the other hand, for spaces requiring higher levels of privacy enclosed space will need to be considered, but perhaps with glazing to retain views and a sense of connection.

Initial floor planning considered three components; the hierarchy of circulation spaces, the privacy gradient with its low, medium and high focus areas, and the mixture of work and learn areas.

RESOURCE AND CONCENTRATED LEARNING CENTRE

The resource realm is to be designed as a three level ‘breakthrough’ space that uses the levels above and below the green roof. The intention of this design is to bring study space to a new level, as the third level will literally be floating above the green roof. This will provide quiet reading space, surrounded by plants and timber shutters. Although a silent haven, the use of the glazed box will retain the visual connectivity between the reading space and its surrounding environment, including any other building users that may be using the green roof at that time. Within the remaining space of the levels above and below, the ‘breakthrough’ concept will continue to be developed as extended areas for active group learning and innovation. This will become more evident in the detailing of the floor plans, and the internal fit out as this can be heavily based on furniture design. As a comparison, concentrated work zones might use more workstations, whereas active learning zones may require more flexible group work furnishings.
WORKSHOP AND CONFERENCE

Continuing the idea of the ‘box’, Figure 132 shows the arrangement of two important zones: the workshop as a place of heavy machinery, larger desks and noise, and the conference room as a place to listen, to entertain and to learn. Each of these zones will hold a large number of students, industry professionals, tertiary educators and other ‘Collision Course’ guests. A small bar will be provided in the conference zone to ensure the space can be used for a range of activities. The wooden panel detailing peels back to reveal the workshop below, and again, peels back above to reveal the café or bar space.
DEVELOPED DESIGN

3D MODEL DEVELOPMENT STUDY
An overview of the key phases within the design development process

1. Two main access routes
   Ramped pathways follow contours of site lead to core of the building
   Building form bends facing away from the noise and pollution of the over-bridge

2. Vertical Anchor Point
   Split levels increasing visual connections
   Staggered shared kitchen, lounge and study encouraging user overlap

3. ‘Hugging’ student residence forms
   Two anchor points
   Sloped green roof as additional access route, and improved connection to the neighbouring community centre.
   Staggered roof heights to accentuate concept that two forms collide
   Increased light into central void spaces.
4. Ground floor workspace relocated into the student residence form
   As a result entire form lowered into site
   Addition of the central - 'common zone' to hold learning / resource centre, sky-cafe

5. Additional levels and the forming of three 'neighbourhoods' above and below the central 'common zone'.
   Roof space as yoga deck, rainwater harvesting and solar panels

6. Facade design, identifying and revealing shared space
   Internal courtyard, projecting frames as view point, solitary retreat or casual meeting space. Reducing proximity and visual connectivity between wings.
   Internal courtyard design as informal classroom and meeting zone.
**GROUND FLOOR**

**Workshop**

The workshop is designed as a space for all building users to collaborate, test and build product designs. Located on the ground floor for ease of deliveries and for construction requirements, this flexible space will contain large workshop benches and various tools.

**Conference – Level 1**

The conference space is a flexible double height area where building users may hold events, attend lectures, arrange product launches or rent out rooms to the surrounding community. A small café/bar is provided to support the variation of use.

**Administration Workspace**

This is a zone where visitors, students, current workplace users and interested workplace users may enquire to use a ‘hotdesk’ workspace for the day. Common users may for example include a student housing program administrator, program leader, workplace co-ordinator or building managers. Outside of the administration zone, visitors may sign in online, locate a specific desk or notify a person of their arrival. Waiting areas located between the administration and reception areas will reflect a type of marketplace, facilitating movement and conversation. Building users may decide to exhibit some of their work here too.

**Carparking**

Designed specifically to reduce car use, this ‘semi’ underground car park dedicates a majority of its space for bikes, scooters/motorbikes, car sharing and visitors’ parks. The decision to limit spaces was due to the site location and its existing extensive public transport system.
Fig. 136  Eighth Floor - Concentrated Learning Zone

Concentrated Learning
Meeting Room / Amenities
Shared Social Space
Resource Realm / Cafe
Balcony

Fig. 137  Student Residence and Workplace - Type A
Six Apartments

Open Workplace
Group Work
Meeting Rooms
Shared Social Space
Student Apartments
Balcony
FIRST FLOOR - GREEN ROOF

Conference – Level 2

Also accessible from the green roof, the second floor of the conference space includes a café/bar that acts as a spill out space for patrons, residents and building users to converse between, before and after events.

Courtyard

The central landscaped courtyard sinks half a level below the ground floors roof height, allowing light to flood through into the spaces below. This also means that users can peer up to the courtyard space where informal lectures, outdoor movies and other events might take place.

SEVENTH FLOOR - COMMUNAL ZONE 2

The second communal zone is a place for users to break out, enjoy lunch with a view and to get some fresh air during work hours. Here, within the landscaped roof space, residence and workplace users may like to plant vegetables and herbs in a communal vegetable garden.

Café

As an alternative to the shared space kitchens, on the eastern façade you can find a glazed café, perfectly positioned for stunning morning views during one’s morning coffee. Throughout the day, patrons may pick up small bites to eat, while in the evening the café will close unless hired for an event. Building users may decide to sit here in the sun whilst facilitating team meetings.

Resource Centre

The resource centre is a three leveled library with a middle floor that elevates above the roof spaces to allow light to flood below. However, this level does not open up onto the roof space, but rather encourages a quiet reading zone with its glazed box of timber louvers and wandering vines. Whilst green roof users may be able to peer inside, there is no noise transfer and library users may enjoy a view while they read.
Fig. 138  Student Residence and Workplace - Type B
Eight Apartments

Fig. 139  Workplace - Top Floor / Fitness Room and Yoga Sun Deck

- Open Workplace
- Group Work
- Meeting Rooms
- Shared Social Space
- Student Apartments
- Balcony

- Fitness / Yoga Deck
- Green Roof

Roof space with Solar Panels
EIGHTH FLOOR – CONCENTRATED LEARNING ZONE

The top level of the resource center spills out into a concentrated learning space. Due to the fact that Environmental Engineers use many journals, maps and databases, plus require large amounts of storage for large format drawings. It is because of this that the book collection has been made relatively small, while more space is provided for journals. A study room which can accommodate 8-10 people, equipped with smart board and large screen TV is situated nearby. The concentrated learning zones differ from the workplace because here quiet and concentrated study (or work) is favoured. However, closed study rooms may double as meeting/training rooms when required.

STUDENT RESIDENCE AND WORKPLACE

Type A – 6 Apartments - Sleeps 7 - additional space used as meeting/training/games room plus a balcony
Type B – 8 Apartments - Sleeps 9 - two additional apartments

Shared Zones

Shared zones are located at either end of each wing, occupy two levels and share a kitchen, lounge, games room and additional study room. This shared use was designed specifically to encourage the mixture of users across levels.

Student Apartments

Lined along the east façade, student apartments are heated and greeted with the morning’s sun and are accompanied by individual bathrooms to preserve privacy. Rooms are single, with one double on each floor.

Workplace

The workplace zone has a variety of collaborative and individual work spaces. For the most part, offices are open plan and lined against the façade up to the circulation paths. Towards the corners of the building, group work and private meeting rooms are provided so that all user requirements may be met. As you will see in the plans, in some levels an additional meeting room runs over into the residential side and can be used during the day by all users, whilst used only by students at night.

The detailed concept for workplace planning will be demonstrated in the final presentation of this research paper.

WORKPLACE – TOP FLOOR

The top floor consists of one workplace wing, a green roof for rainwater harvesting, solar panels and a fitness and yoga deck. These workplaces may be used for exclusive meetings and events, taking advantage of the green roof views. The green roof also poses the opportunity for a barbecue along with outdoor seating that may be used by all building users.
Final Presentation Drawings
CONCEPT DESIGN

1. takes the concentric form with its continual circulation inward, solitary spaces outward.
2. adapts this to the site for views, sun orientation and noise protection.
3. arranges programming with living on right and learning/workplace on the left for security and privacy.
4. and inserts circulation towers with landings as shared living zones on each floor.
5. take not one but two floors to create a neighbourhood.
6. extends the scale and multiplies the neighbourhoods to create a dense community.
7. insert not one but two green roofs to provide shared breakout space and to distribute form.
8. dissects continuous circulation towers to provide access to all spaces, and a strengthened sense of community.
9. finally, offset floor levels to increase visual and physical connectivity between zones.

In this way, users are encouraged to traverse between each side of the building.
Fig. 141  Final Site Plan

Figures:
- Optimal Solar Orientation
- Cambridge Clothing Factory - subject to future development
- Great North Road - high traffic volumes
- Clark Street Extension - high traffic volumes
- Whau River
- Green Corridors
- Site Access Routes
- Western Line Train Link
- Heavy Traffic Routes

Areas:
- Community Centre
- Green Corridor
- Green Corridor
- Medical Centre
- Transit Interchange
- 4 Levels
- 10 Levels Residential Apartments
- 4 Levels
- Residential Apartments
- 4 Levels
- Medical Centre
- Les Mills
- Retail Units
- Optimal Solar Orientation
- Whau River
- Ambrico Place and Kiln
- Terraced Housing
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Fig. 146  South Facade facing the over-bridge

Fig. 147  Facade Section
**GREY WATER RECYCLING**

Rather than allowing run off, rainwater harvesting is used to accumulate and deposite rainwater for on-site reuse. Water collected from the roof areas are stored in a pond until required. Harvested water is pumped through a filtration system so that it may be used as grey water in toilets, and as water for facade and greenroof irrigation.

The various plant species chosen according to their low maintenance, oxygen producing and filtering qualities, recreate a micro-ecosystem of which remediates the sites prior use as a sparse carpark.

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**SOLAR POWER ENERGY**

Photovoltaic modules are fixed to the roof of the office block and orientated accordingly in order to generate and supply electricity to both the residential and office components within the Collision Course building. PV Electricity generated will be used during the daytime, and electricity sourced from the local power grid supply will be used as a buffer during cloudy periods, and during the night. As the building is used primarily as work space during the day, we may assume that electricity requirements during the night is very little.

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Fig. 149  Grey Water Recycling Diagram

Fig. 150  Solar Power Energy Diagram
PASSIVE VENTILATION

Two communication towers use the passive ventilation technique known as stack ventilation to cool and ventilate internal spaces. Due to the tower heights and open stairwell design, hot air will rise because it is lower in pressure. When this occurs, air pressure differences pull air through the building sucking in fresh air from the outside.

In addition, where planting can be seen concentrated on each green roof, aswell as among the facade detailing, both shading, and air filtering processes are used to supplement the cooling effect of the building structure, and the indoor environment.

GROUND SOURCE HEAT PUMP

The ground source heat pump is an underground heat exchanger that captures heat from and/or dissipates heat to the ground. By extracting external air and channelling it through A series of loop fields close to the earths surface, air can either be warmed or cooled before being distributed throughout the building. As this process may be reversed in both winter and summer, the comfort of all buildings users may be ensured.
Fig. 155  Final Ground Floor Plan

GFA - 1946.4m²
NFA - 1930.4m²
NLA (OFFICE) - 723.4m²

1: RECEPTION  464m²
2: WAITING AREAS  7
3: ADMINISTRATION  8
4: PUBLIC WORKSPACE  37.7m²
5: WORKSHOPS  23.9m²
6: WC / CHANGING ROOMS  197.8m²
7: WASTE MANAGEMENT  36.3m²
8: CARSHARING  20.1m²
9: BIKEPARKS  945.7m²
10: SCOOTER / MOTORBIKE
11: LANDSCAPED ENTRY
Fig. 158  Final First Floor Plan

- GFA - 443.8m²
- NFA - 320.7m²
- NLA (OFFICE) - 222.1m²

4 PUBLIC WORKSPACE - 61.6m²
6 WC / CHANGING ROOMS - 36.3m²
12 GALLERY / EXHIBITION - 83.2m²
13 CAFE / BAR - 77.3m²
GREEN ROOF AND COURTYARD

GFA - 1973.0 m²
NFA - 1949.7 m²

Fig. 159 Final Green Roof and Courtyard Floor Plan
**STUDENT RESIDENCE AND WORKPLACE (TYPE A)**

- **GFA**: 1275.5 m²
- **NFA**: 1204.7 m²
- **NLA (OFFICE)**: 505.7 m²
- **NLA (RESIDENTIAL)**: 547.2 m²

**Fig. 163** Final Student Residence and Workplace (Type A) Floor Plan

- **1** KITCHEN: 39.3 m²
- **2** WC: 23.2 m²
- **3** QUIET CUBBIES: 14.1 m²
- **4** CONCENTRATION SPACE: 338.2 m²
- **5** GENERAL WORKSPACE
- **6** COLLABORATIVE WORKSPACE
- **7** PRINTING
- **8** TRAINING / MEETING ROOMS: 60.1 m²
- **9** CLEANERS CUPBOARD: 4.3 m²
- **10** STUDENT APARTMENTS: 220.3 m²
- **11** GAMES ROOM: 29.6 m²
- **12** CASUAL SEATING / VIEW POINTS
- **13** LAUNDRY / WASTE DISPOSAL: 6.1 m²
- **14** OVERNIGHT SECURITY LOCK
STUDENT RESIDENCE AND WORKPLACE (TYPE B)

- GFA - 1255.5 m²
- NFA - 1184.7 m²
- NLA (OFFICE) - 438.8 m²
- NLA (RESIDENTIAL) - 512.2 m²

Fig. 170  Final Student Residence and Workplace (Type B)
COMMUNAL GREEN ROOF AND RESOURCE REALM

- GFA - 1288.1 m²
- NFA - 1258.1 m²
- NLA (OFFICE) - 175.3 m²

Fig. 171  Final Communal Green Roof and Resource Realm
WORKPLACE AND FITNESS

- GFA - 1075.2 m²
- NFA - 1045.2 m²
- NLA (OFFICE) - 489.0 m²

Fig. 174  Final Workplace and Fitness Floor Plan

- QUIET CUBBIES: 4.7 m²
- COLLABORATIVE WORKSPACE: 343.6 m²
- TRAINING / MEETING ROOMS: 60.1 m²
- CLEANERS CUPBOARD: 4.3 m²
- CASUAL SEATING / VIEW POINTS: ~
- OVERNIGHT SECURITY LOCK: ~
- GREENROOF / YOGA DECK: 384.5 m²
- OUTDOOR SEATING / BBQ AREAS: ~
- FITNESS ROOM: 80.6 m²
Fig. 175  Final Roofplan
CONCLUSION

Located in the heart of New Lynn’s Merchant Quarter, ‘Collision Course’ is an integrated community that brings academia and industry together to share infrastructure, flexible facilities and expertise. The final design gives a glimpse into the future, where learning leaks out of the tertiary institute and is used as a common attribute to design and hybridize student residence and the workplace.

Collision Course’s design draws upon spatial connectivity and an overall sense of community. These two key components were used to increase the level of interaction and moments of knowledge exchange outside the formal classroom. To bring students and their related, practicing industry together within one building, the design utilizes user overlap, combined circulation paths, shared common social facilities, and larger common zones for all user groups to congregate outside of formal learning and working environments. The larger common zones, specifically the courtyard and green roofs, were designed as breakout spaces where social activities invite encounters between students and industry professionals. The two social groups are encouraged to participate in events, increasing the opportunity to build relationships with other industry contacts. Activating and connecting these green outdoor spaces as a way of reducing user confinement became an important part of the later design development, resulting in the programming of both internal and external meeting zones.

During the ‘Collision Course’ development the types of students and businesses tenanting the building have been evaluated and the specific design factors required to enable facilities to be shared and equally beneficial to all users have been identified. Whilst this research paper focuses particularly on engineering students and professionals, it could also be applied to other subject areas such as Business Studies or Computing which could be located in Auckland Central, within the Central Business District, where existing infrastructure further supports the very purpose of the building as a point of cross-site collaboration.

‘Collision Course’ is a hybrid, designed to increase the total level of interaction and collaboration between student and industry. By breaching the confines of the tertiary institute, creation and exchange of knowledge begins to infiltrate every moment of everyday life. Connections are made, and young New Zealanders will be ready to cross over into a new world of employment and experiential opportunities.


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