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Pedogogical future of architecture

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PEDOGOGICAL FUTURE OF ARCHITECTURE

by

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Abstract

Architecture is a constant journey across the boundaries of binary realms: of science and art; visible and invisible; inside and outside. Architectural education is simply the practice of soaking into these worlds, moving in between, and creating new ones. The role of academy is to not only raise the consciousness of these thresholds, but to become the conductor for those cross-boundary movements.

In this project, the possibility of weaving the heart of the pedagogy, the individuals, to the architectural milieu is examined. The institute is defined as a processor which embraces the spontaneous linearity of individual's growth. It becomes the "Bazaar", in which the possibility of knowledge transfer becomes endless.

The physical environment is formed through a weave of pedagogical ribbons. Each ribbon is defined base on the communicative nature of contained labs. The weave emphasizes "thresholds" throughout a temporal experience of constant separation and reintegration.

Acknowledgement

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Introduction

Architecture is a constant journey across the boundaries of realms: of science and art; visible and invisible; inside and outside. In this journey, Architect is a mediator. Through this mediation s/he visions a new realm where the two unite. The architect offers her/his new world to be inhabited by the others. This inhabitation is simultaneously connected to both embodied realms. Architectural education is simply the practice of soaking into these worlds, moving in between, and creating new ones.

Architectural education is a life-long pedagogical process of "liberal arts" and "technique" (*De Arquitectura (1999)*). This belief has lasted for centuries, yet the conditions have changed fundamentally. Since 18th century, the architectural education system has undergone major institutionalizations and standardizations, in pursuit of intellectuality and professionalism. Till today, the challenge for each institution has been to position itself within the professional and social context and to design its system accordingly. This positioning hasn't been possible without understanding the nature of this context and the roles and responsibilities of the institute within it. By realizing the dynamic nature of its contextual network and the need for dedication to the well-being and advancement of it, the institute faces a new challenge. The challenge is to structure an educational/organizational system that is contemporaneous with this network; where, it not only acknowledges its dynamism, but also celebrates and coordinates it towards positive change.

The milieu of architectural education is very dynamic. On one hand, it is tied to a constantly transforming profession within a globalized world. The world is increasingly becoming complex and interconnected. Consequently, new social, political, and economical values are emerging. Simultaneously, the profession is evolving as a result of new technological advancements. As a result, the profession needs to constantly respond to new contextual issues through new tools. On the other hand, architectural education constitutes the dynamic growth of individuals through a liquid transfer of architectural knowledge. This growth is unpredictable and unique to each being. Responsively, the institute has to be flexible and adaptive enough in order to accommodate the spontaneous pedagogical journey of each individual. At the end, the educational institute should be interwoven with its dynamic milieu to an extent where change in one simulates change in the other.

The mission of educational institute should be to educated individuals in order to shape the future profession and serve the society. On one hand, education should shape the profession by generating new knowledge and professionals capable of practicing that new knowledge in the context of future profession (Ryerson Report, 2008). On the other hand, the educational institute should serve the society by educating professional leaders, who have ethical awareness and capability of making judgments in favor of all humans' physical and psychological well-being (Spector, 2001). This mission could not be achieved without a balanced education in both theory and practice; where the individuals become scientific researchers, critical thinkers, and entrepreneurial problem solvers in both areas. The result would be an education system that "dominate regionally, influence nationally, and be recognized internationally". (Ryerson report, 2008)

In order to serve this mission, the institute requires a synthetic framework that is balanced, adaptive, and flexible. First of all, the framework should be a balanced system between theoretical and practical knowledge. This demands an integrated system where theory and practice inform one another to an extent that they become one entity. Second, this framework should be adaptive and flexible in order to be contemporaneous with its environment. The adaptability of the framework could be achieved through interconnection of the system with its environment, where responsive change is constant. The flexibility of the system should focus on creating the foundation where individuals are the designers and builders of their journey of growth. At the same time, this diversity of individual growth asks for an exposed system, where the palette for possible routes and potential for knowledge transfer is endless. At the end, this system needs to be interconnected and integrated at various levels in order to be balanced, adaptive, and flexible. This framework should look at this systematic interrelating, from the micro to macro level, through connecting the individual to self, to the profession, and to the society.

Background Information/Problem Statement

Architectural Education from Antiquity to Present: Context, Conditions, Circumstances

What is believed to be a proper architectural education today is not much different from what Vitruvius has initially described in his book, *De Arquitectura (1999)*. At the same time, the context of architectural education has gone through major changes since Roman times. In addition, many educational models have influenced the way architectural education has been delivered. Ecole des Beaux Art, Bauhaus, and early models of American Architecture schools have had significant influences on today's educational system. The validity of some of those traditions in today's context has been questioned by some educational thinkers and architectural practitioners.

Architectural Education of pre-academy: Ancient Egypt to Renaissance

The early architectural education system goes back to the ancient times, around 27th century BC. This educational system and architectural profession has been under the influence of Pharaonic Ideology and demands of rich and powerful. The architects of the time were known as "master-builders" and "overseer of work" and they were strongly "bound by precedents in the performance of their callings" (Kostof, 1977). At the time, the trade secrets were passed on as family inheritance. For instance, architectural profession had run in the family of Imhotep, the famous architect of the era, for twenty five generations. These families had been of a very high and priestly social class. As a result, the education for an architect had been exclusive to these families. The result of this exclusive educational and professional system was an era of "architectural conservatism and slow pace of formal innovation" (Kostof, 1977, p. 6).

The Greek Educational models were introduced around 5th century BC. This model was influenced by Sophis' ideology of *Enkyklios Paideia*. This ideology believed in a balanced theoretical and practical knowledge for an architect. The intention of this educational model was to prepare architects for leadership in the society *(Vitruvius, 1999, p.7)*. At this time, the young students were prepared for the profession by family members and/or private tutors. Then, they would have gained their education in a professional school, such as School in Parta, or through an atelier of an architect in

practice. At this time the education system became more inclusive and the lower-class society could enter the profession by going through apprenticeship/assistantship (*Hyparchitekton)* of the master and working their way up towards professionalism (Kostof, 1977, p. 16).

Figure 1- "Mosaic of an Architect and his assistants, in the Bardo Museum, Tunis." (Source: Kostof, 1977. P. 35)

In 2nd century BC, Romans introduced a new educational system. Architect's profession and education were influenced by Greek ideologies, Vitruvius' standards, and state/government's demands. The intention of education was to "broaden judgment" through the understanding of "liberal arts" and mastering the field through specialized training. At this time, the individuals entering the profession were mostly ethnically Greek, non- aristocrats, who were from lower-class of the society. The training for the profession was started by parents when the children were very young (Kostof, 1977). By the time they were teenagers, the professional education would have started. Then, the young adults would have gone through a period of specialized training and apprenticeship. The fourth stage was an experience of studying abroad. The next stage was a life-long self-educating process. As a result, the training was seen as a life-long balanced education in "Liberal Arts" and "Technique". The educated architect was known as the "master builder" and "overseer of work" *(Vitruvius, 1999, p.8)*. At this time, craft guilds were formed as associations whose members would gain their voluntary partnership as an inheritance. These craft guilds were later publicized and formalized as early ateliers (Coldstream, 2002).

Medieval Educational model was influenced by Christian ideology. The focus of education was training for skills and craftsmanship. The education was structured as seven years of apprenticeship, starting at the age of thirteen-fourteen. Then, the student should have gained practical experience, observed, and traveled during three years of being a journeyman. Rosenfield (1977) states that this education included training in carpentry, stone cutting, business administration, planning, mathematics, and engineering. After presenting an actual built project or a model to demonstrate the skills, the student would have been recognized as a professional. The architect was seen solely as the "master builder" and his work was rarely being acknowledged (Kostof, 1977).

The Byzantine Architectural profession and education was influenced by the doctrine of Heron of Alexandria. The intention of the education was to gain a foundational knowledge of theory and get trained for technical skills. The education would happen at the university or some sort of trade-school. Education comprised a theoretical part made up of geometry, arithmetic, and physics, and a manual part that involved work in metals, construction, carpentering, the art of painting, and the practical execution of these matters. If an architect had been educated, he would have been known as a *mechanicus,* with a high social standing. A practicing architect without theoretical schooling would have been known as an *"Architekton"* or *"Architectus"* (Kostof, 1977).

Carolingian Educational model, in 13th century, was influenced by Romanesque ideologies. The intention of the education was mastering the masonry construction. The professionals would start as laymen and gain practical experience in masonry construction. Then, they would get trained in ateliers, where they would work their way up towards mastering the masonry construction. These ateliers were temporary structures that would be erected on the construction sites (figure 2) (Coldstream, 2002). At this time, the detachment of designer from the workforce resulted in a mistrust of public in the designer, who was believed to be "long on words but short on deeds" (Kostof, 1977, p. 76).

Figure 2- Temporary Workshop/Lodges of apprenticeship. (Source: Coldstream, 2002)

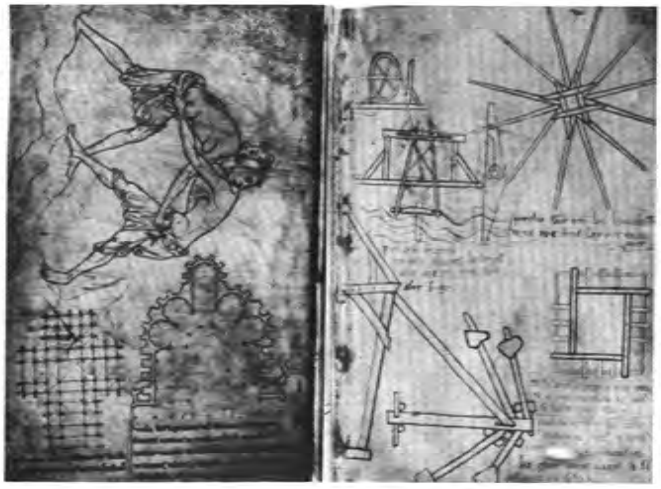


Figure 3- Notebook of a master passed on as secret trade, to be used as a reference book/guide by apprentice. (Source: Kostof, 1977, P. 90)

The Renaissance architectural education and practice, in 15th century, was influenced by new aesthetic ideals and Alberti's ideologies. At the time, academies started to shape around circles of humanists, discussing philosophy. Egbert (1980) believes that these academies were an extension of Plato's school of philosophy that was held in a garden (figure 4). These philosophical academies gradually became more structured and broadened, where lectures in other disciplines, such as Architecture, were given by experts. In 1470's, a private school was established by Lorenzo de Medici where the theories of Alberti were being taught. Unlike Vitruvius, Alberti solely believed in architecture's philosophical and theoretical values (Broadbent, 1995, P. 10-23). The intention of profession was to create a "shared appreciation of theory between the architect and his patron. The research of traditions was emphasized, not to mimic but to analyze. The professionals were known as "artist-intellectuals" and none were known as technicians (figure 5). The era experienced a great "cooperative practice with a responsible director who relied in variety of ways on a number of experts" (Kostof, 1977, p. 96).

Figure 4- Mosaic showing Plato's Academe near Athens (Source: The New Enlightenment)

Figure 5- Jacopo Bertoia, *"Construction of a Rotunda"* The "artist-intellectual" architect and the manual workers (Source: Kostof, 1977, P. 146)

History indicates that architectural education has been redefined in the twofold context of theory and practice. At the end, it can be confidently stated that the strength of architectural education has always been revealed only when the knowledge in theory and practice has been balanced. Weiner believes that (Weiner, 2005, P.9) Vitruvius and Alberti are the founders of today's dilemma of architectural education. He believes that Vitruvius approaches architectural education from "without", looks at it in a broader context, and relates it to many other knowledge areas. On the other hand, Alberti defines architectural education from "within", believes in the meaning that lies at the heart of the discipline, and evolves as a cohesive entity that embraces many other knowledge disciplines. Today, the blind dedication of an educational system to either of these strong different approaches has been criticized. It is possible that an education system could be defined based on both diversity of vitruvius' and totality of Alberti's models.

Architectural Education of Post-Academy

It has been two and a half centuries since architectural education started to become an academic phenomena. Since 18th century, Architectural schools have emerged due to economical, political, social, and professional needs. The early French schools emerged due to the state/government's demands and architects' tendencies for gaining higher social status. Initiation of German schools of Bauhaus was a reaction to industrialization, modernism, urbanization, and a need for an architectural professionalism that could respond to these movements. The achievement of intellectual and professional growth became more possible in a clustered knowledge-based community. As a result, the trend in shift of architectural education from the office to campus was adapted in America, grew gradually and was completed by the end of WWII.

This academization of architectural education resulted in emergence of new issues. On one hand, architecture departments in universities have been struggling to fit in an environment that collides with the culture of the discipline. In comparison to other programs, architecture departments are small, demand more resources, and produce less commercializable research (Boyer and Mitgang, 1996, p 18). Weiner (2005, P.6) defines these departments to be "[...] like a student's desk - a kind of splendid island in a sea of islands." On the other hand, separation of education and practice gradually resulted in disagreements between each entity's "values". This became most tangible, when campuses became more socially and politically active in 1960's. At the same time, Postmodernist thinking was influencing the architectural society (Boyer and Mitgang, 1996, p 18). As a result, the conventional education model was critiqued, the social and cultural responsibilities of architects were addressed, and social and political courses were integrated into the curricula. Sometimes these curricular changes were at a price of sacrificing practical trainings. This resulted in dissatisfaction of the practice with the knowledge of the graduates. (Polo, 2008)

French Model

In 17th century, the institutionalization of architectural education started to form in France. In 1671, Royal Academy of Architecture was established with a mission to serve the state and kingdom. The academy was closed as a result of French revolution and, in 1789, the training shifted to the "atelier", ran by Julian David Leroy. These traditions were passed on to the Ecole Des Beaux until mid 19th century. Painting and sculpture was integrated into the architectural curriculum. (Salama, 1995, P44) This resulted in generation of graduates who were master-craftsmen and master-renderers instead of designers (figure 7). (Salama, 1995, P41) During this time, the conservatism of the academics was confronted with the new technological possibilities, brought by industrial revolution. As a result, new technologies and materials were carried on by technicians who were now separated from the "artist-intellectuals" or academics who believed in principles of classical architecture. This planted the seed of discrepancy between the academy and the profession (Salama, 1995, P42). In mid 19th century, "rationalists" became a part of the academy and the school was affected by "Neo-Baroque" ideologies. As a result, the school moved towards a more technical pedagogy of architecture. The competitive, hierarchical and centralized system of the school was questioned, as the Modern Movement and Urbanism emerged after WWI. These movements against this conservative education system lead to its closure in 1968 (Salama, 1995, P42).

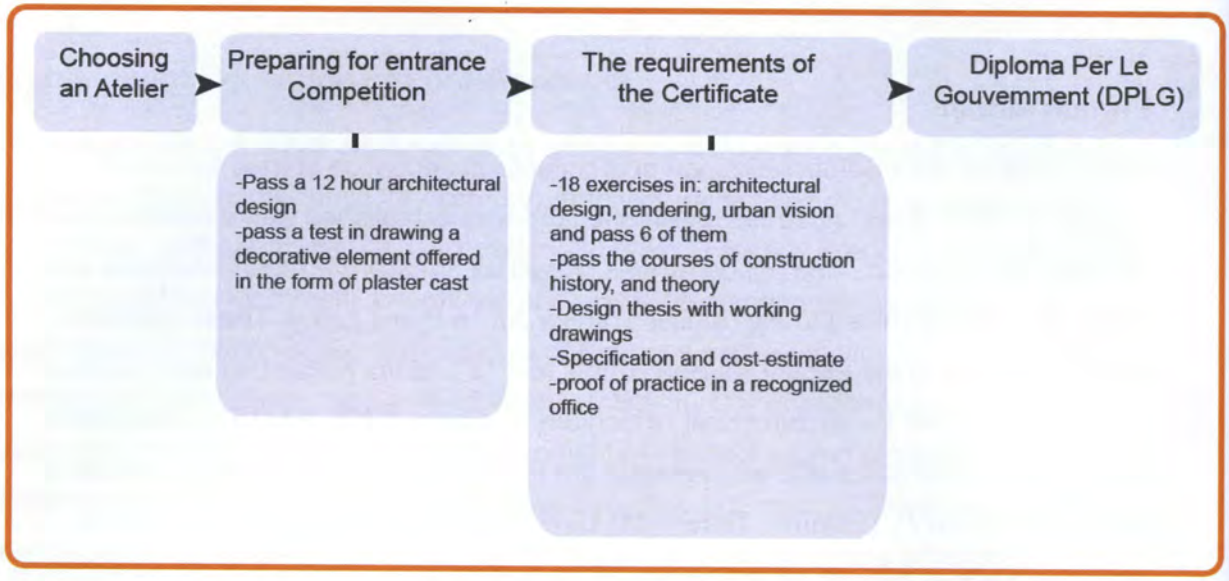


Figure 6- Ecole Des Beaux Art educational process (Source: Salama, 1995)

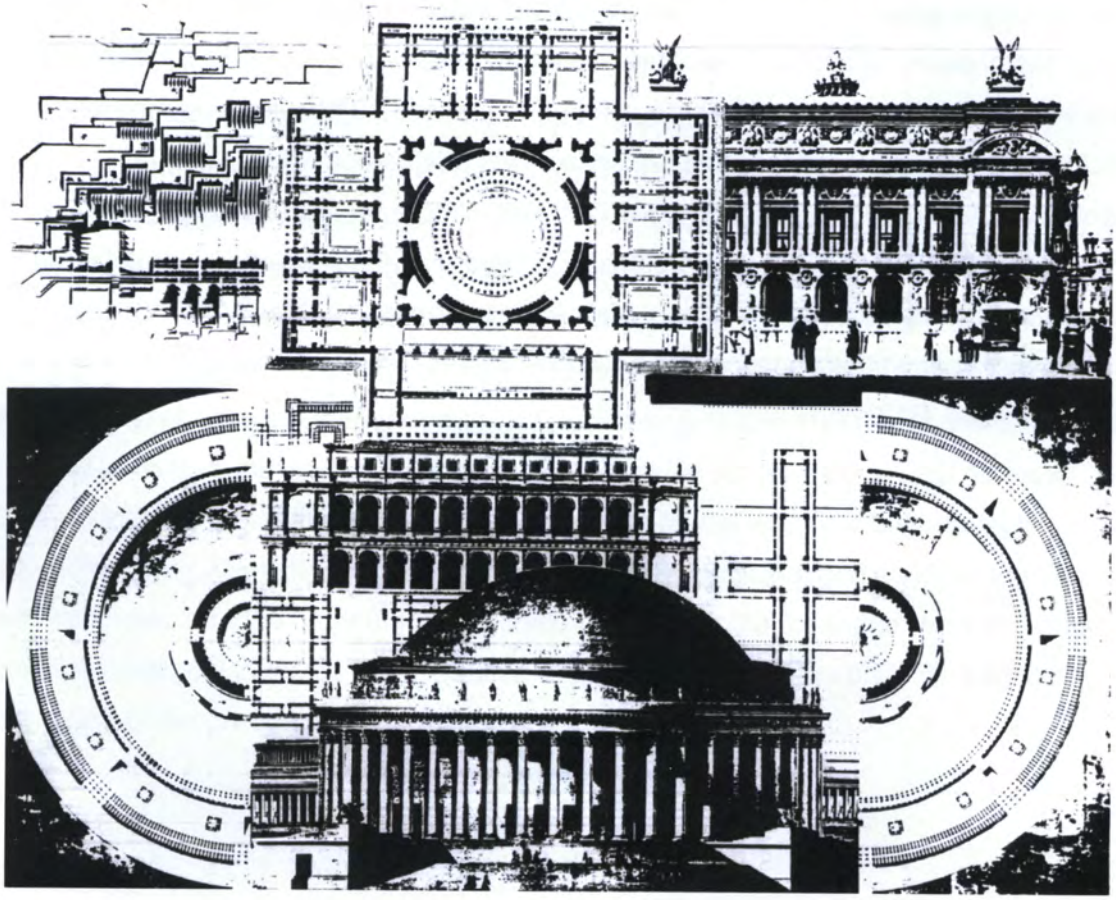


Figure 7: "The principles of Ecole Des Beaux Art in teaching Architectural design" (Source: Salama, 1995, P.48)

German Model

Bauhaus was established as school of arts and craft in Weimar in 1907. But, the department of architecture was first set up in 1926, when the school was transferred to Dessau. The educational model was influenced by Industrial Revolution, Urbanization, Modern Movement, and International Style. The intention was not to "propagate any style, system, or dogma; but to apply new technologies" (Gropius, 1956). The graduates of the program were known as "supreme commanders" (Salama, 1995, P48).

Bauhaus was initiated as a progressive and innovative movement. The Ecole Des Beaux's focus on reproduction of traditional and historical architecture was questioned and individual innovative and critical thinking as well as problem solving were promoted. Unlike Ecole Des Beaux that believed solely in development of drawing skills, Bauhaus reintroduced model and material thinking (figure 10). This model was formed around "practical/workshop training" and "formal design aesthetics". Despite all these shifts from Ecole Des Beaux, the classic studio and the master-student model remained the same. This move to the apprenticeship within an academic environment had its own limitations. First of all, the apprenticeship was occurring solely in the workshop rather than being held on the site. Second, the hypothetical scenarios rather than real building projects started to divorce the studio from practical issues.

Figure 8: Bauhaus Early Educational Process (Source: Salama, 1995)

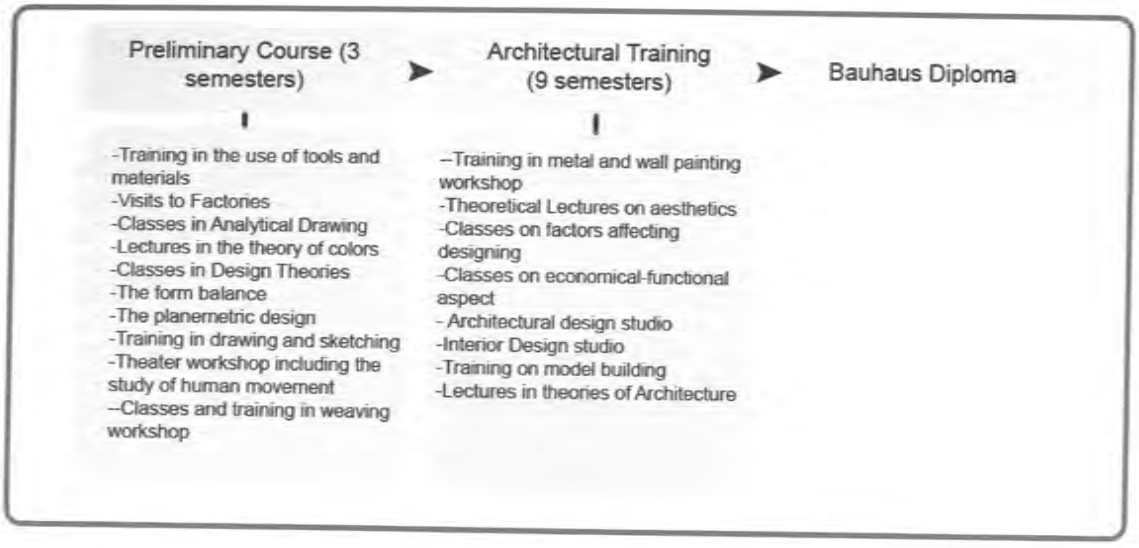


Figure 9: Bauhaus Reformed Educational Process- after development of workshops and curricula. (Source: Salama, P.54)

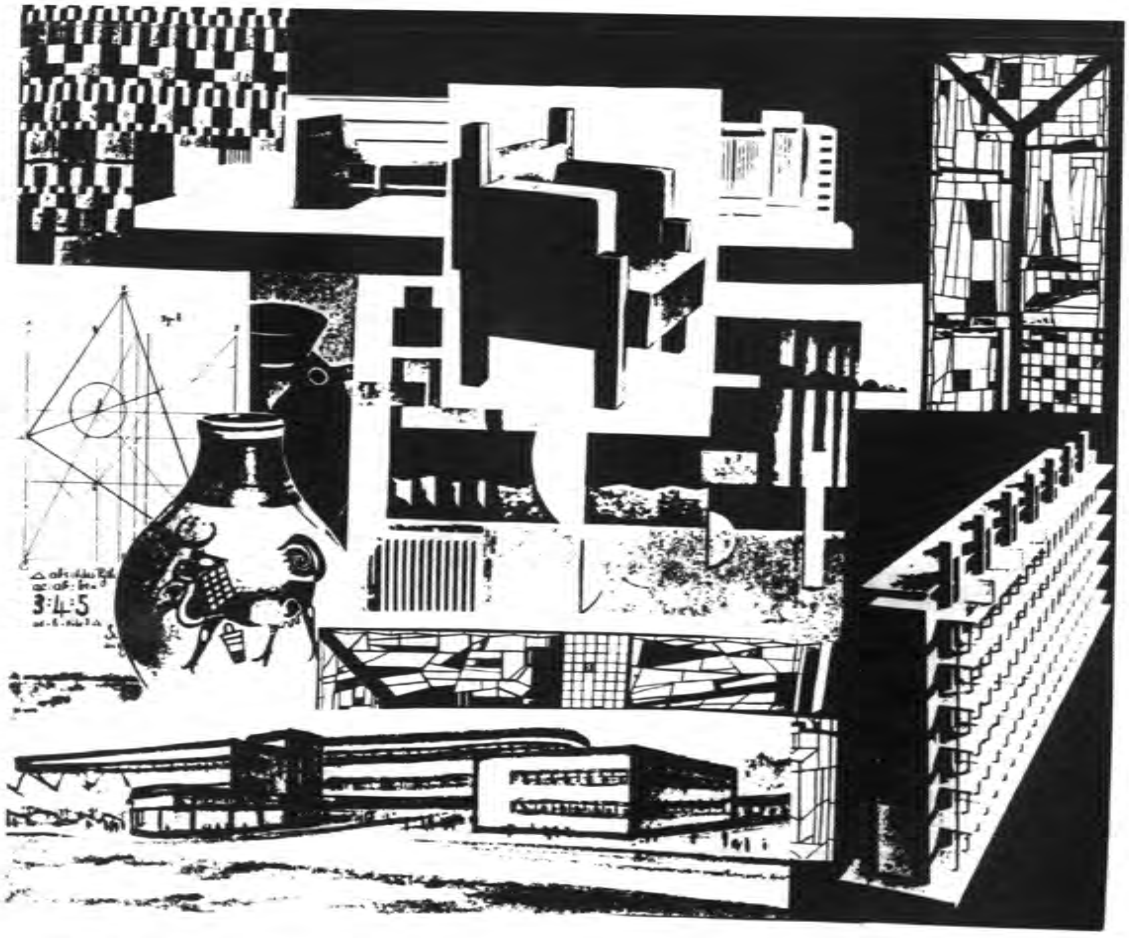


Figure 10: "The principles Bauhaus in design education" (Source: Salama, 1995, P.52)

American and Canadian Education

Americans took this academization a step further and introduced University-based schools of architecture. In United States, the formal shift of the education from apprenticeship to academy was followed by the European movement and was actualized with formation of American Institute in 1857 and passing on the Morrill Land Grant Act in 1862. In 1865, the first architectural course was offered at MIT. Rapidly, other leading universities launched their architecture programs: University of Illinois in 1868; Cornell University in 1871; Syracuse University in 1873; and Columbia University in 1881 (Boyer and Mitgang, 1996, p 14). These programs were majorly run by returned American graduates of Ecole des Beaux-Art (Koch, 2002).

In Canada, this shift followed the patterns of the American movement, but almost three decades later, with a slower spreading pace. University of Toronto offered the first program in 1878 and the first degree program in 1890. This launch of a degree-program was a result of formation of Toronto Association Guild in 1887, which became Ontario Association of Architects in 1890. The no-degree program was a part of Faculty of Practical Arts (today's Faculty of Engineering). The program was highly influenced by Ecole des Beaux-Art model, yet it was liberated by integration of civil engineering courses. Also, two short-lived Ecole des Beaux-Art schools in Quebec City (1923-1936) and University of Alberta in Edmonton (1920-1939) were launched (Polo, 2008).

In 1933, Bauhaus was closed in Nazi Germany and the leaders of the school moved to the United States and took control of the leading-edge American schools. For instance, Walter Gropius became the dean of Harvard University (figure 11) and Mies van der Rohe became the dean of Illinois Institute of Technology (figure 12)(Boyer and Mitgang, 1996, p 17). In Canada, the architecture schools were highly impacted by the educational model of Bauhaus. Soon, the emphasis of the model on "first principles rather than historical precedents" was adapted by schools, such as University of British Columbia and University of Manitoba. This is vivid in the buildings that were dedicated to these renewed programs: Lasserre building at University of British Columbia (figure 13) and Russell Building at University of Manitoba (figure 14). (Polo, 2008)

Figure 11: Chicago: Cambridge: Graduate Center by Walter Gropius, 1950 (Source: The Architecture Week)

Figure 12: Chicago: Illinois: Crown Hall by Ludwig Mies van der Rohe, 1950-1956 (Source: The Architecture Week)

Figure 13: UBC- Frederick Lasserre Building by Thompson, Berwick & Pratt, 1962 (Source: UBC Library)

Figure 14: U of M: Russell Building, 1959 (Source: Flickr)

Many thinkers believe that the traces of Ecole des Beaux-Art and Bauhaus system are still vivid in today's architectural education and accreditation system. Mitgang and Boyer (1996, P15) believe that these effects are the roots of today's educational curricular issues such as divorce of architectural education from practical and business aspects, singular focus on aesthetics or technologies, and not being truly responsive to community concerns. It is also been criticized that both schools were looking into the "Design as a noun rather than a Verb". In other words, the lack of attention paid to the design process was a result of obsession with design products (Salama, 1995, P.59). They also believe that Ecole Des Beaux-Art has seeded the defected culture of "individualism, criticism, and competition" in architectural education system. Educational critiques question the ideologies of Bauhaus which they believe was set up for designers to respond to the needs of the machine with little concerns about socio-cultural issues (whitford, 1992).

Standardization

With the growth in complexity of the architectural profession, a need for specialization, organization, and regulation of architectural education emerged. Both in the United States and Canada, this need transitioned from individual licensure to state-based/provincial certification, and national accreditation system. The pattern of change in standardization suggests the possibility and need for establishment of a more universal system in the future. This transition was also accompanied by a move towards a more standardized, yet flexible criteria for licensure. Boyer and Mitgang (1194) propose that this move should be facilitated to a point where the criteria are not focused on "block of knowledge" but on "modes of thinking". They define these modes of as "discovery, application, integration, and the sharing of knowledge" (Boyer and Mitgang, 1996, p 63).

In 1897, the State of Illinois was the first state that asked for licensure in architecture. The reason was to achieve the level of professionalism that was associated with the "rise of the city, new materials and techniques, the birth of skyscrapers, and new transportation systems" (Boyer and Mitgang, 1996, p 14). In 1898, the first exam was held by the Illinois Board of Examiners and Regulators of Architects. As more universities joined the examination system, a need for a nation-wide standardization was recognized. In 1912, the first national system, "Standard Minimia", was created and set by the Association of Collegiate Schools of Architecture (ACSA). This system lasted for 18 years and was abandoned in 1932, bringing a break in national standardization until 1940. In 1940, American Institute of Architects (AIA), and National Council of Architectural Registration Boards (NCARB) formed National Architecture Accreditation Board (NAAB) and created a nation-wide accreditation system. In 1962, the state-based examination was changed to the NCARB examination. In 1983, the system included the 54 criteria for students' performance as a part of qualification requirements. The Student Performance Criteria was changed to 37 points in 1998 and to 34 points in 2008 (NAAB).

In Canada, formation of Toronto Architectural Guild (1887) and Ontario Association of Architects (1889) were the first steps towards the standardization of Canadian education. The licensure system was established in each province to be run by the local

associations. In 1907, The Architectural Institute of Canada was established in order to coordinate the provincial associations. With the move of academies towards political and sociological education and away from practical knowledge, in 1960's and 70's, the dissatisfaction of the profession with the university grew. This brought the need for a regulatory system for a national standardization system. In 1976, Canadian Architectural Certification Board (CACB) was formed by provincial associates, in order to reinforce the technical knowledge of graduates. Until 1992, the licensure was on an individual basis, where the transcript of each graduate was considered by the CACB and provincial associate. In 1992, CACB shifted this system towards a program-based accreditation system, where graduates from those programs would automatically get certified. This system has been updated based on the changes in the American system.

With an intention of reconnecting the academia to the practice through standardization, the gap between the two still exists. An effective respond to this issue should come from understanding the roots of this divergence and fundamental interventions beyond guidelines and checklists. Standardization system should change its direction in order to relate to the tangible and intangible values embodied in pedagogical nature of architecture. In this thesis, these values are defined as knowledge perception, critical imagination, and representative production. Beyond this, the details of standardization system are outside the scope of this thesis.

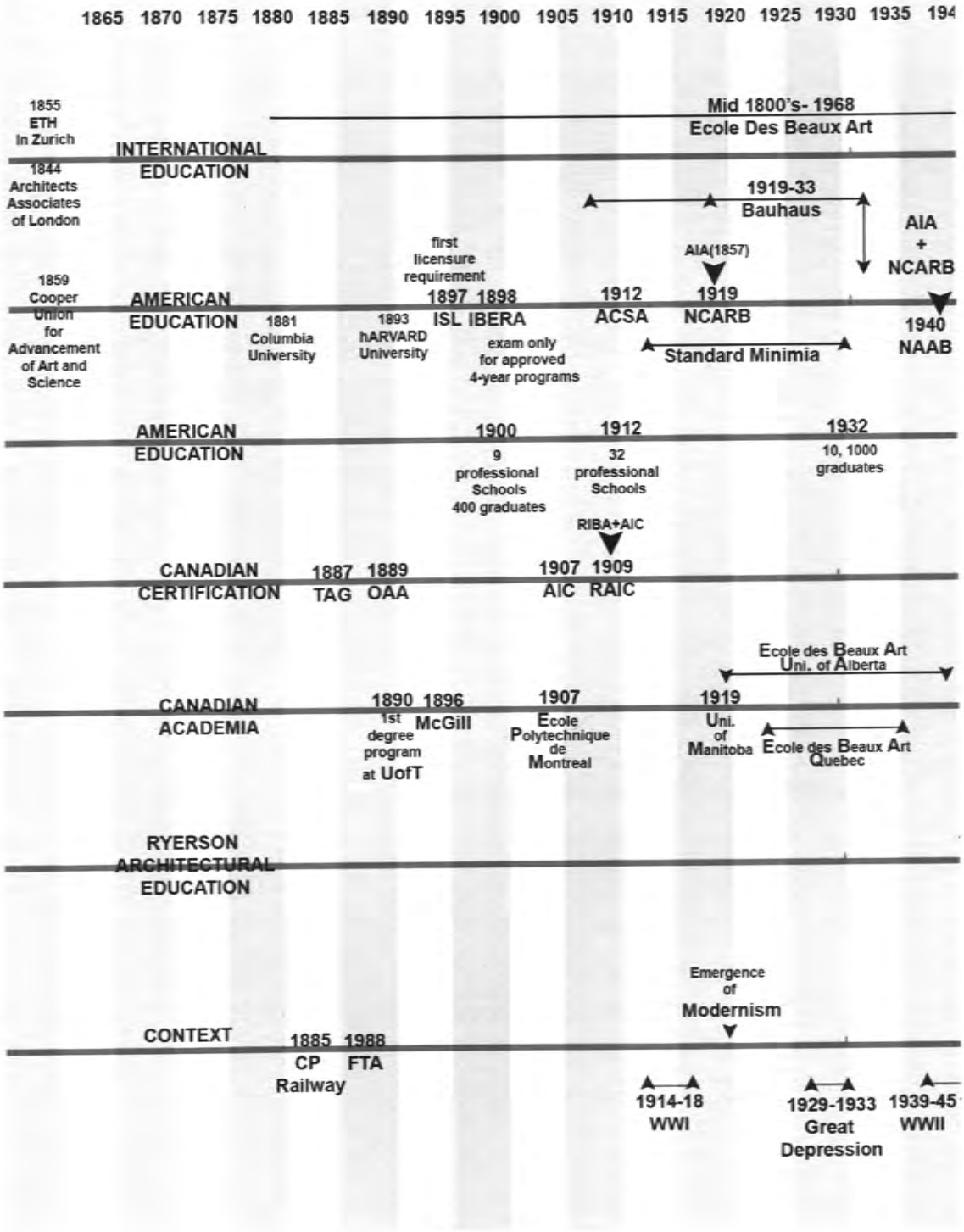


Figure 15: Time- Line: Architectural education of Post-Academy

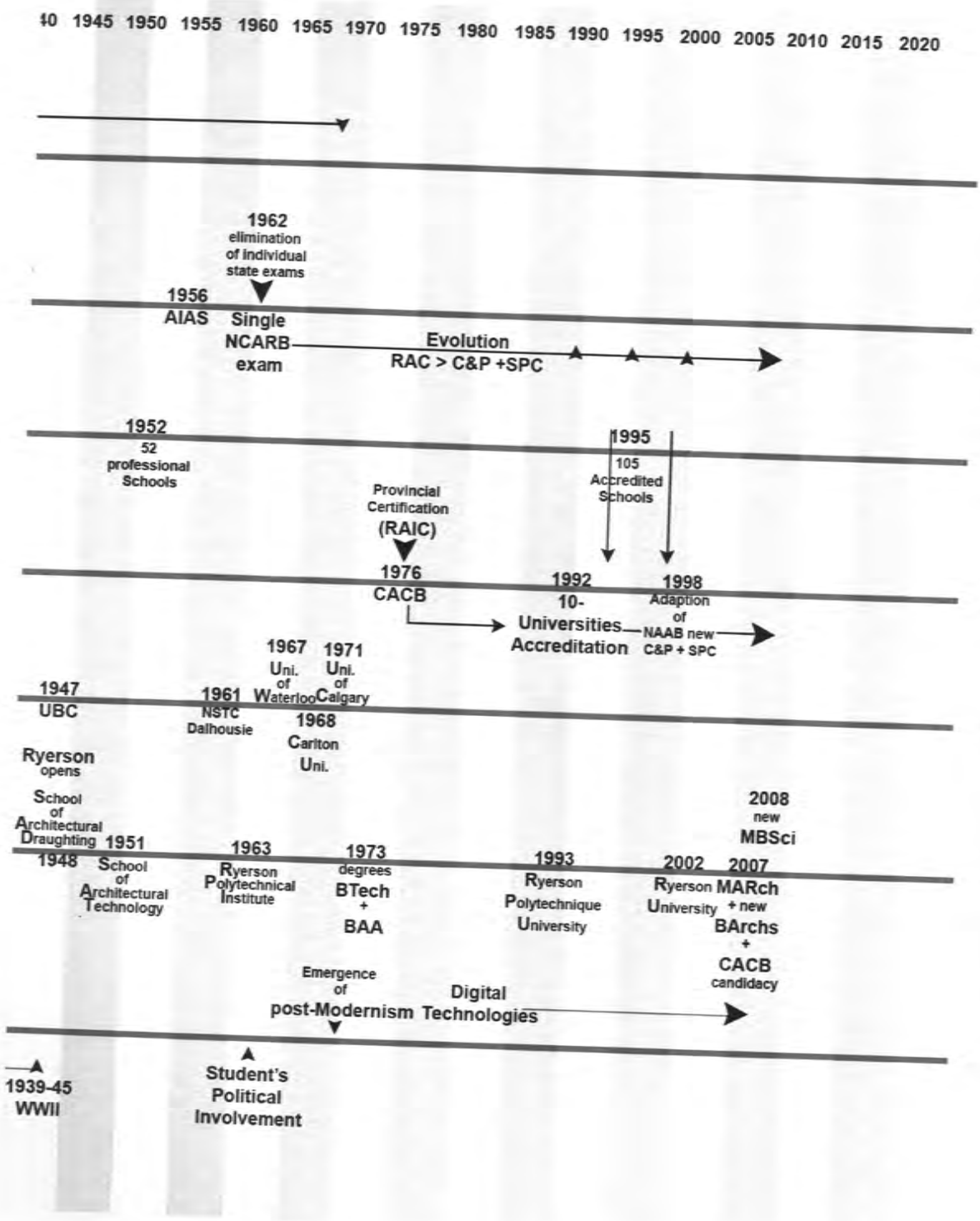


Figure 15: Time- Line: Architectural education of Post-Academy

The Context of Architectural Education Today: The Symptoms

Today, many thinkers believe that architectural profession is undergoing major changes. Relatively, architectural education system should respond to those changes in order to provide graduates that are prepared practitioners, educators, and leaders of the future. *Building Community* (Boyer and Mitgang, 1994), *The Windsor forum on design education* (Bothwell et al., 2004), and *Designing for Designers* (Nasar, 2007) are amongst the best-known publications calling for renewal of architectural education system. Throughout the research on these publications, three general existing and emerging issues within architectural education was identified: a better institutional system that serves the interdisciplinary and collaborative nature of the profession; a more effective organizational relationship between university and practice; proper integration of new technologies in the educational system. These issues are the symptoms of a deeper problem within architectural education system. If these symptoms are understood thoroughly and rooted issues are tackled fundamentally, these immediate problems would resolve automatically.

First of all, today's universities are increasingly introducing more specialized disciplines. Relatively, the students gain a specific knowledge where they don't benefit from the thorough education that Plato and Vitruvius have defined as a proper architectural knowledge (Smith, 2003). This raises the concern regarding the competency of the future architects as collaborators, leaders, and contributors to their community and environment. A more interdisciplinary interaction can be a solution to this issue. Scholars believe that this interaction can be achieved through curricular changes and architectural interventions. For instance, Boyer and Mitgang (1994) suggest a liberal and connected curriculum in response to this issue. On the other hand, Naser (2007) believes that the physical environment of architecture schools impacts the relationship of faculty and students with their surrounding community.

Second, there is an existing gap between university and industry in architectural profession. On one hand, many practitioners believe that university graduates do not have the adequate practical knowledge for entering the profession. This issue is rooted in an unbalanced educational curriculum, where theory and applied knowledge don't receive equal attention. In other words, the mastering of "technique" and "liberal art"

(Vitruvius, 1999) is missing in today's architectural education. Naser (2007) suggests that limited time-span of institutional education, expanding scope of architectural discipline, and increasing number of knowledge fields are the reasons behind this issue. Recently, some curricular solutions (i.e. Cooperative Educational Programs) are introduced by universities; yet, the gap still exists. This calls for a more rigorous action for solving this issue. On the other hand, the architectural industry is moving towards a more knowledge-based and collaborative profession. It is a necessity that researchers, educational institutes, entrepreneurial firms, and government understand the essentiality of formation of a strategic alliance amongst them in order to gain a leading edge in the future of this industry.

In addition, the emergence of the new digital technologies is a new phenomenon that has not been addressed in the current architecture schools. Ripley (2007) believes that the current education system is an influence of Post-WWII American architectural education model. He states that this system has been focused on teaching/learning "drawing skills" more than anything else. Relatively, Weiner (2005) questions the validity of the design studio in an era of technological "distraction". It is a necessity for a cutting edge educational model to enhance the technologies of the time and prepare for the advancements of the future. At the same, time, the built learning environment should acknowledge and integrate those technologies in order to function properly.

Ryerson University

Ryerson is an urban university located in the heart of Downtown Toronto, The University and the department of architecture was initiated in mid 20th century and have constantly and simultaneously transformed since then. Ryerson University was first established as an Institute of Technology in 1948. In 1963, it became a Polytechnical Institute. In 1993, Ryerson officially became a Polytechnical University. As a result, Ryerson renewed its educational mission towards a more research-based education and greater involvement in production, analysis, and application of "New Knowledge". In 2003, it was renamed as Ryerson University. At the same time, the architectural educational program was initiated. Since then, the university and the department of architecture have gone through a rigorous process of self-transformation and educational advancement. The department of architecture started its journey as a school of Architectural Draughting. In three years, it became the School of Architectural Technology, in order to offer a more comprehensive education in "architecture" and "building technology". In 1973, it initiated its degree programs, offering a Bachelor of Technology and a Bachelor of Applied Arts. Later, it combined the two degrees into Bachelor of Architectural Science. In 2007, the first class was admitted to the renewed Bachelor of Architectural Science and the brand new Master of Architecture program. At the same time, it achieved its candidacy status from Canadian Accreditation Board.

Many factors contribute to Ryerson's potential to "dominate regionally, influence nationally, and be recognized internationally" (Ryerson report, 2008). The geographical location in Canada's leading knowledge cluster, its strength in practical education, and its relative dynamism are among those contributing factors. What gives this young program a real advantage is the recent momentum of change that was brought by application for CACB accreditation. In contrast to other long-established and solidified Canadian programs, Ryerson has the chance to model itself for a future-oriented education.

The Mission and The framework

The mission of educational institute is to shape the future profession and serve the society through educating individuals. On one hand, education should shape the profession by generating new knowledge and professionals capable of practicing that knowledge in the context of future profession (Ryerson Report, 2008). On the other hand, the educational institute should serve the society by educating professional leaders, who have ethical awareness and capability of making judgments in favor of all humans' physical and psychological well-being (Spector, 2001). This mission could not be achieved without a balanced education in both theory and practice, where the individuals become scientific researchers, critical thinkers, and entrepreneurial problem solvers in both areas. The result is an education system that can "dominate regionally, influence nationally, and be recognize internationally". (Ryerson report, 2008)

The institute requires a synthetic framework that is balanced, adaptive, and flexible. First of all, the framework should be a balanced system between theoretical and practical knowledge. This demands an integrated system where theory and practice inform one another to an extent that they become one entity. Second, this framework should be adaptive and flexible in order to be contemporaneous with its environment. The adaptability of the framework could be achieved through interconnection of the system with its environment, where change in one stimulates a responsive change in the other. The flexibility of the system should focus on creating the foundation where individuals are the designers and builders of their journey of growth. At the same time, this diversity of individual growth asks for an exposed system, where the palette for possible routes and potential for knowledge transfer is endless. The synthesis of this framework is dependent on its systematic network. In other words, it needs to be connected and integrated in order to become a self-sustaining and self-adjusting system. At the end, this system needs to be interconnected and integrated at various levels in order to achieve its mission. This framework looks at this systematic interrelating, from the micro to macro level, through connecting the individual to self, to the profession, and to the society.

At the first level, architecture school should reconnect individuals to themselves. Architectural education, like any other design education, is not simply a linear transfer of knowledge from the source to the recipient, but it's a multi-lateral and multi-directional

phenomena. Through architectural pedagogy, individuals continuously grow as citizens and professionals. This growth is not only for the students, but the educators, practitioners as well. Individuals grow as social beings by being exposed to self and the others. Concurrently, they grow as professionals by taking on the responsibility of responding to the self and the other through grasping, creating, and transferring knowledge (Ellsworth, 2005).

At the other level, architectural education should connect itself to other disciplines and knowledge communities. For centuries, many educational thinkers and theoreticians have emphasized the need for a comprehensive education in "liberal arts" and "technique". Vitruvius suggests that an architect should have knowledge of drafting, geometry, history, philosophy, music, and medicine. Boyer and Mitgang (1994) refer to this knowledge diversity as a necessity for preparation of graduates who serve their "community, nation, and environment". Also, Timberlake (2006) suggests that the architectural practice is rapidly becoming an interdisciplinary and collaborative profession, so should be the education of the future architects.

At the next level, architectural education should reconnect itself to the professional community and architectural industry. One of the significant changes in Architecture is the on-going shift towards a knowledge-based profession. This demands a greater partnership between universities and industries for conduction and application of research. Besides, Jones (2005) believes that this relationship is the key for a successful transfer of talent between university and industry. At the same time, the globalization of design economy requires the" knowledge-clusters" to bring the innovation to a level that gives them advantage over the global competitors. The current linear and one-way movement of knowledge-transfer should be redefined for a greater engagement of its elements: Education (University), Experience (Industry), and Examination (Certification Board). The existence and advancement of these elements are dependent on one another. This interdependence asks for an integration of education into practice and practice into education.

At the last level, architectural education should be reconnected to its social and cultural context. The educational institute should serve the society by constantly promoting ethical awareness and capability of making judgments that would respect and serve the

existing social context and build the future society. Cramer (2007) believes that it is the obligation of the educator to add value to its existing social context by architecting a world of "understanding, respect, harmony, innovation, and security". This would be achieved through generation of professionals who are scientific researchers, critical thinkers, and entrepreneurial problem solvers. At the same time, Cuff (1992, p.43) refers to the school as a "socializer" where future architectural values are defined. This would give the students a broad understanding of the global context and real world issues. Simoltaneously, it exposes the university to the public and responds to the issues associated with public's architectural illiteracy (Boyer and Mitgang, 1996).

Design Concept

In this new integrated model, architectural education takes on two fundamental roles: to act as a conductor of knowledge and a processor for individuals' growth. It becomes a "Bazaar", in which the conduction of liquid knowledge is endless and the growth of individuals is embraced. This knowledge-based growth is a linear yet spontaneous process. It is a linear process of knowledge perception, critical imagination, and representative production. At the same time, the unconscious psychology and personality of humans make each path spontaneous and unique to each individual. When these paths cross, they form a web of collective and knowledge-based growth. The solidity of this synthetic web is dependent on these crossing points, the thresholds. Relatively, intensification of this web maximizes the potency of a shared growth. This model has formed as a habitat where this interactive pedagogy was optimized and celebrated. As a result, this habitation was reformulated through weaving of its encompassing communicative qualities. This weave creates a temporal experience saturated with thresholds and a journey of constant separation and reintegration between self and the other, the inside and outside.

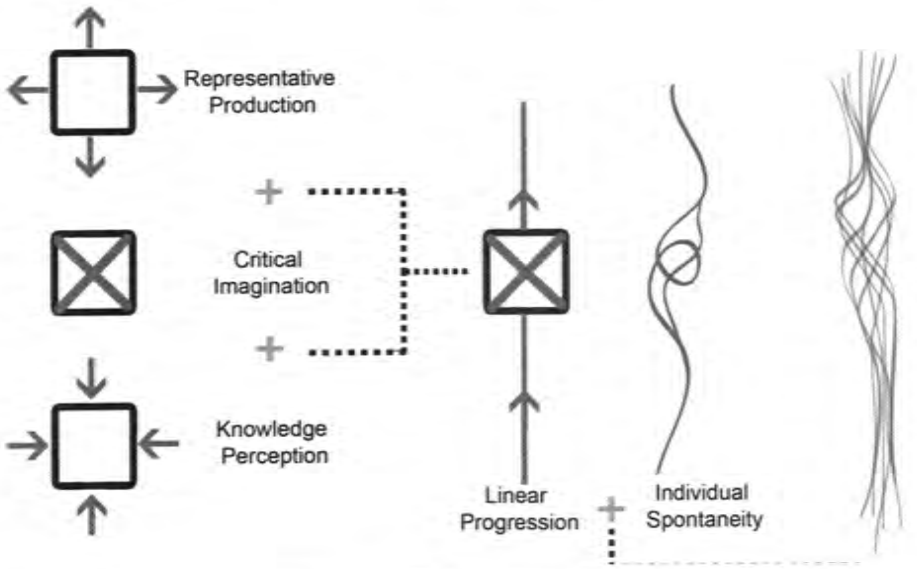


Figure 16: Conceptual Diagram: Pedagogical growth through knowledge transfer

Educational Conductor: Connecting to self and to the other

Theoretical Discourse and Design Principles

Architectural education, like any other design education, is not simply a linear transfer of knowledge from the source to the recipient, but it's a multi-lateral and multi-directional phenomena. Through architectural pedagogy, individuals continuously grow as citizens and professionals. This growth is not only for the students, but for the educators and practitioners as well. Individuals grow as social beings by being exposed to self and the others. Concurrently, they grow as professionals by taking on the responsibility of responding to the self and the other through grasping, creating, and transferring knowledge (Ellsworth, 2005, p48).

This can be achieved when knowledge is transferred through a "free-flowing dialogue" rather than a "one-way conversation" (Boyer and Mitgang, 1994, p93). These dialogue-based communities simulate synthetic processes of communication, critical thinking and problem solving. Flax (1993) suggests that these engagements are facilitators for fabrication of "dreams" and "individual delusion" as "arts" and "knowledge". At the same time, Winnicott (1985) believes that the separation of individuals is as important in their growth as interconnection of them. Ellsworth (2005) defines this pedagogical phenomenon as a "constant movement across the boundaries" of self and the other.

The educational environment should accommodate these communicative conditions between individuals. At one hand, it should maximize the possibilities of interrelating individuals at various levels and directions. The current edge conditions at architecture school can be criticized for being either too loose or too rigid at times. Currently, this issue is vivid in programmatic and spatial conditions. First of all, the overall program is a layered system which branches as the students reach higher levels. This creates a disconnection at inner-level and inter-level between undergraduates, graduates, and instructors. This is responded to through structuring spaces that allow a wide variety of communication formats such as semi-formal group discussion, and informal conversations (figure 18). Second, the typology of study spaces is limited to open studio spaces or isolated offices. This does not leave room for the spectrum of the communicative studies that needs to occur. Responsively, the overall entire space is defined as flexible lab spaces that can be controlled for different group sizes and

communication systems. This would allow the individuals to temporarily "un-integrate" themselves from the others in order to formulate their individual beings in relation to the others (Ellsworth, 2005). Third, the conventional in-between space is defined as vertical atriums. These atriums are not successfully separating and connecting the surrounding spaces. These atriums only visually connect the immediate spaces adjacent to them and they create acoustical and privacy issues within those spaces. The response is to create these in-between spaces as "buffer-zones" that run in-between all spaces both horizontally and vertically. The edge conditions to these zones are designed to be adjustable by users in order to allow appropriation of each space base on its type of usage and relationships between the inhabitant of that space and the others (figure 19).

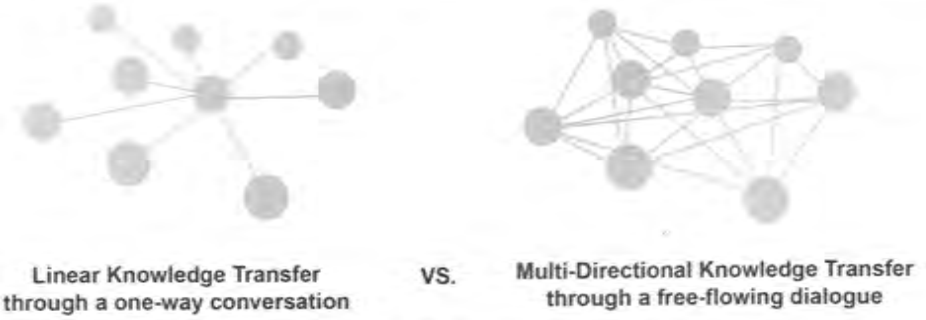


Figure 17: Linear VS. Multi-directional knowledge transfer

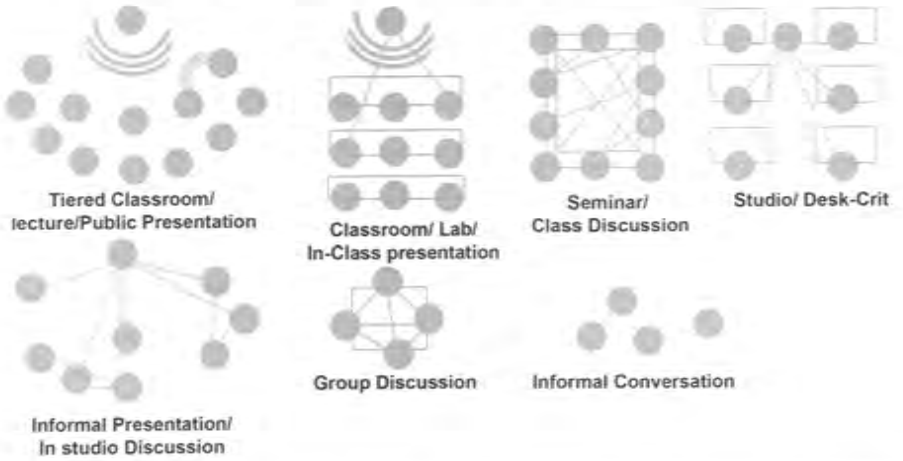


Figure 18: Typical formats of knowledge-transfer in Architecture Schools

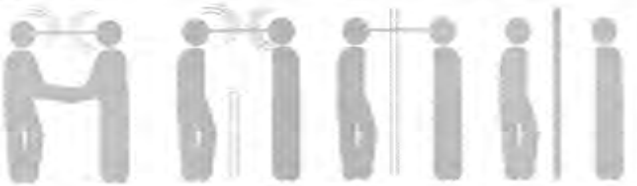


Figure 19: Edge conditions between self and the other

Case Study: U.S. Holocaust Memorial Museum, in Washington D.C. by James Ingo Freed, 1993

Figure 20: U.S. Holocaust Memorial Museum - "15th Street façade" (Source: Branham, 2000, p. 55)

Figure 21: "The proposal model" U.S. Holocaust Memorial Museum (Source: American Studies at University of Virginia)

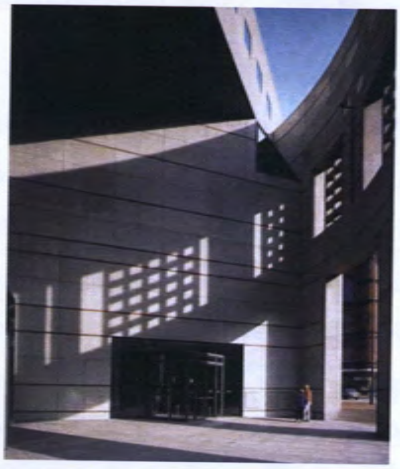


Figure 22: U.S. Holocaust Memorial Museum- "Inside the "Screen" to the 14th street entrance" (Source: Branham, 2000, p. 56)

Figure 23: Holocaust Memorial Museum ' and the tower with Washington Square" (Source: Branham, 2000, p. 55)

Figure 24: Holocaust Memorial Museum- Approaching the "Memorial Hall" (Source: American Institute of Architects)

Figure 25: Holocaust Memorial Museum- "Memorial Hall" (Source: Flickr)

In 1980, the design for US Holocaust Museum in Washington D.C. was awarded to James Ingo Freed by US Holocaust Memorial Council (figure 20). The groundbreaking was in 1985 and the building was finished in 1993. The building includes a permanent and temporary exhibition area, an educational and research facility, and an area for tranquil contemplation. It is significant as a case study for this thesis because it look pedagogy as a phenomenological experience. Witold Rybczynski (Rybczynski, 2003, P.1) believes this architecture of a "national schoolhouse" as an "experimental path" is crucial to learning/teaching of a dynamic phenomenon. This temporal ad sensual experience of pedagogy is conducted through visitors who constantly learn from relating self to the other.

Freed has attempted to accentuate and separate the feeling of being an "insider" witness versus being an "outsider" visitor, as a historical reference to the catastrophe Ellswroth (2005, p. 51). Freed creates an "experimental path" where one is constantly crossing the boundaries of being inside and outside. (Rybczynski, 2003, P.1) First, he demonstrates this goal through a vague entrance to the building and an inside/outside contrast that is continuously sensible throughout the journey of the building (figure 22). This contrast has been achieved by constant change in contraction/expansion of spatial volumes and saturation/desaturation of natural light (figure 24 and 25). Second, he allows one to connect to the feelings of being an "insider" in Holocaust narration through creating a conscious sense of confusion, helplessness, and "agoraphobia" through an environment of endlessness and indetermination. This also refers to Holocaust as an ongoing event. Third, he physically and emotionally separates the visitor from his/her feelings as an "insider". This separation is vivid when one moves away from the Hall of Witness as he walks up the stairs, passes the bridges, and goes through the elevators. Through these transitions, a graceful view of the crowd let him/her to observe what she just went through.

The journey ends within the building with a sense of indetermination and leaves one filled with thoughts about what was felt. Danatt believes that Freed has designed this museum as a transitional environment where "One has only come in only to go outside again" (Dannatt & Hursley, 2004, p.14). The architecture of Holocaust Museum challenge to be narrative and suggestive rather than conclusive and deterministic. Freed

tells this story through constantly alternating the relations between self, the other, and environment.

Figure26: Holocaust Memorial Museum- Stairs to/from the "Hall of Witness" (Source: Branham, 2000, p. 59)

Figure27: Holocaust Memorial Museum- Corridor along the "Hall of Witness" (Source: Branham, 2000, p. 56)

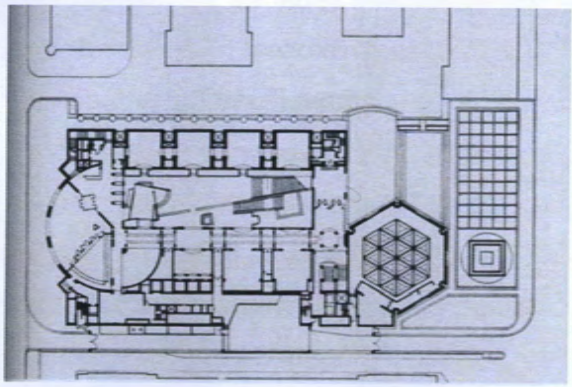


Figure 28 Holocaust Memorial Museum-Ground floor plan (Source: Branham, 2000, p. 57)

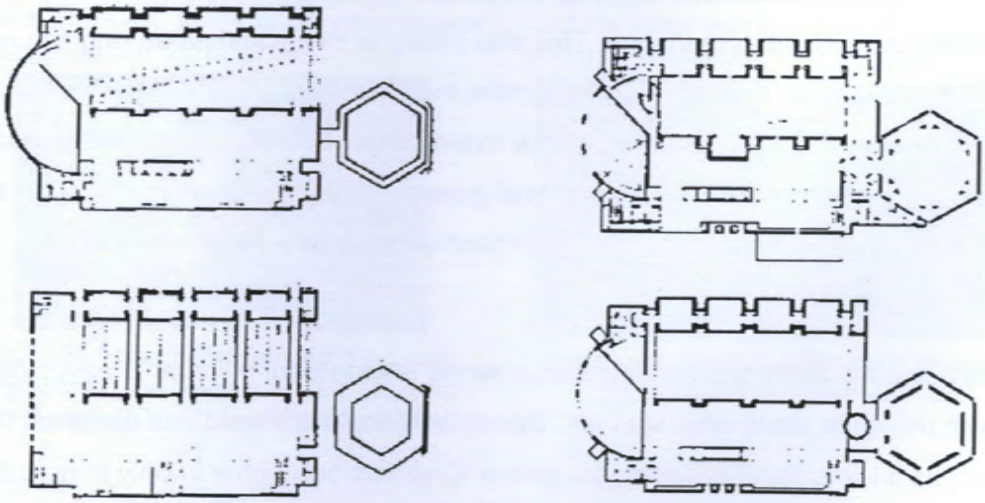


Figure 29: Holocaust Memorial Museum- floor plans from 2nd to 5th floor (Source: American Studies at University of Virginia)

Case Study: Ecole Polytechnique Federale de Lausanne (EPFL) learning center, in Lausanne, by SANAA, 2004

Figure 30: EPFL Learning Centre- Aerial View (Source: Sejima, 2008, p.174)

Figure 31: EPFL Learning Centre -building model (Source: designboom)

Figure 32: EPFL Learning Centre- Elevation View (Source: The Rolex Learning Center)

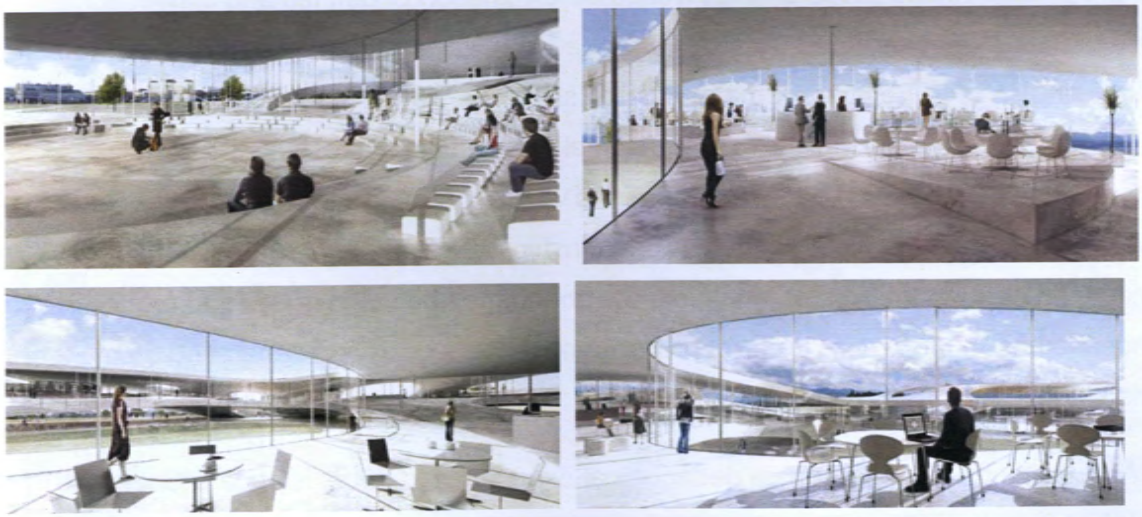


Figure 33 EPFL Learning Centre - Interior/exterior perspectives (Source: The Rolex Learning Center)

SANAA won the competition for the design of Learning Centre at the Ecole Polytechnique Federale de Lausanne in 2004. Eleven other well-known architects, including Diller Scofidio + Renfro, Herzog and de Mueron, and Zaha Hadid, were competing for this design commission. The design of SANAA was considered to fabricate the mission of the school to be "a place where virtual and physical components combine to provide facilitated access to knowledge" (Rolex Learning Center, 2008). The construction of the proposal started in 2007 and is expected to be completed in 2010. The proposal is a 7,500 square meter continuous curved plate of concrete within a horizontal landscape (figure 32). The diverse program includes a library, language centre, offices, café, restaurant, and hall. This is a proper case study for this thesis due to the provocative pedagogy that is embodied in its silent simplicity.
SANAA achieves a pedagogical phenomenon by creating a sense of "wonder". Louis Kahn calls this "wonder", "the closest intouchness with [your] intuitive" (Lobell, 1979, P.10). As the intuition calls for a need of perception, all the senses would rise. The senses correlate the physical and metaphysical body of self, through a communion event with the environment. This communication would lead to a sense of awareness. This "realization" is about the existence of self, which belongs to a community. Architecture of SANAA is not only about the awareness, but is also about the communication event that has lead to a perception. The possibilities of new and unpredictable relationships emerge from their elimination of defined and conventional hierarchies. First of all, the building is arranged in a way that can be approached from all sides and entered from below the undulated slab. The waved slab of the floor and roof questions the conventional ideas of horizontal and vertical. Here, the structural hierarchies between roof and walls redefined where the roof drapes down to become the wall and the structure itself. Then, the relationship between Interior and exterior is redefined through the light shafts. Also, the boundaries between public and private are redefined as "buffer-zones", in order to become a connecting and separating element at the same time.

SANAA silently choreographs a pedagogical experience of "Coexistence", "Collective intelligence", and "Consciousness". They remove themselves from the deterministic architecture and provide a blank canvas where people paint their own definition of self, the other, and the environment. Through their simple architectural language, which has

the least "metaphoric luggage" associated with it, they tend to avoid dictating their ideologies and impacting the perceptions of individuals (Allen, 1996).

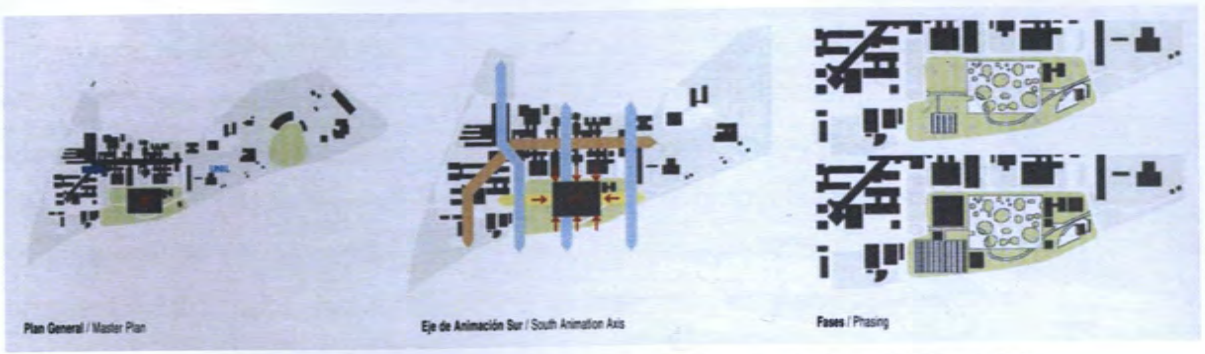


Figure 34: EPFL Learning Centre - Site Analysis (Source: Sejima, 2008, p.174)

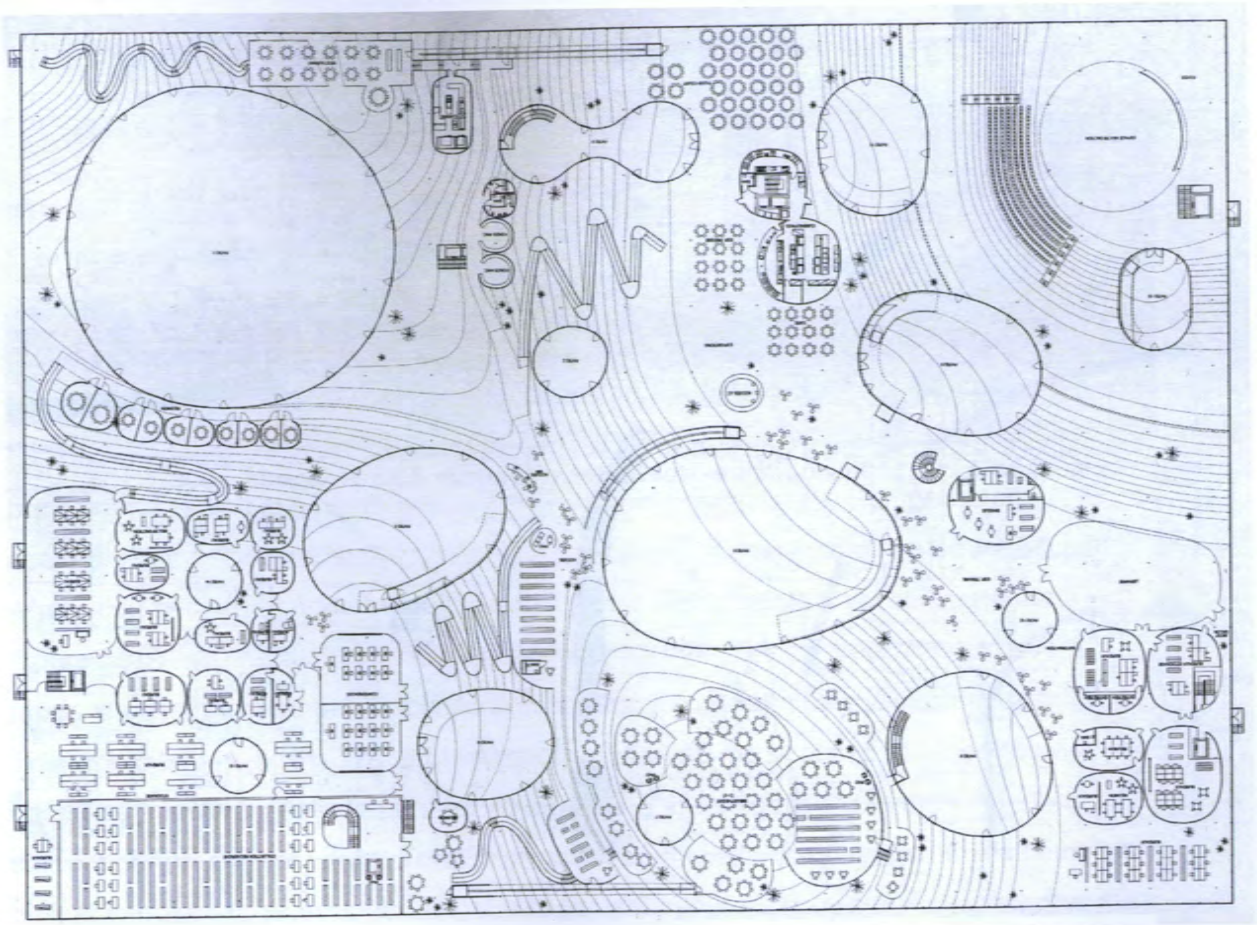


Figure 35: EPFL Learning Centre- Overall floor plan (Source: Sejima, 2008, p.182)

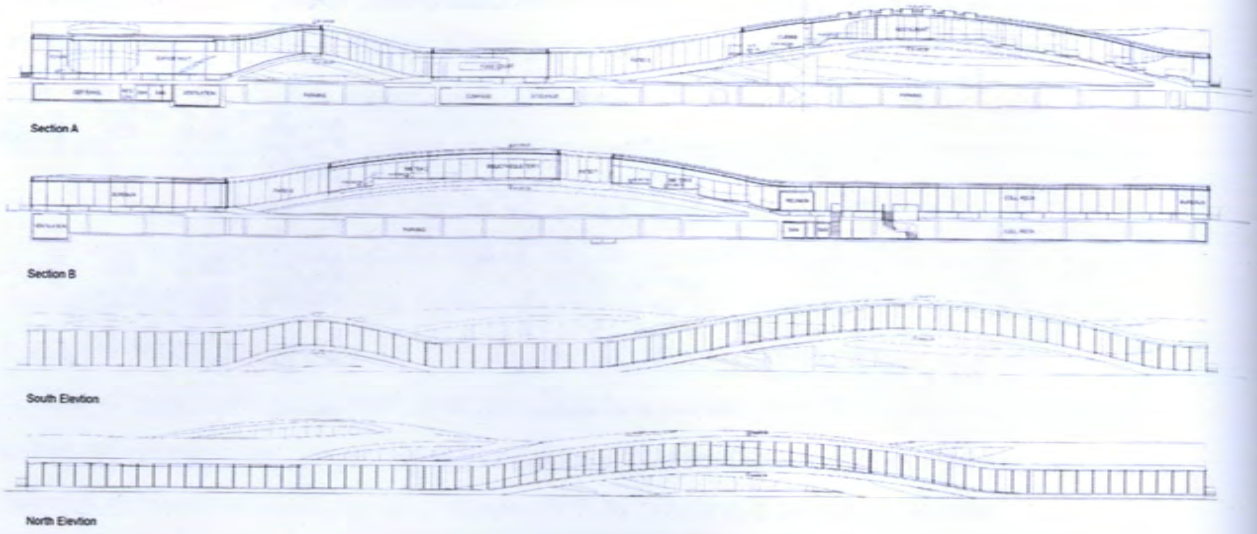


Figure 36: EPFL Learning Centre- Elevation Drawings (Source: Source: Sejima, 2008, p.181-183)

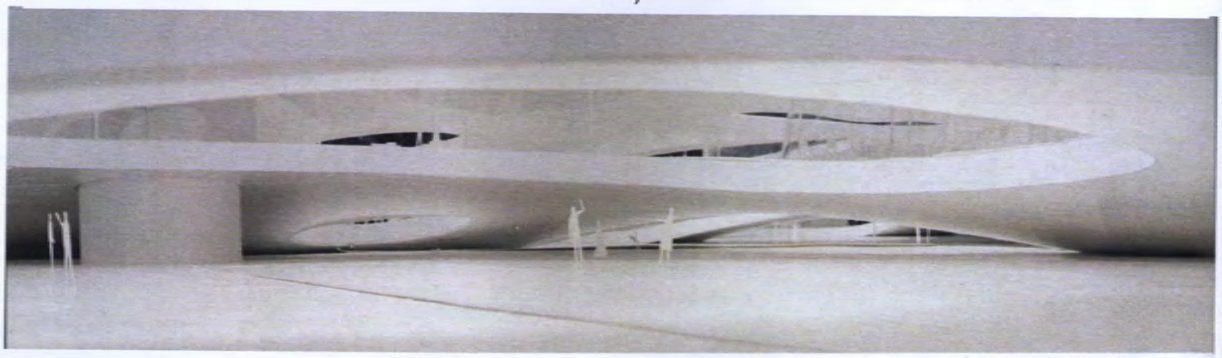


Figure 37: EPFL Learning Centre- Above/Below (Source: Source: Sejima, 2008, p.183)

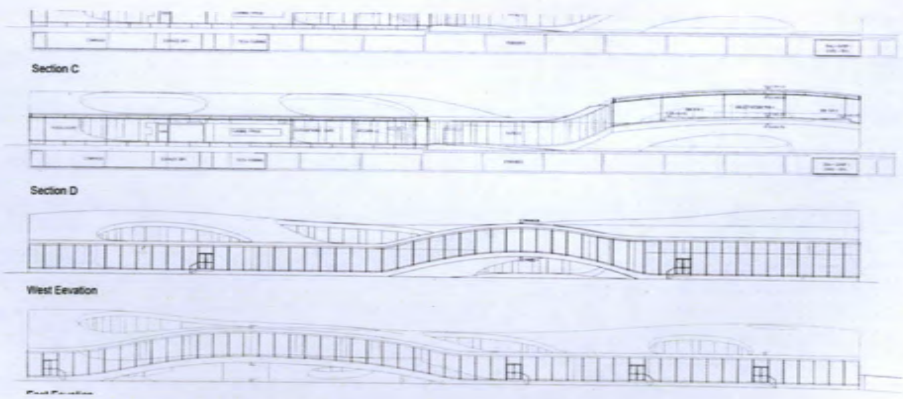


Figure 38: EPFL Learning Centre- Section Drawings (Source: Source: Sejima, 2008, p.181-183)

Educational Gestalt: Knowledge Diversification

Theoretical Discourse and Design Principles

For centuries, many educational thinkers and theoreticians have emphasized the importance of architect's comprehensive education in "liberal arts" and "technique". Vitruvius suggests that an architect should have knowledge of drafting, geometry, history, philosophy, music, and medicine. Boyer and Mitgang (1994) refer to this knowledge diversity as a necessity for preparation of graduates who serve their "community, nation, and environment". Also, Timberlake (2006) suggests that the architectural practice is rapidly becoming an interdisciplinary and collaborative profession, so should the education of the future architects.

Boyer and Mitgang (1994) suggest that educational curriculum should be more connected and liberal in order to provide a comprehensive education. First of all, the educational system should provide a balanced and integrated pedagogy in theory and practice of architecture. Currently, many schools have formulated the "design studio" as the core, supported by lecture courses in related areas. At many schools the practice in studio becomes independent from the lectures in the classroom. Till today, various educational models have been proposed and examined in an attempt to address this issue. Some educators believe that the "design studio" is the most successful model of an integrated education and suggest an "all-studio" education model (Strong, 2007). The "all-studio" model could be criticized for not taking into account the individual's education background, which is a highly discrete high-school education (V. Hui, personal communication, November, 10, 2008). Responsively, a new model can be introduced where courses are merged in multiple ways to be highly related, yet still separated (figure 39). Also, the architectural education should prepare its graduates to have a broad knowledge in other disciplines and be able to communicate with other specialists. This would let the individuals to have unique expertise, be exposed to other knowledge-based perspectives, and prepare for collaborating and negotiating in the inter-disciplinary practice of future. This "inter- and trans- disciplinary" relationships could be built at various scales throughout knowledge communities. They could shape within the department, throughout the campus. They can also occur at provincial, national, and international levels. These relationships could form as an inter-disciplinary faculty research and trans-disciplinary joint programs. The architecture department has the

potential to become the advocate and coordinator of the Inter-specialization and interdisciplinary education on and off the campus.

The new model for architectural education creates connection at inner and trans-departmental levels. Internally the nature of studio and classroom and the relationship between the two should be reconsidered. The current studios are vast open spaces that are designed based on the size of drafting tables and are insensitive to the diversity of design and research typologies that are occurring within them. In reaction, the new model looks at studios as lab spaces with potentials for opening to one another or dividing into smaller labs and accommodating a wide variety of communication-based activities. Second, the physical separation of studio and classroom disconnects the design-based and lecture-based courses. These labs are arranged in a way that the same labs could be converted to suit lecture and seminar-based courses. At cross-disciplinary level, labs were allocated to act as a shared resource between architecture school and other departments and other knowledge communities.

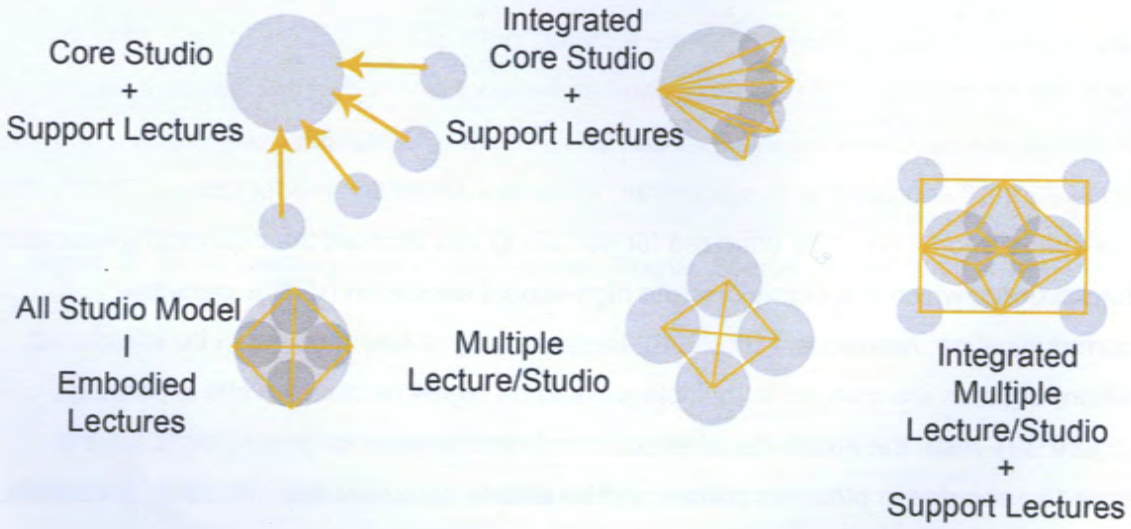


Figure 39: Diagram of studio-Classroom relationship

Case Study: "Innovation Tower", Hong Kong University, by Zaha Hadid Architects, 2007

Figure 40: Figure: Stratified Rock (Source: Flickr)

Figure 41: Floating Ship (Source: Flickr)

Figure 42: Floating Glacier (Source: Flickr)

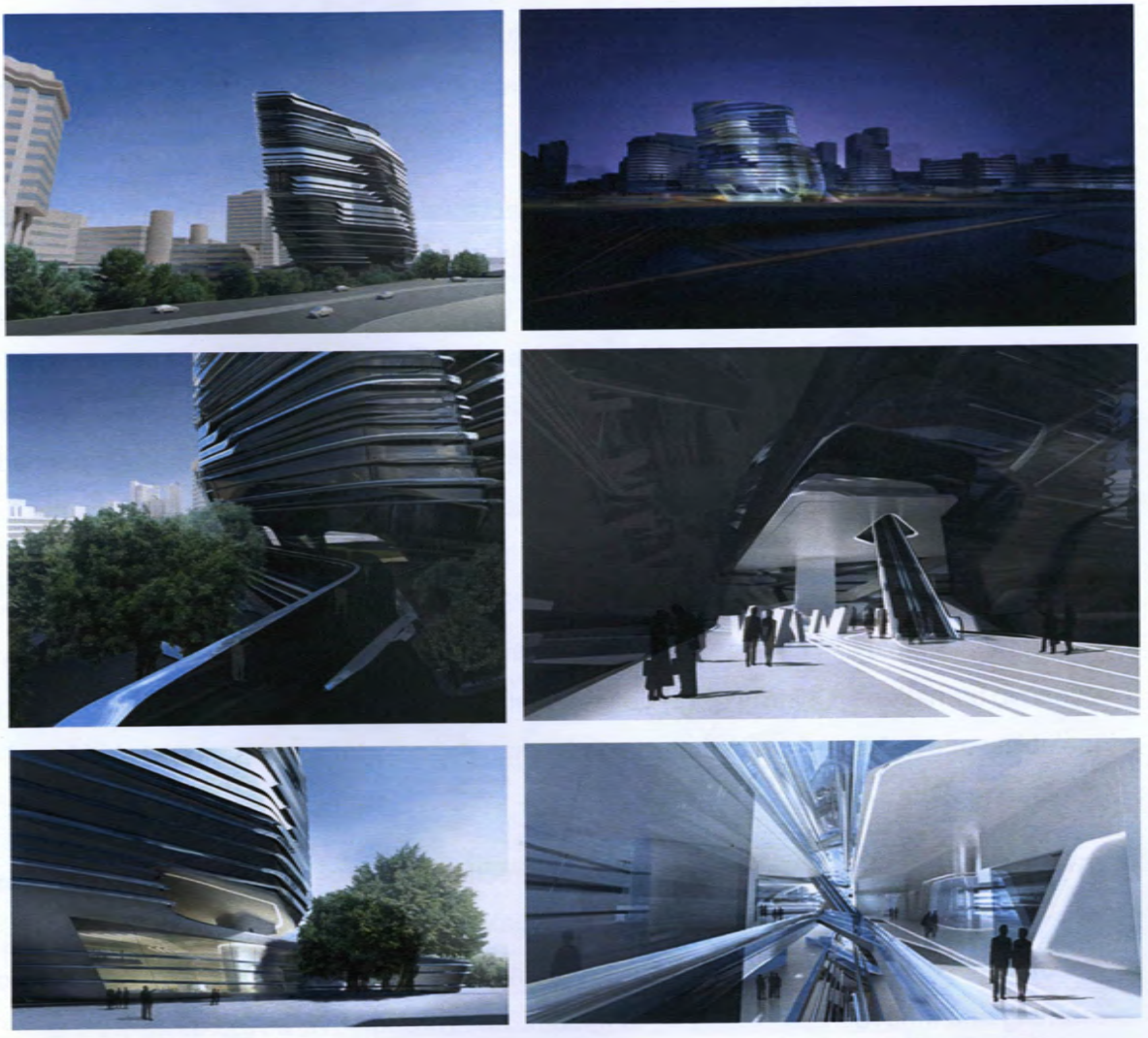


Figure 43: Innovation Tower- Interior and Exterior perspectival views (Source: Zaha Hadid, 2008)

In 2007, the commission for building the new School of Design for University of Hong Kong was awarded to Zaha Hadid. The "Innovation Tower" was considered, amongst the 48 competitors, as the best suiting for designing a new inter-disciplinary environment that would give Hong Kong the competitive edge to be "the design hub of Asia" (Zaha Hadid, 2008). This School of Design was planned to create new relationships between Environmental Design, Industrial and Product Design, Interior Design, Visual Communication, Advertising, and Digital Design. The construction would start in 2009 and is planned to be completed in 2011, with a cost estimation of $51 million. The site is 1.3 acres (5,260 Sqm) on a campus that is located near the city's main harbor. The twelve storey building has 130,000 square foot (12,000 Sqm) of floor area and is designed to accommodate more than 1,500 students and 300 staff. This is a proper case study for this thesis due to the innovative multi-disciplinary program that it houses and a fluid and flexible structure that accommodates it.

In 1972, Zahah Hadid won her first design competition for Hong Kong. The proposal was for a residential complex and recreational facility in Victoria Park, called the Hong Kong Peak. It was a horizontal Skyscraper built into the landscape of the city. The design was considered too futuristic and unbuildable at the time. She has stated that her understanding of the landscape and urban history of Hong Kong has evolved since then (Zaha Hadid, 2008). She defines her design as a "seamless fluidity" that has responded to "layering" and "porosity" of this context. Critiques believe that Zaha Hadid finds the "natural fulfillment of her deconstructive work" in the building's contextual geology (Cobelo, 1992). The building resembles a stratified rock or a floating iceberg flanked by louvers that unfold like waves. This could be understood as her embracement of nature's dynamic formations. Castro (1992) defines that Zaha constantly generates "new form" of instability and indetermination that reacts to change and continues in a process of contouring (figure 43).

The design is a three dimensional and multi directional interweaving of horizontal planes of landscape, floor planes, and louvers. This dialogue of woven elements creates a transitional environment and temporal experiences. Here, interactivity and possibilities of learning and innovating phenomena is maximized. Through this woven structure the possibility for diversification has been achieved at many levels. On one hand, the voids become the public plane that penetrates within and through the tower (figure 44). Here

the inter-mingling between self, other, and the community shapes. These voids have been fabricated as inside/outside courtyards, exhibition areas, recreational facilities, and circulation ribbons. On the other hand, the tower diversifies the programs, composes them based on their "collateral flexibility", and overlaps them in order to create new ones. (Zaha Hadid, 2008). These programs are exposed to one another, to the voids, and to the circulation ribbons (figure 44).

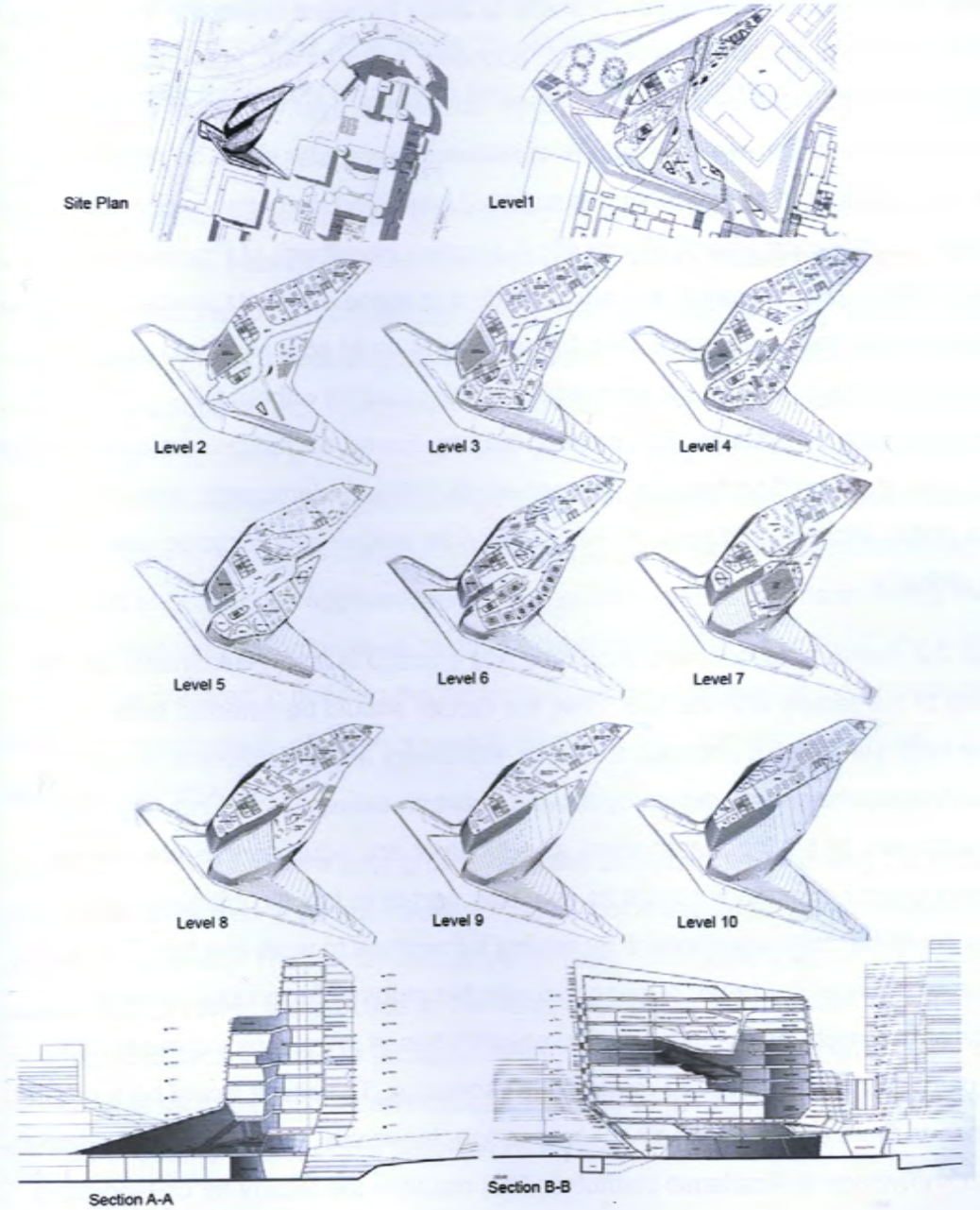


Figure 44: Innovation Tower- Plans and Sections drawings (Source: Zaha Hadid, 2008)

Applied Education: Theory of Practice and Practice of Theory

Theoretical Discourse and Design Principles

One of the significant changes in Architecture is the on-going shift towards a knowledge-based profession. This demands a greater partnership between university and industry for conduction and application of research. Besides, Jones (2005) believes that this relationship is the key for a successful transfer of talent between university and industry. At the same time, the globalization of design economy requires the" knowledge-clusters" to bring the innovation to a level that gives them advantage over the global competitors. The current linear and one-way movement of knowledge-transfer could be rethought for a greater engagement of its elements: Education (University), Experience (Industry), and Examination (Certification Board) (figure 45) (Canadian Handbook of Practicing for Architects, 1999). The existence and advancement of these elements are dependent on one another. This interdependence asks for an integration of education into practice and practice into education. This integration would not be possible without the standardization of both systems. The existing country-based accreditation system should respond to the globalized profession. In other words, this standardization should be through a global accreditation system, yet it should be unique in order to be able to compete globally.

First of all, the relationship between university and practice is highly dependent on the relationship of the faculty with the two. First, the faculty should be selected base on their strength in both scholarship and practice. Also, educators and practitioners should continuously build their relationships by flowing between university and industry. This could be achieved by having practitioners as educators and educators as practitioners. Practitioners could become educators as adjuncts, part-time faculty, critiques, etc. Educators could become practitioners by getting fellowships to work in a firm. Third, faculty should engage in a better relationship with the industry for conduction and application of research. As the demand for research-based inventions increases, the cost and complexity for conducting research is escalating. The result would be a greater dependence of firms on external body of knowledge. Inevitably, one of the best external sources of knowledge is Academic institutes. This requires the faculty for collaborating with industry partners and the university in order to facilitate this collaboration.

Second, the relationship of the education and practice should be preserved through a life-long process of pedagogy. This is not only true for those who enter the practice, but also for the educators. Having practitioners at the continuing-education department has several advantages. First, it allows the one in practice to be more involved with the new knowledge generated in academy. It also connects the architects in practice with the educational institute and builds new relationships between university and industry. At the same time, the educators need to be all familiarized with the new knowledge in the areas other than their specialties. This is specifically critical in having the knowledge of new technologies for the faculty in order to be capable of integrating them into their course materials.

Third, the greater relationship between university and industry is dependent on integration of new technologies in architectural education. These new technologies can be defined as construction technologies and communication technologies. Construction technologies include issues in material innovation, construction/ assembly methods, sustainable solutions, etc. The communication technologies are focused on matters of formal experimentation and representation. On one hand, the university needs to generate graduates who are prepared for the technological context of the future practice. The role of the university is to transfer the knowledge of technology to students. This should not only focus on application of these technologies, but understanding the role of these technologies in the process of design thinking. On the other hand, the institute needs to be involved in building the future technological context of the profession. It should be rigorously involved in research, analysis, and innovation of future technological knowledge.

In order to accommodate a joint growth between university and industry the pedagogical institute is not looked at as an academic space, but a shared resource between the partners (figure 46). The human and physical resources of the institute are valuable assets that can bring the practice to the heart of campus. Specific labs are designated as Integrated Labs in order to facilitate usage beyond departmental level. Also, other professional facilities such as architectural bookstore, gallery, and library can become the heart house of professional activities of Toronto.

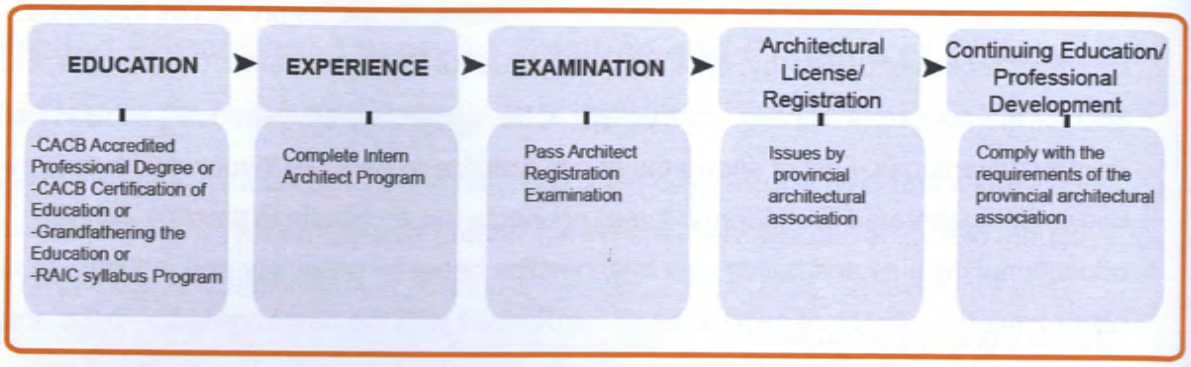


Figure 45: "Pathway to the profession". (Source: Canadian Handbook of Practicing for Architects, 1999, P.1)

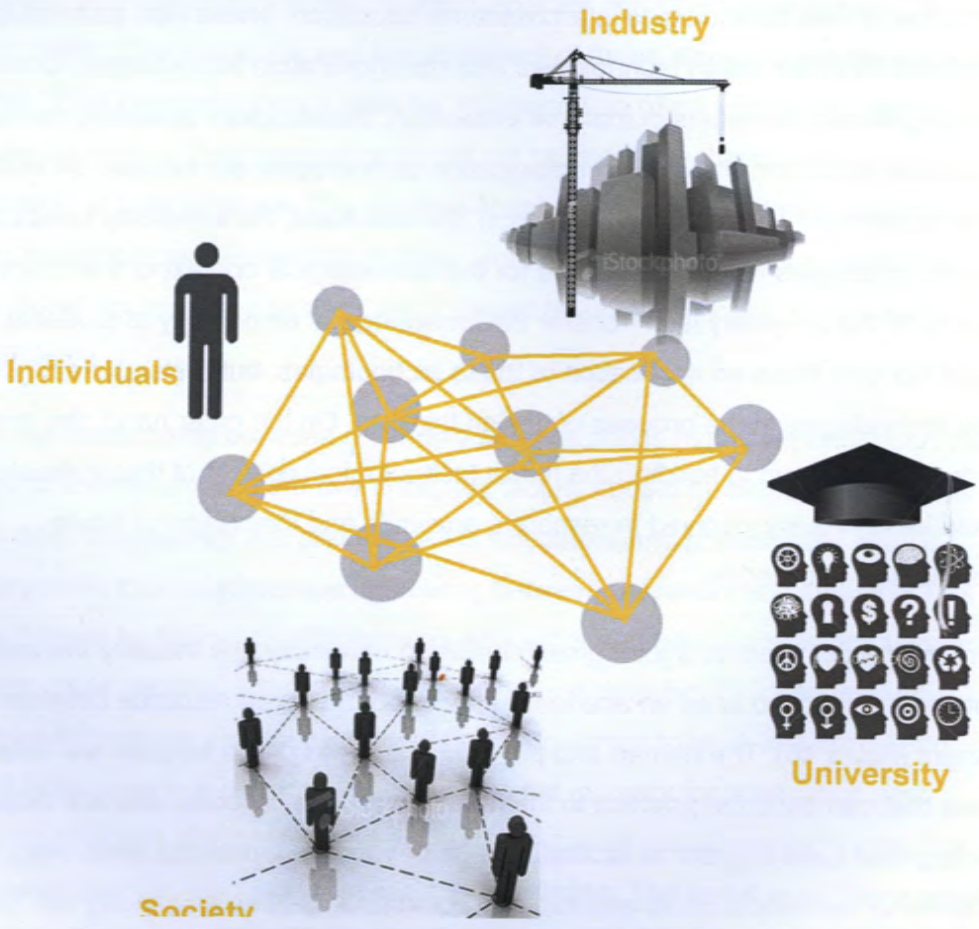


Figure 46: The academy as a shared resource within its architectural context

Educational Advocacy: community outreach

Theoretical Discourse and Design Principles

The educational institute should serve the society by constantly promoting ethical awareness and capability of making judgments that would respect and serve the existing social context, and build the future society. Cramer (2007) believes that it is the obligation of the educator to add value to its existing social context by architecting a world of "understanding, respect, harmony, innovation, and security". This would be achieved through generation of professionals who are scientific researchers, critical thinkers, and entrepreneurial problem solvers.

In order to respect and serve the existing context, the educational institute should prepare individuals who understand the history and traditions of the existing context. At the same time, they need to have an education that involves social, political, economical, and technological issues. Besides, they need to have a great understanding of urban design issues, conservation/preservation, etc. Besides, they should also engage with building real life projects that would serve the society. These individuals should also be capable of design thinking and making judgments in favor of all humans' physical and psychological well-being (Spector, 2001).

In order to build the future society, the educational institute needs to create the culture that an ethical architect could be practice within. Cuff (1992, p.43) refers to architecture school as a "socializer" where the future architectural "value" is defined. This means that the education would be for the students, educators, practitioners, and citizens. The educational institute needs to connect not only with the local community but with the national and international societies. This could be beneficial for both society and university. This would give the students a broad understanding of the global context and real world issues. At the same time it exposes the university to the public and responds to the issues associated with public's architectural illiteracy (Boyer and Mitgang, 1996). This could be achieved through engaging the individuals with society through field trips, abroad studies, and internationally-based projects. Also, this connection could be made by engaging the community with the institute through exhibitions, seminars, symposiums, etc.

This asks for an educational environment that encompasses the public domain at its core. This is represented by looking at this physical environment as an extension of the most public realm, the street that runs through the building and exposes the inside to the outside and vice versa.

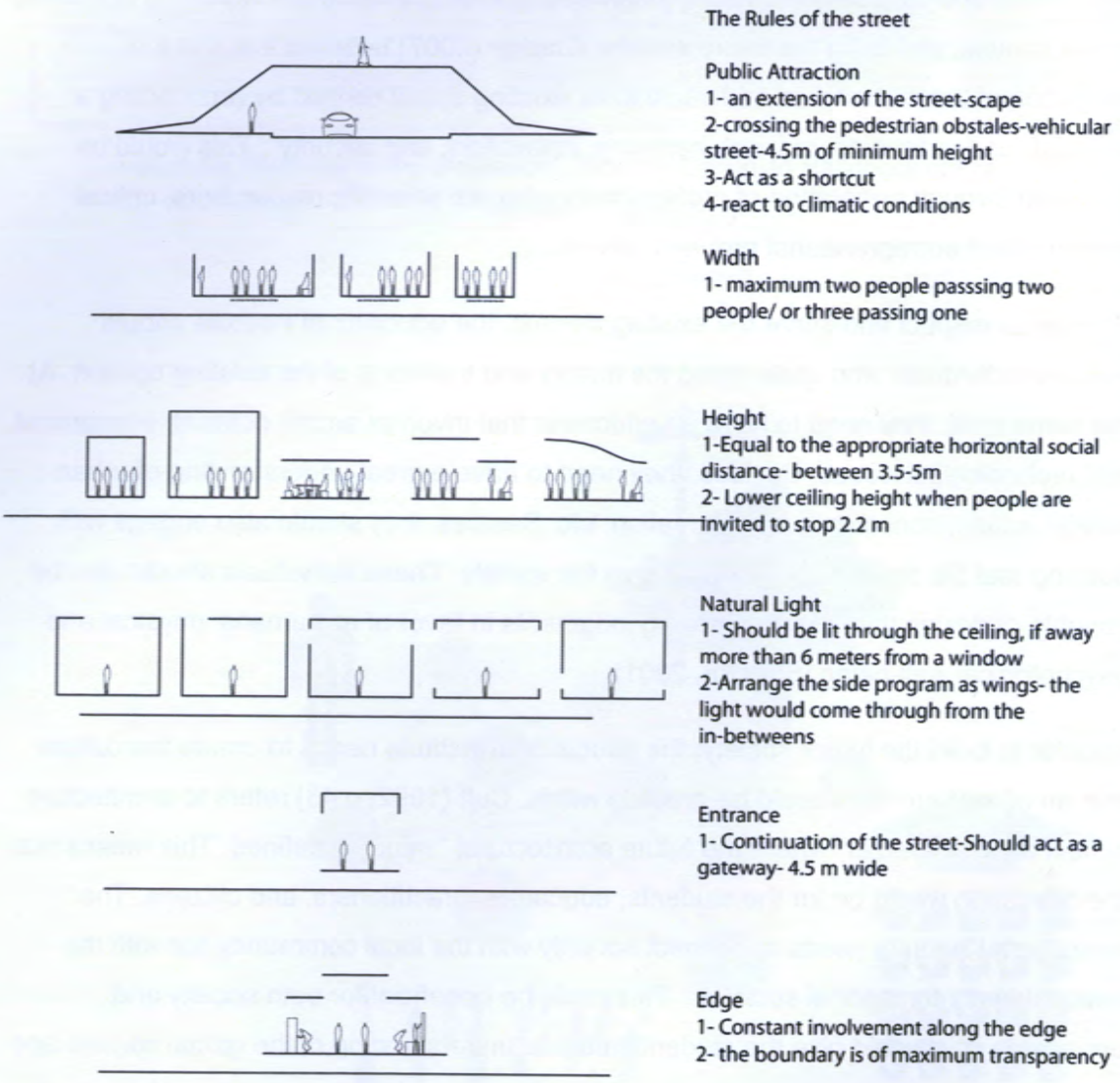


Figure 47: The design principles of the interior street

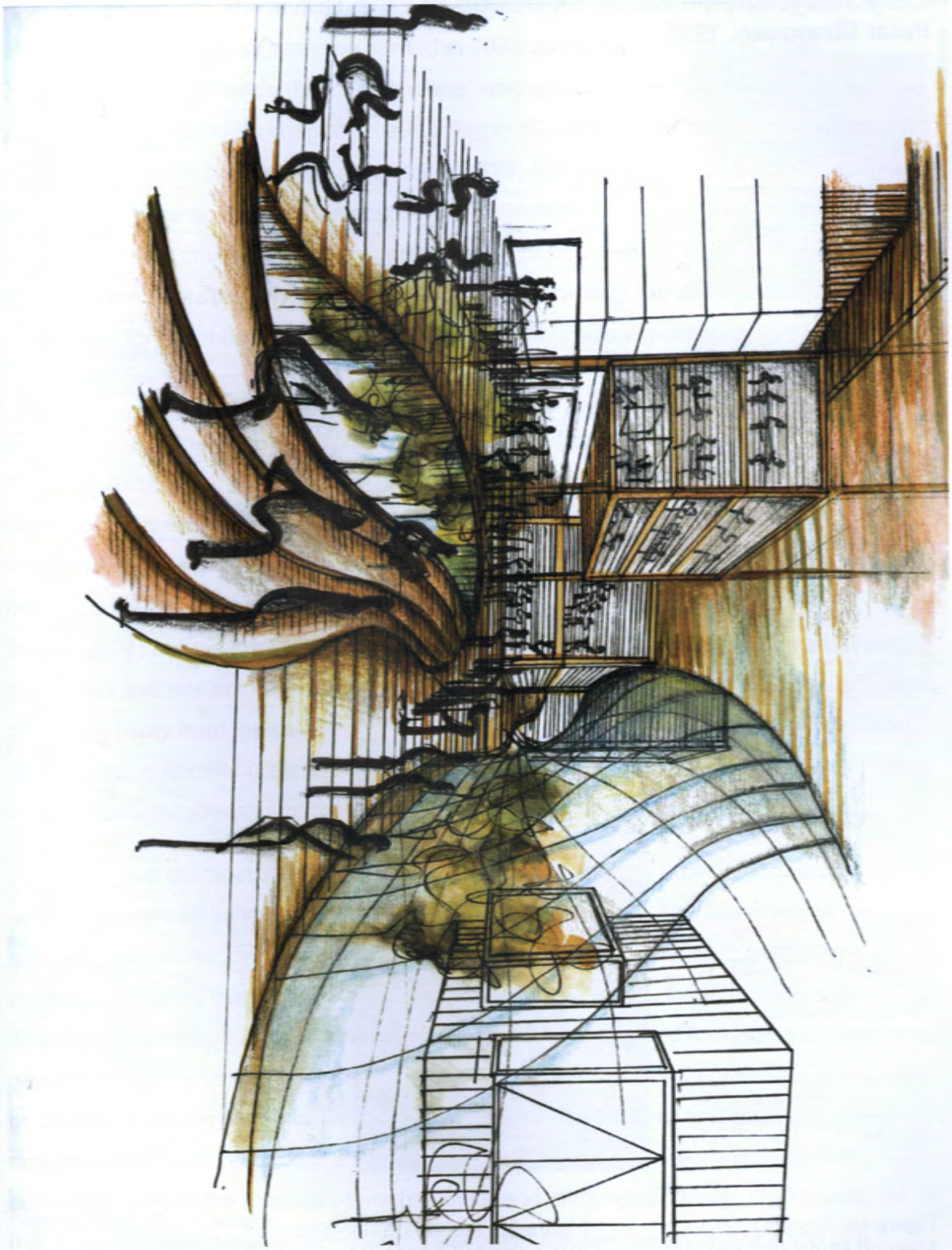


Figure 48: Preliminary Sketch: Visualization of Architecture School as a Bazaar

Case Study: Aronoff Center for Design and Art- University of Cincinnati, by Peter Eisenman, 1996

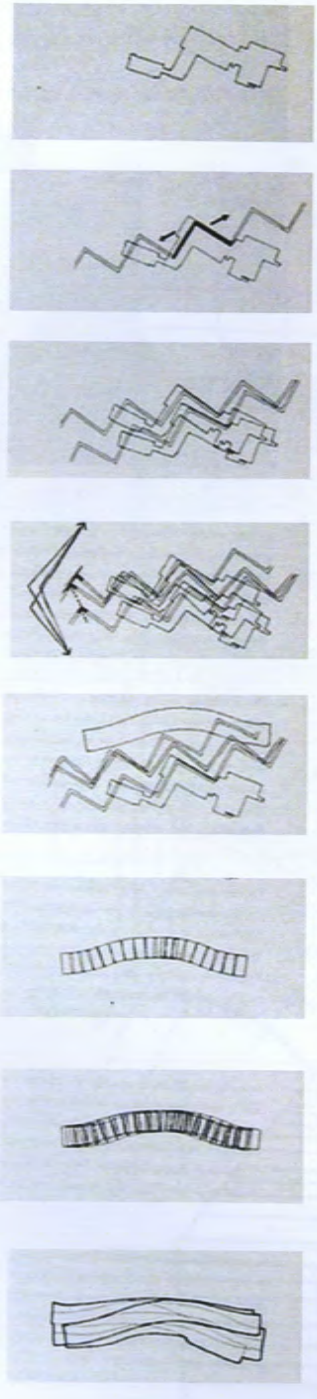


Figure 49: Aronoff Center- Massing Model and Site plan (Source: Eisenman, 1997, p. 66-68)

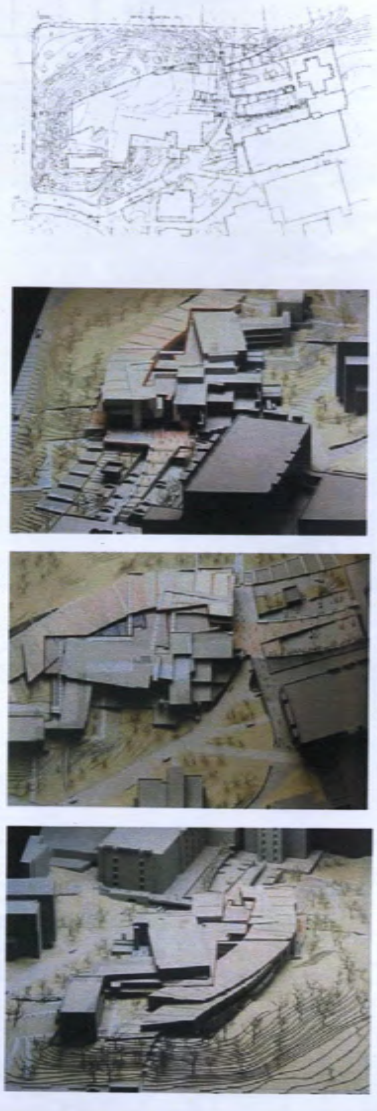


Figure 50: Aronoff Center- Floor plans, 2nd to 5th floor (Source: Eisenman, 1997, p. 66-77)

Figure 51: Aronoff Center- Parti Development (Source: Eisenman, 1997, p. 65)

The college of Design, Architecture, Art, and Planning has been designed in 1988 by Peter Eisenman. The construction started in 1993 and was completed in 1996. Eisenman calls it "a rock concert in concrete" where the unique interactions between the four disciplines would be shaped. The building is 15,250 Sqm, including the original 145,000 Sqf of the building and an additional 128, 000 Sqf of exhibition, library, theater, studio, and office space and has cost 3.4 million dollars. Eisemann's design was intended to be a criticism of the "superficial and inconsequential" training of the time and a redefinition of the role of architect and his attitude towards the society. It is picked as a case study for this thesis because of its controversial pedagogical impacts and post-occupancy performance.

Eisenman has attempted to respond to the social and cultural context of the school. The building has responded well to its natural context by adapting the topography of the site (figure 51). Eisenman states that he has responded to the built context by adapting the chevron form of the previous and adjacent buildings on the campus, which were developed during the late-modernism era (Eisenman, 1997) (figure 52). On one hand, Naser (2007) argues that the chevron is just visible in the first floor plan of the building (figure 50) and has not been informed three-dimensionally (figure 53). Also, this tradition of moving away from the city grid can be criticized as a gesture towards the separation of the campus from its urban context. This social disconnect is also visible through the impermeable exterior skin of the building.

Eisenman has attempted to break all the conventional rules of order, geometry and symmetry and traditions of hierarchy and aesthetics. He describes his vision as "a geometry where the formal container is so fractured that the space is no longer contained by form" (Naser, 2007). In persuasion of this vision, he shifts, tilts, and distorts the elements. Adele Santos (1991) criticizes the resulted form to be too rigid and deterministic for a time and style which does not respond to the "future open-endedness" of the design education. Also, as a result of these deformations, new problems have emerged which has resulted in awkward spaces, poor lighting, fake windows, and concealed truth of the materials through colors and ornaments. Meiss (1990) believes that this untruthfulness is a sign of incompatibility between the art and science of a design.

Figure 52: Aronoff Center- Interior and exterior perspectives (Source: Eisenman, 1997, p. 66-78)

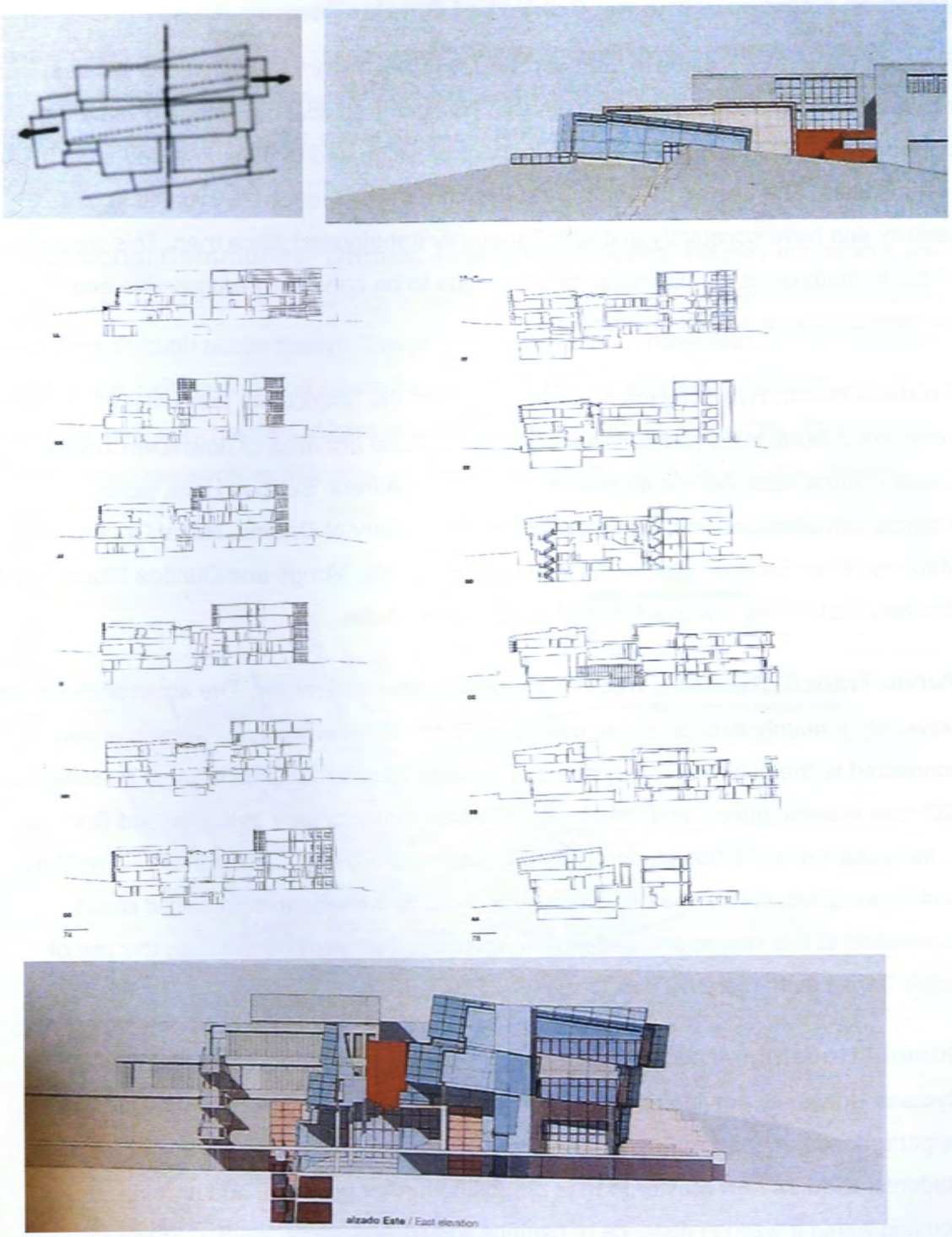


Figure 53: Aronoff Center- Sectional and Elevational drawings (Source: Eisenman, 1997, p. 66-78)

Site Analysis

Ryerson Campus within the Context of Greater Toronto Area

Ryerson University, located in the heart of Downtown Toronto, which is the greatest architectural knowledge-cluster in Canada. This geographical advantage gives the university the potential to be exposed to the profession and to other knowledge communities. The University and the Architecture department were initiated in mid 20th century and have constantly and simultaneously transformed since then. This dynamism of the institute gives it a cutting-edge advantage to be constantly progressive and contemporaneous with its environment.

Cultural Hubs: Ryerson University benefits from the "immediate proximity" to Toronto's cultural hubs and connectivity to the cultural activities of downtown Toronto. These cultural hubs include Museums, Galleries, theaters, Concert Halls, public squares, streetscapes, etc. Distillery District, Art Gallery of Ontario, Royal Ontario Museum, Four Seasons Center for the Performing Arts, Yonge and Dundas Square, and Distillery District are few examples of these cultural hubs.

Public Transit: Ryerson is a commuter-based urban university. The accessibility of the university is mainly through public transit and pedestrian walkways. Ryerson is very well connected to the public transit systems of Greater Toronto Area including TTC subway, GO train system, buses, and streetcars. The campus is located at Yonge and Dundas subway station and 9,000 students, faculty, and staff are regular users of TTC (KPMB Architects, 2008, p.76). The new master planning by KPMB have proposed direct connection to this station and pedestrian walkways that would encourage the use of public transit even more (KPMB Architects, 2008, p.76).

Student Housing: According to the report prepare by KPMB Architects in 2008, Ryerson University provides housing for 840 students. In addition, the adjacent older neighborhoods at east side of campus also provide some affordable housing for students. KPMB's new Master Plan is proposing further graduate and undergraduate housing within a walking distance of campus KPMB Architects, 2008, p.38).

Institutional Knowledge Communities: Ryerson's campus location gives it a great advantage of having a physical proximity to a variety of Toronto's major knowledge communities. These communities are either within the walking distance of the campus or have a direct access through public transit. These knowledge communities include Libraries, Universities, Community Colleges, and Think Tanks. Toronto Reference Library, University of Toronto, OCAD, George Brown College, National Ballet School, Center for Social Innovation, etc. are amongst these knowledge communities.

Professional Community- Offices: Toronto's architectural industry and offices are mainly clustered within downtown core, within a walking distance of Ryerson campus or accessible through public transit. This proximity allows for a more feasible relationship between the professional and educational community in many ways. For instance, it allows for both communities to take advantage of each other's resources. This includes human resources such as adjuncts, or physical resources such as labs and libraries.

Figure 54-Ryerson's Campus and its cultural context

Figure 55-Ryerson's Campus and accessibility

Figure 56-Ryerson's Campus and neighboring affordable housing

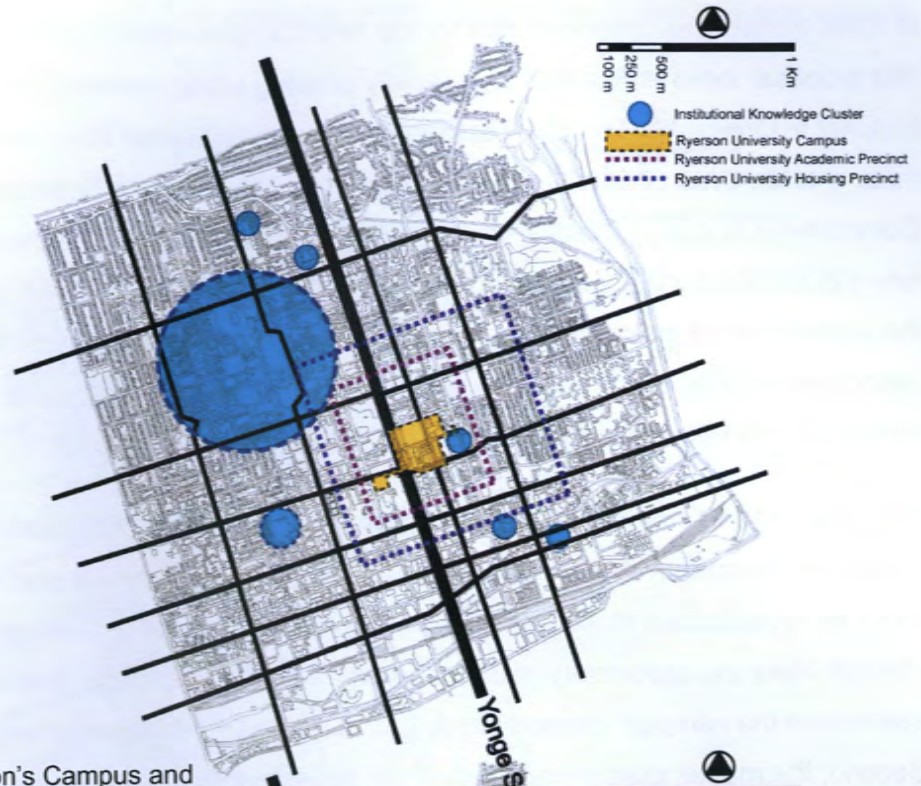


Figure 57-Ryerson's Campus and adjacent educational communities

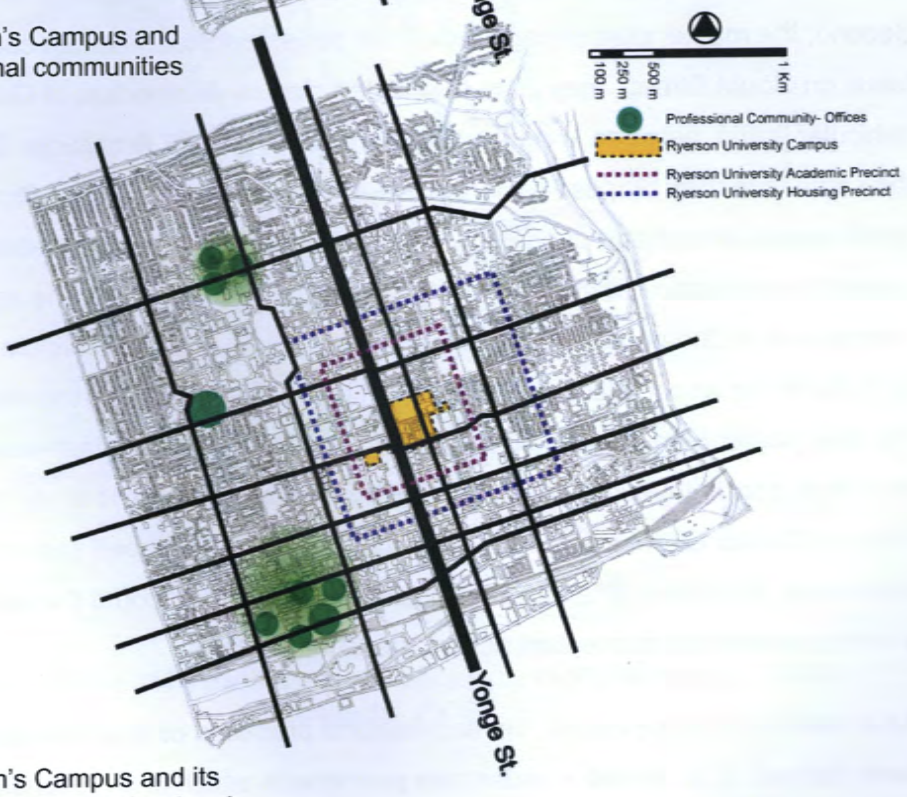


Figure 58-Ryerson's Campus and its proximity to Architectural Professional community

Future of Ryerson Campus

In 2008, KPMB was commissioned for the new Campus Planning of Ryerson University. The proposal looks at Ryerson as a rapidly growing urban university with a small footprint in Downtown Toronto. The framework of their Master Plan is defined base on three criteria: Urban Intensification, Pedestrianization of Urban Environment, and Commitment to design Excellence (KPMB Architects, 2008, p.2). When looking at the future of architectural education at Ryerson University, it is essential to take into account the evolvement of the context and propose an intervention that reacts to the issues associated with its future. As a result, this master plan was studied and principles of their proposals was taken into consideration, analyzed and responded to.

First of all, KPMB's proposal presents Ryerson University as the "catalyst of change in downtown Toronto "(KPMB Architects, 2008, p.2). But, the master plan has a lack of focus on revitalization of the east side of Toronto, which is in a much greater need for change. Here the opportunity abounds to look at the Architectural premises that emphasize the campus' connectivity to both east and west adjacent neighborhoods. Second, the master plan strongly promotes pedestrianization of the campus, with a focus on Gould Street. They have suggested closure of a portion of Gould Street to vehicular traffic, between Victoria and Bond Street (KPMB Architects, 2008, p.96). At the same time they propose a more permeable building around the Quad, which is public green space at the heart of campus (Figure 59). This creates a well-defined web of pedestrian circulation at the core of Campus. On the other hand, the connection of this internal web to the peripherial buildings has not been clarified. This creates an opportunity for an architectural intervention that weaves the heart to the context. Third, the new master plan focuses on public realm by proposing an east-west green belt that runs from Yonge to Mutual Street (KPMB Architects, 2008, p.111). At the same time, the issue of Church Street acting as a vehicular obstacle to this belt has not been addressed. This asks for a new proposal that takes into account the need for creation of a strong pedestrian connection across the Church Street.

As a reaction to these issues, the architectural premises of this educational Bazaar have been defined. It is defined a pedestrian promenade which is an extension of the Gould Street, evolving as a bridges over the Church Street (Figure 60). This would not only

react to the contextual issues of the campus but would bring the public realm to the heart of the architectural education. The exposure of the school to the public and vice versa is the core of this Bazaar.

Figure 59- Future of Ryerson Campus proposed by KMPB Architects (KPMB Architects, 2008)

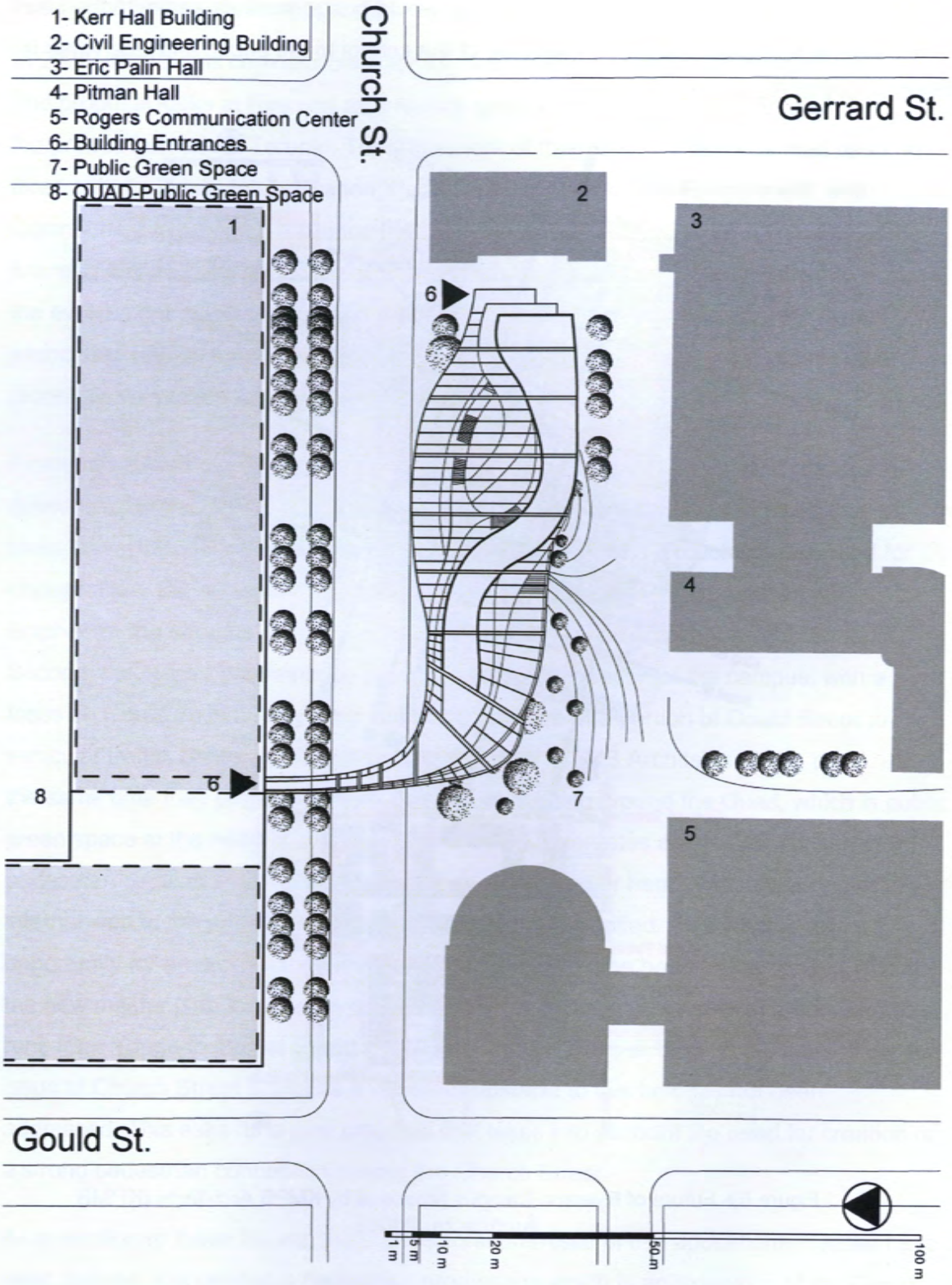


Figure 60- Site Plan

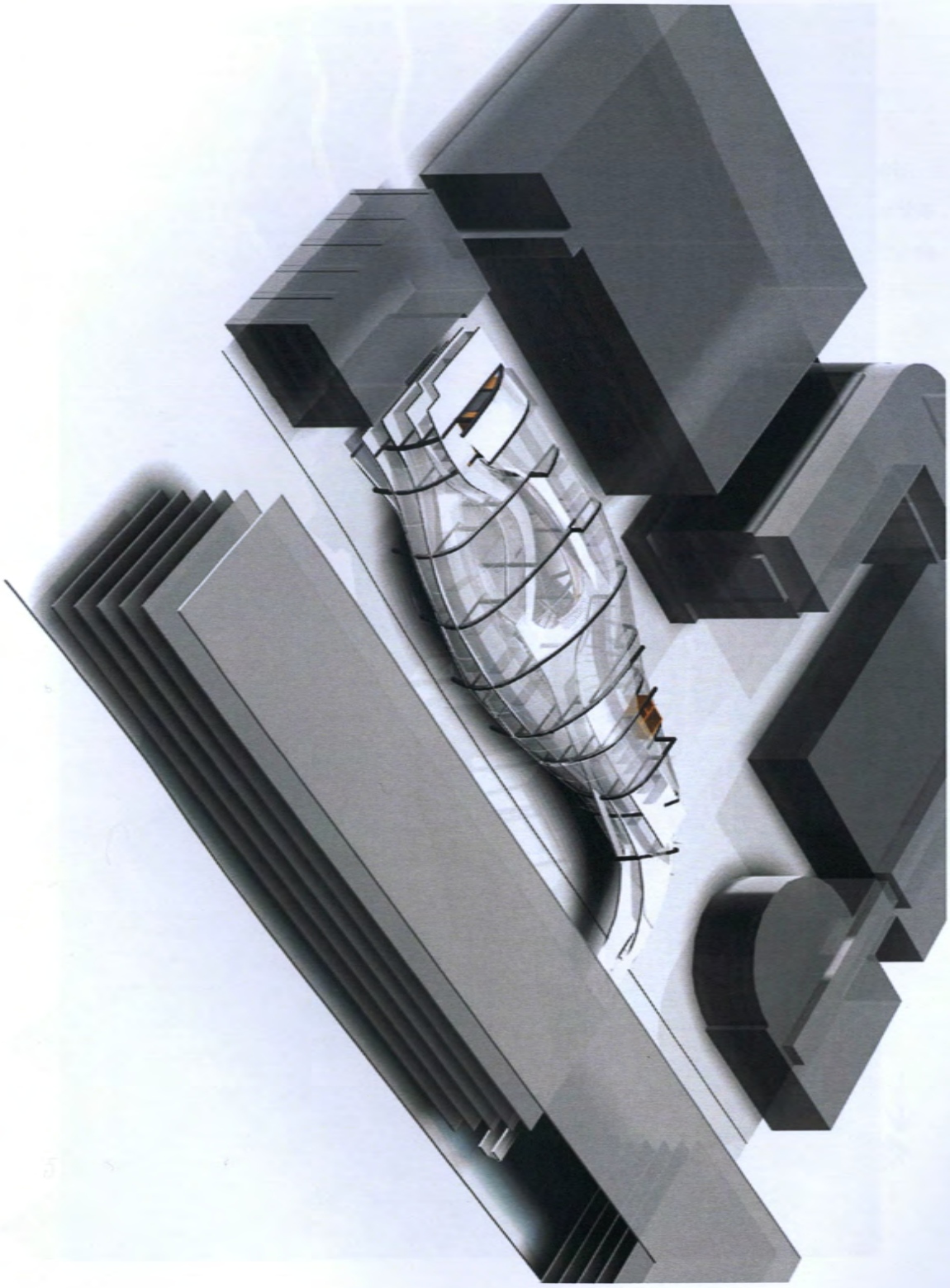


Figure 61- Aerial Axonometric View of the building on Site

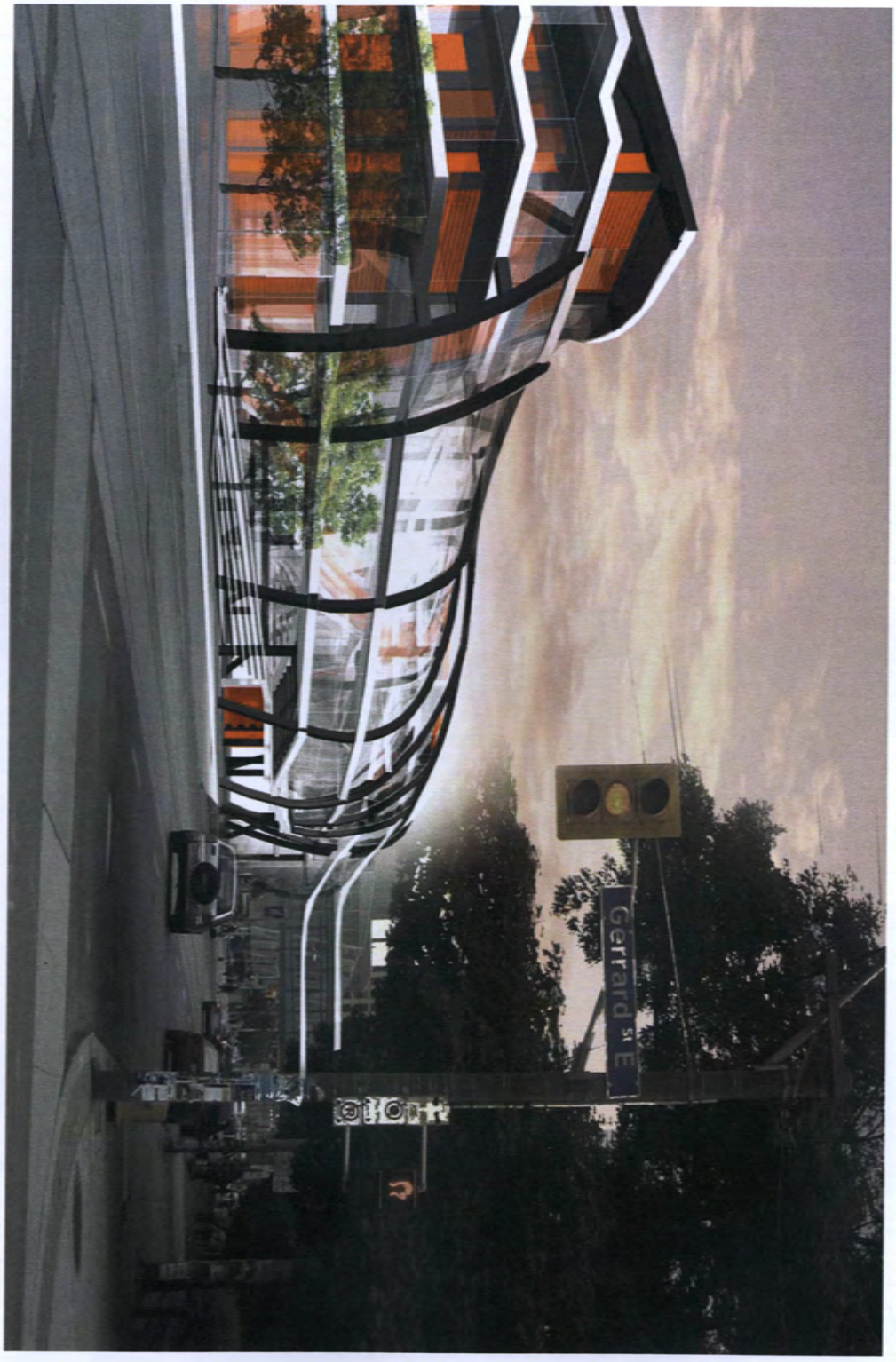


Figure 62- Exterior Perspective view from Church and Cerrard Intersection

Programmatic Design

Concept

The program is a woven structure, composed of three different ribbons: Public Street, Integrated Labs, and Specialized Labs. This woven structure creates a space where the cross-section of the building is constantly alternating and the relationship between these ribbons change. Here, the temporal experience of each ribbon is saturated with threshold of constant exposure and interaction with other ribbons.

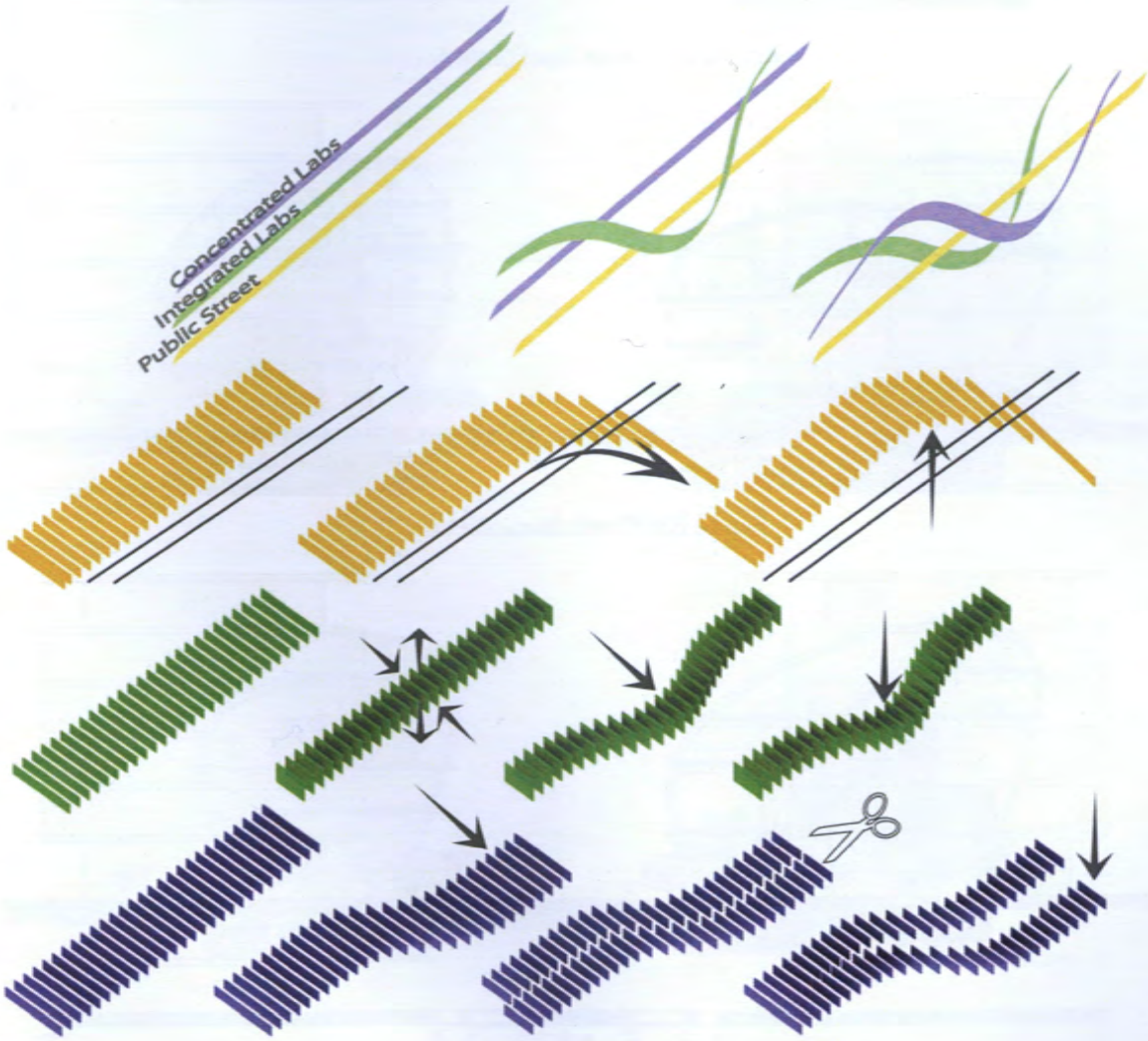


Figure 63- Process of programmatic weave

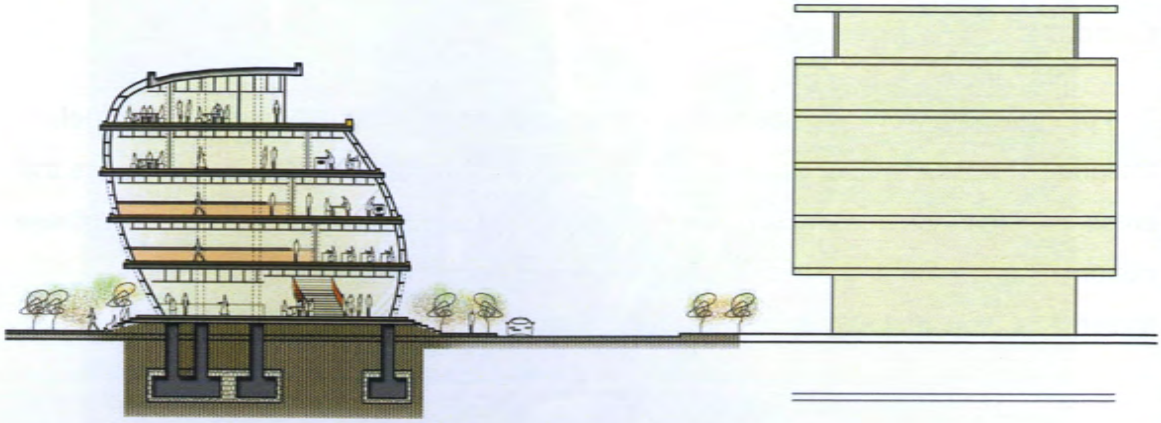


Figure 64- Cross Section A-A

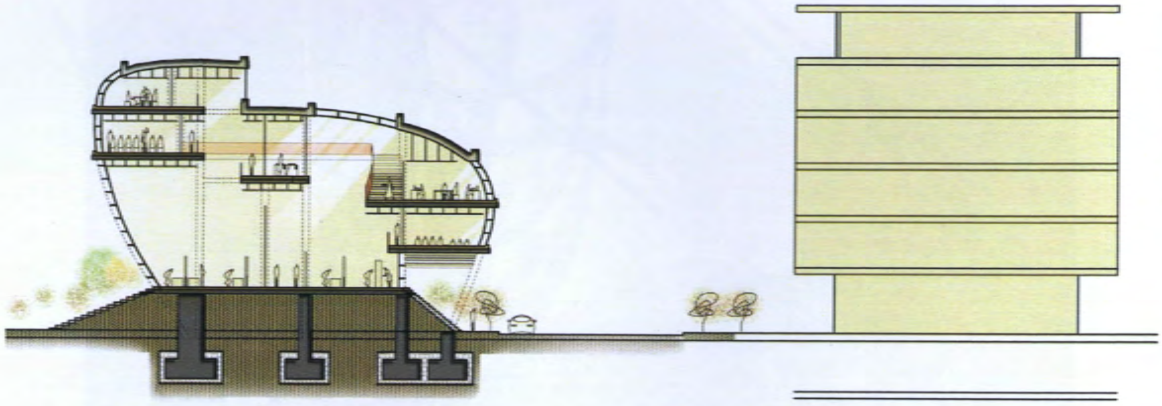


Figure 65- Cross Section B-B

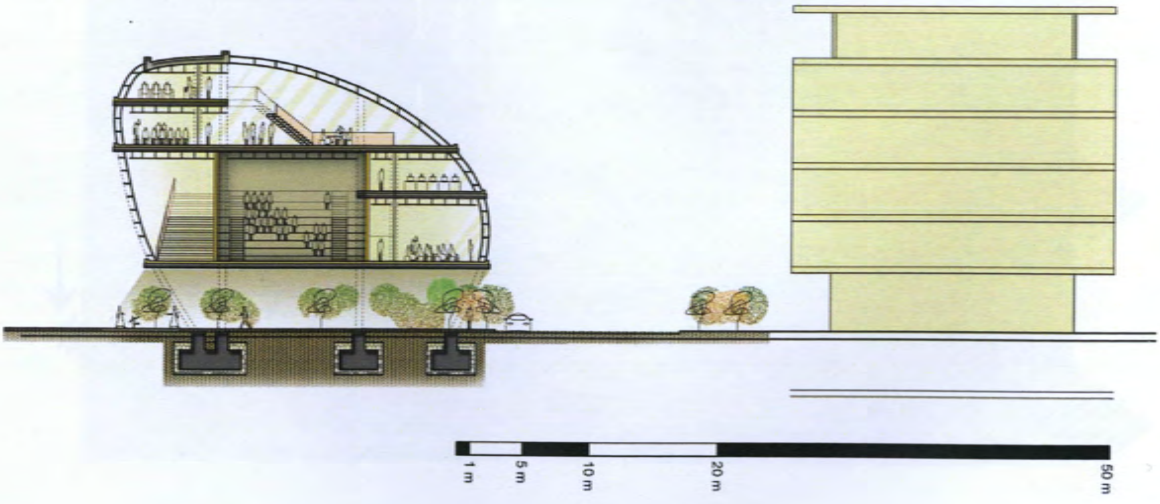


Figure 66- Cross Section C-C

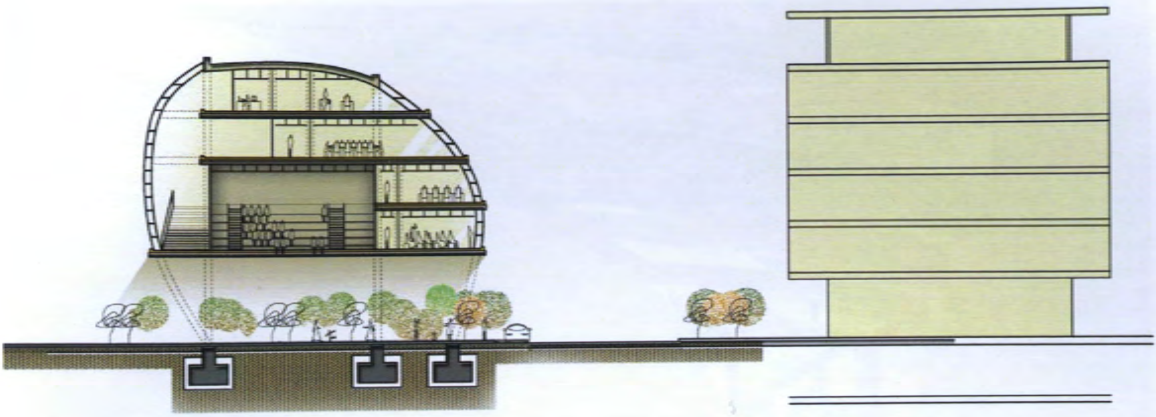


Figure 67- Cross Section D-D

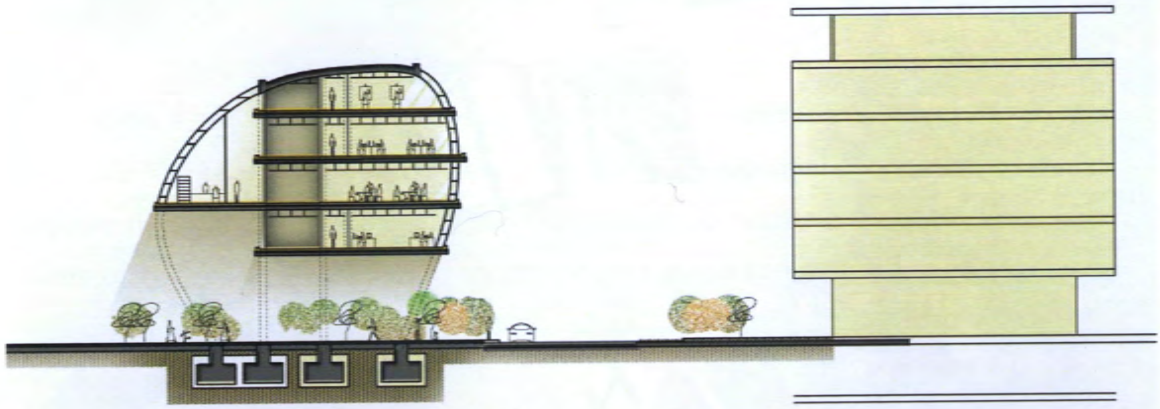


Figure 68- cross Section E-E

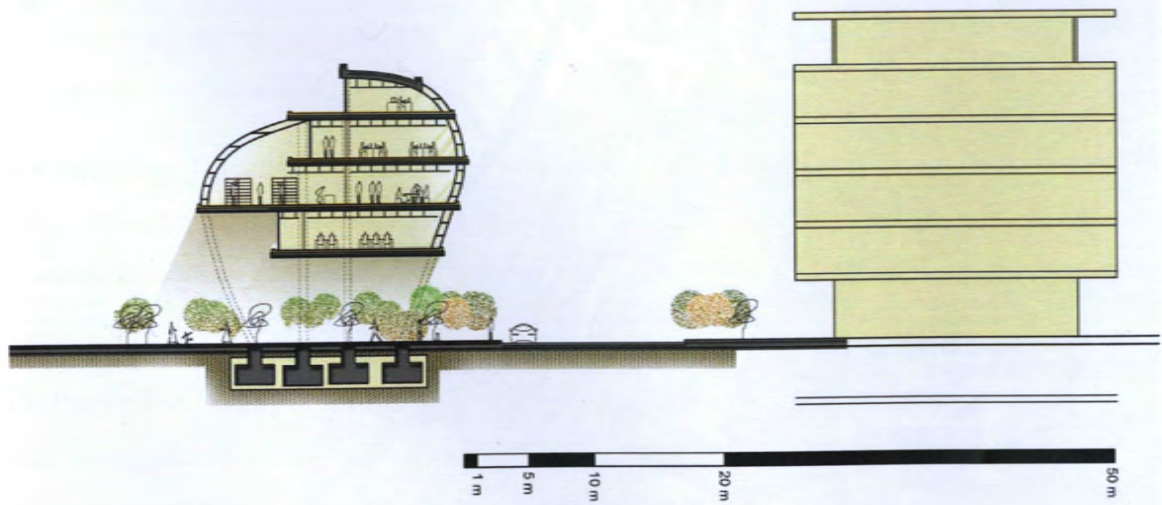


Figure 69- Cross Section F-F

Figure 70- Interior Perspective from the gallery

Public Street

Public Street is an extension of the existing pedestrian network of the campus. The role of this ribbon is to weave the building into the social context of the campus and the city at large. This interior street elevates gradually from Church and Gerrard intersection and bridges to the new proposed building by KPMB around the Quad. The programs on this ribbon will serve both academics and general public. At the same time, it expose and educate the two about one another.

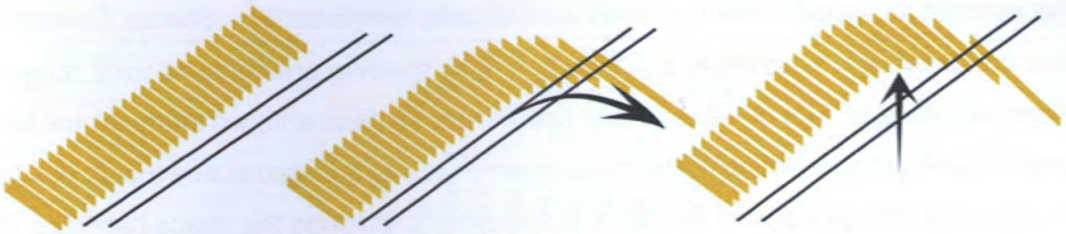


Figure 71- The Public Street ribbon

Reception Area: This area serves the primary administrative and receptive requirements of the school and gallery. It also has a designated coat check area for this purpose. It has an open working station that houses up to six staff members and two private offices for administrators. The lounge area at the front desk accommodates waiting and gathering of up to sixty visitors. Overall, this space is hundred square-meters and has an occupancy load of seventy.

Café: This area includes a storage/supply, preparation, and seating area. The preparation area can house up to four staff. The seating area is seventy square meters and accommodates up to thirty users.

Bookstore: This area includes a reception area with a supply storage space, an area designated for bookshelves, a display area for physical models and drawings, electronic resources, computer stations and projection boards. The overall area is two hundred square-meters and has an occupancy load of hundred people.

Gallery: The gallery is an open flexible area for various formats of exhibitions. It also has a reception area and an equipment storage space. In addition, it is accompanied with a gathering and presentation space beside the auditorium, using the exterior of the adjacent auditorium-wall as a projection screen. The overall area is four hundred square-meters and has an occupancy load of two hundred visitors.

Auditorium: The auditorium has a tiered seating area for two hundred people, a stage area, and a storage area for equipment. The overall size of the auditorium is four hundred square-meters.

Library: The library includes a reception area, offices, stacks/storage area, special collection area, open-shelf area, display area for physical models, material samples and large-scale drawings, computer stations, quiet study zone, and collaborative zone. The reception area separates the stacks from the open-shelves. It has two private spaces that connect this space to the secured special collection area. The Special Collection area can serve up to ten users and two staff. The shelving area holds books, magazines, slides, and videos. The quiet zone has open study stations and two study rooms for small private group meetings. The collaborative area is an open space that is designated for meetings and group works. It is up to the users to arrange the space based on their needs and the nature of their work. The overall size of the library is five hundred and sixty five square-meters.

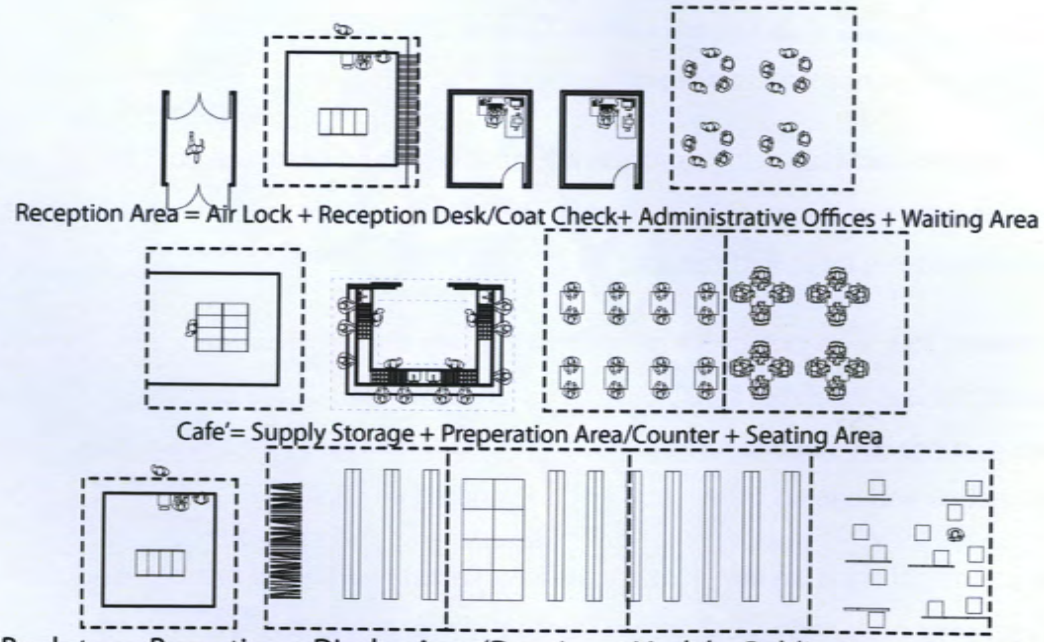


Figure 72- Programmatic details of the Public Street ribbon

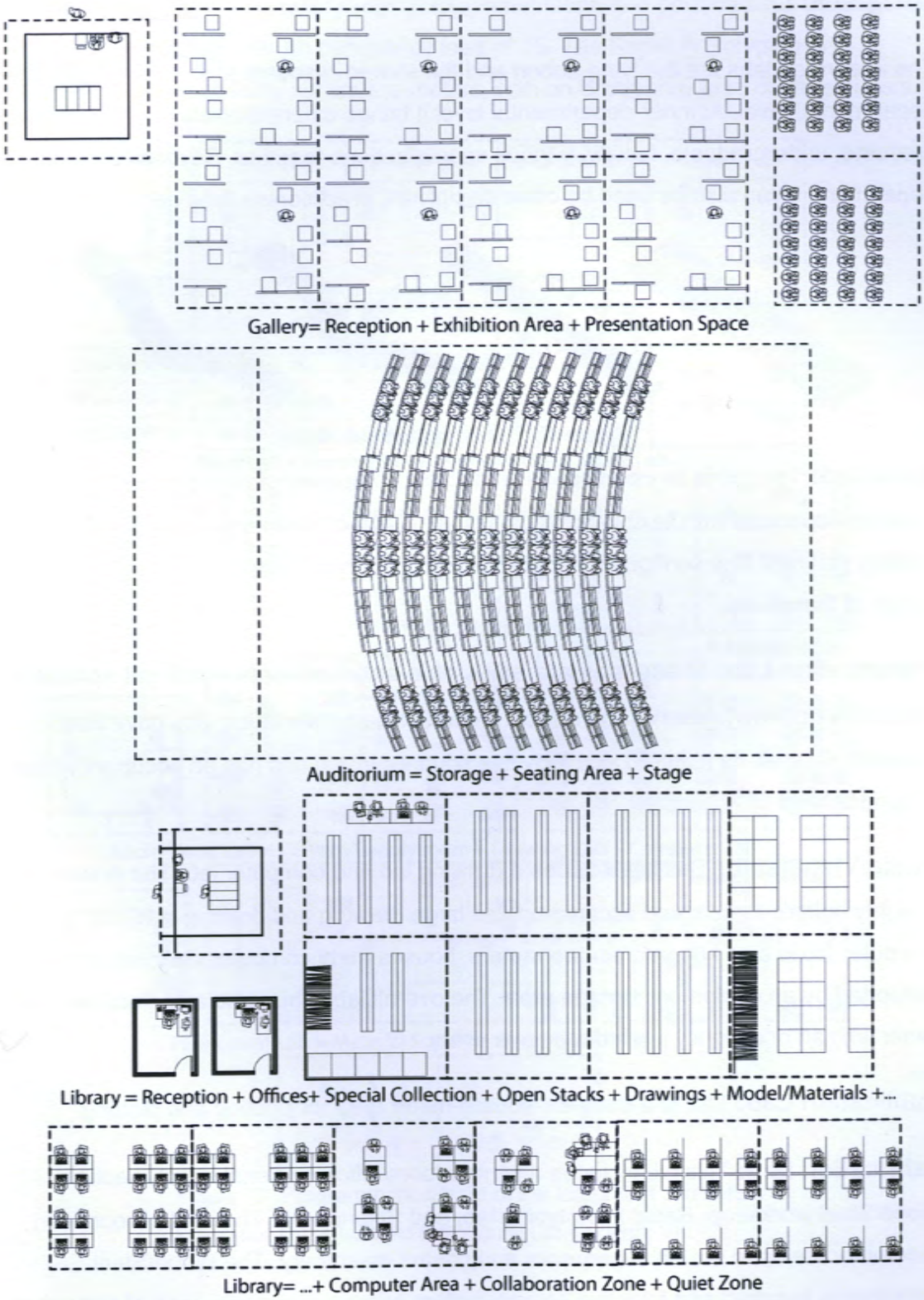


Figure 72- Programmatic details of the Public Street` ribbon

Integrated Labs

The Integrated labs are the tying ribbon and the shared resource at inner-and trans-departmental level. At inner-departmental level it brings different levels of study, such as graduate, undergraduate, faculty, various specializations together. Beyond the department, it can also be used by other disciplines, practitioners, and general public.

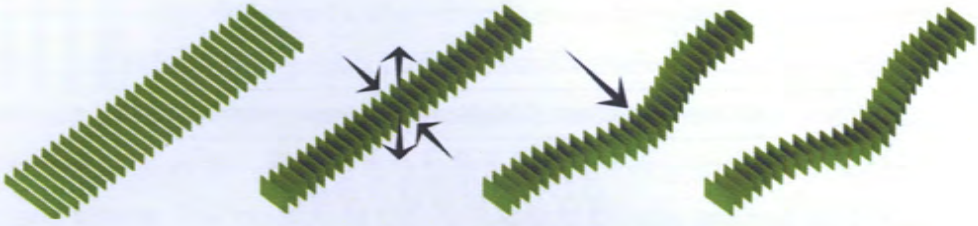


Figure 73- the Integrated Lab ribbon

Mass Lab: This lab is an open space studio. It is composed of nine smaller labs that could be separated with flexible partition system. Each of these smaller labs holds nine working stations. The configuration of these workstations can be changed based on the nature of that studio.

Presentation Lab: These labs are adjustable between eight small crit spaces to one large display/presentation space. Four flexible presentation labs have been provided. Overall, its hundred and forty five square-meters and has an occupancy load of hundred and sixty people.

Audio/Visual Lab: This lab includes a drawing lab and computer lab. The drawing lab is eighty square-meters and accommodates large drawing and drafting stations. The computer lab is also hundred square meters, houses thirty computer stations, and is supported by an equipment storage area. The overall lab is hundred and eighty square-meter with an occupancy load of sixty five users.

Publication Lab: This is a thirty-six-square-meter area for printing and plotting.

Fabrication Lab: This lab includes a control room/office, material supply section, Wood/Steel workshop, Rapid Prototyping lab, and Science lab. The control room can accommodate up to six lab supervisors and control machinery. The Wood/Steel workshop is hundred and forty five square-meters with an occupancy load of sixty users. The Rapid Prototyping lab includes digital fabrication machines and computer stations.

The Science lab has stations for material experimentation and performance studies. It is 36 sqm square meters with an occupancy load of 15. The Rapid Prototyping and Science labs are each thirty six square meters, with an occupancy load of fifteen users.

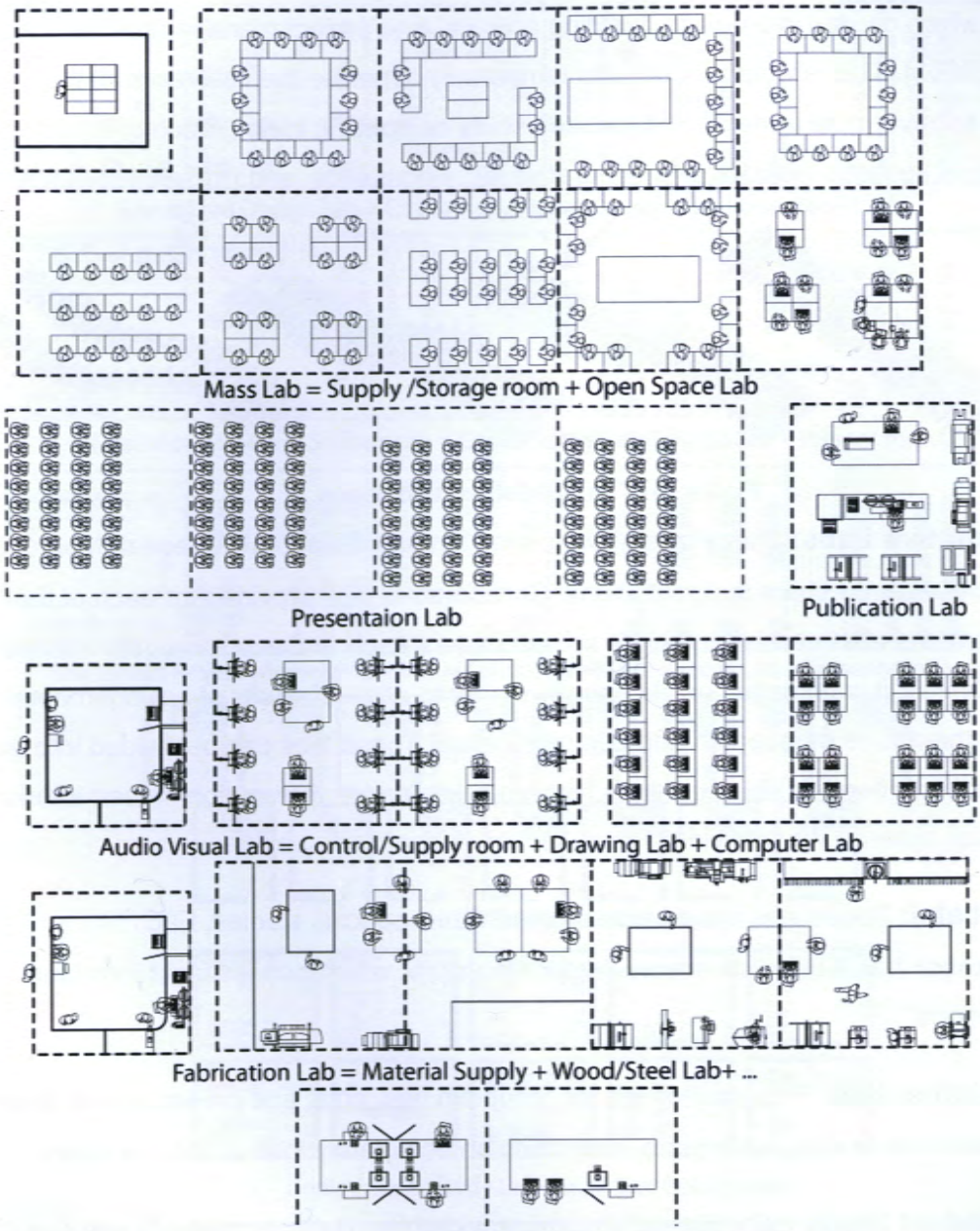


Figure 73- Programmatic details of the Integrated Lab ribbon

Fabrication Lab = +...Rapid Prototyping Lab + Science lab

Specialized Labs

The specialized labs are designed for more focused studies and smaller group interactive studies. The specialized lab is defined based on Ryerson's specialization system which divides into design, building science, and project management (Ryerson Report, 2008). This is where individuals temporarily separate themselves from the public domain to have more in-depth and focused study on specific topics. Each of these specialized sections includes a Collaborative lab, Focus labs, and Presentation labs.

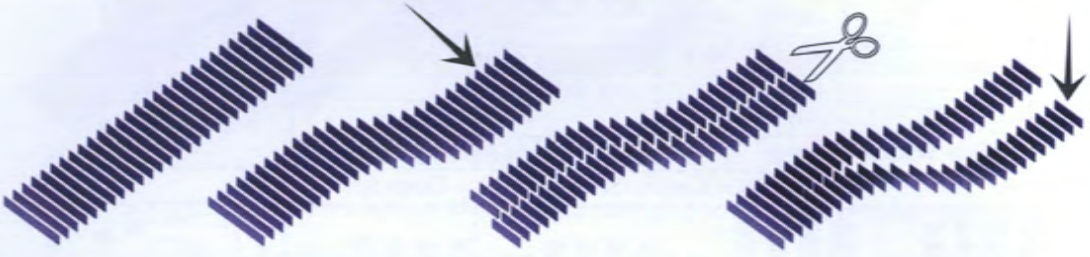


Figure 74- The Specialized Lab ribbon

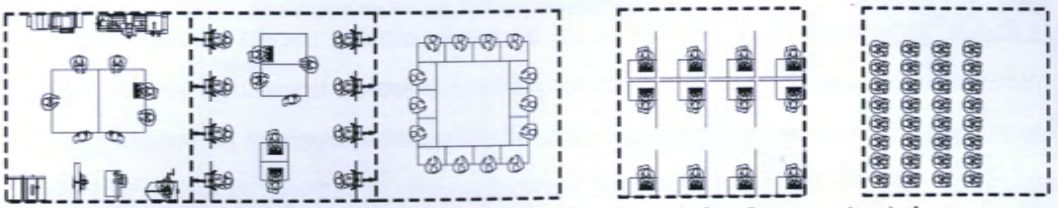
Collaborative Labs: These labs allow interaction and collaborative research amongst the individuals who share specializations. Collaborative labs provided for each of the specializations are hundred and eight square meters each and accommodate fort five users. Overall, it is an open flexible space in order to allow diversity of arrangements base on the nature of research and communication. These labs can be divided into three smaller labs through flexible partitions that are presented in the section named Interior Separation system. When divided, each section accommodates fifteen users.

Focus Labs: These labs are provided for individual specific studies. Each specialization has a thirty-six-square-meter Focus lab, which houses eight individual work stations.

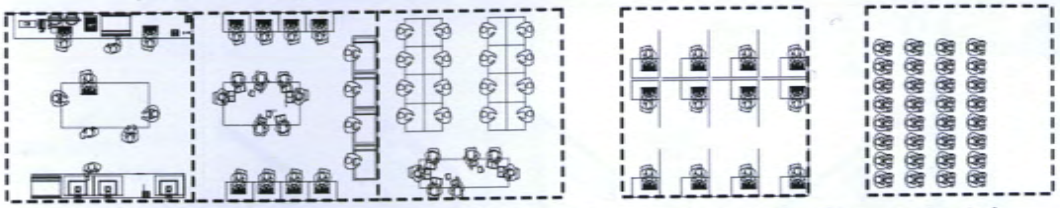
Presentation Lab: Presentation lab for group pin ups, crits, and presentations. Each presentation lab is thirty-six-square-meter with an occupancy load of fort five users.

Independent Study Lab: These labs are provided for graduate students and faculty and they were defined based on communicative variety of researches. These labs include fifteen individual labs, ten small collaborative labs and five medium collaborative labs. Each of these labs is hundred and fifty square meters. Individual labs are office spaces that accommodate researches that do not require large equipments. The

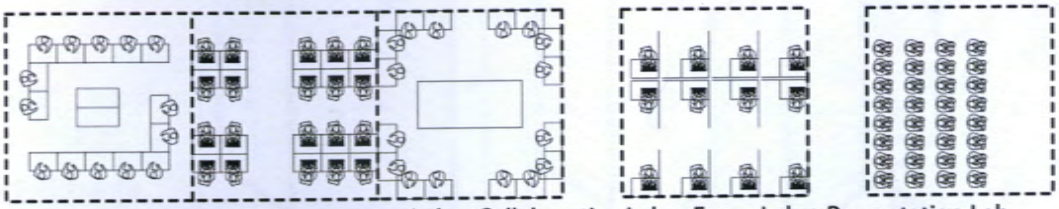
collaborative labs are small and medium size for different sizes of the research groups and equipment sizes. The small and medium labs can service an average of fifty users each.



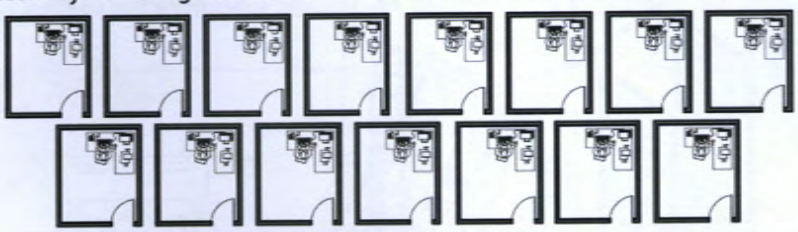
Specialized Design Lab = Collaborative Lab + Focus Lab + Presentation Lab



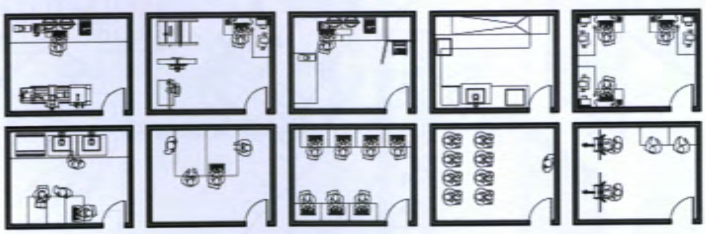
Specialized Building Science Lab = Collaborative Lab + Focus Lab + Presentation Lab



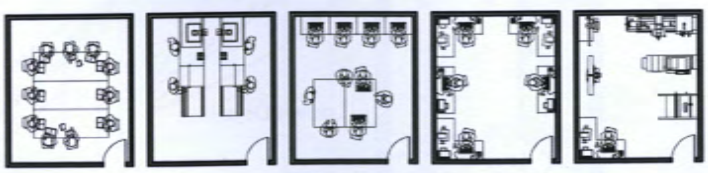
Specialized Project Management Lab = Collaborative Lab + Focus Lab + Presentation Lab



Indipendent Study Lab- Individual



Indipendent Study Lab- Small Size Collaborative



Indipendent Study Lab- Medium Size Collaborative

Figure 75- Programmatic details of the Specialized Lab ribbon

Interior Separator System

The building's interior partition system maximizes programmatic flexibility. As mentioned previously, the labs accommodate a wide variety of collaborative and individual studies, where the arrangement of these labs could be easily altered based on their need for communication and/or privacy. The interior partitions are composed of smaller vertical panels that can be rotated and slid to sides, offering three levels of permeability and transparency (Figure 76). Each of these vertical panels is fabricated with horizontal louvers. The louvers could be pivoted and slid up. This brings another level of control to the users (figure 77).

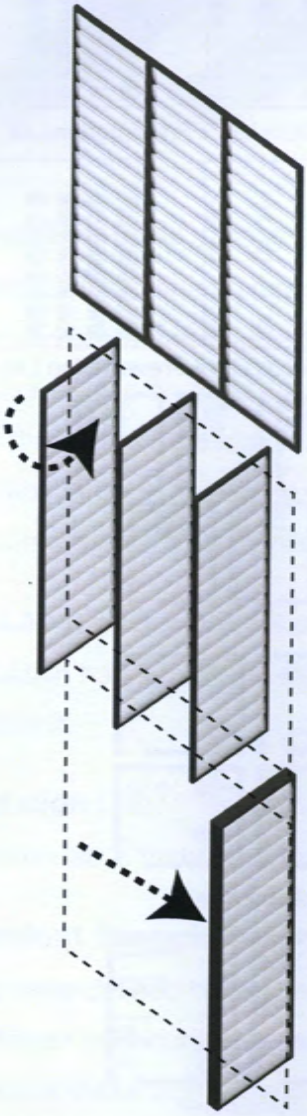


Figure 76- Interior partition system

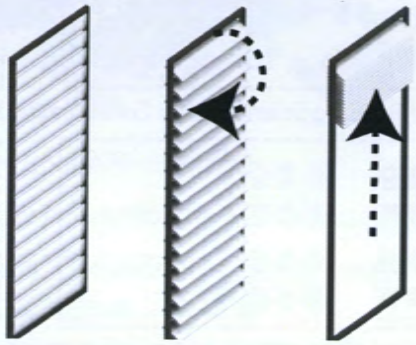


Figure 77- Louver system of the vertical interior partition

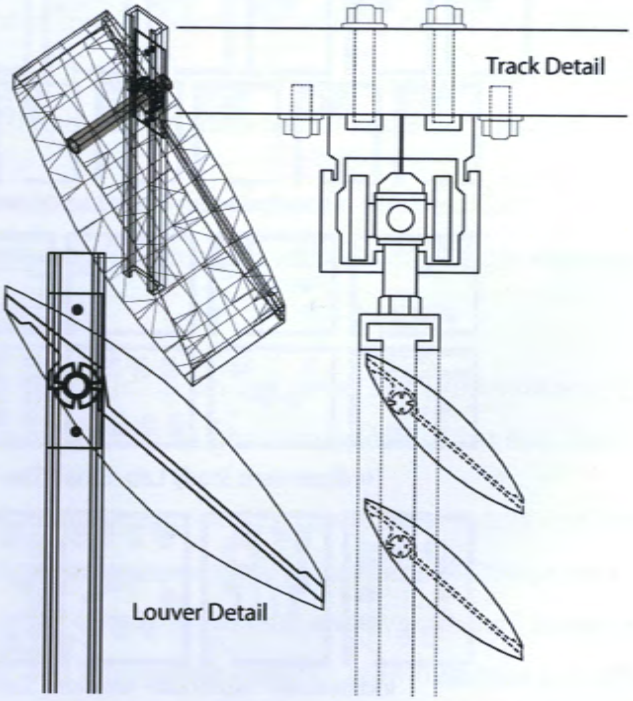


Figure 78 - Detail of a typical vertical interior partition

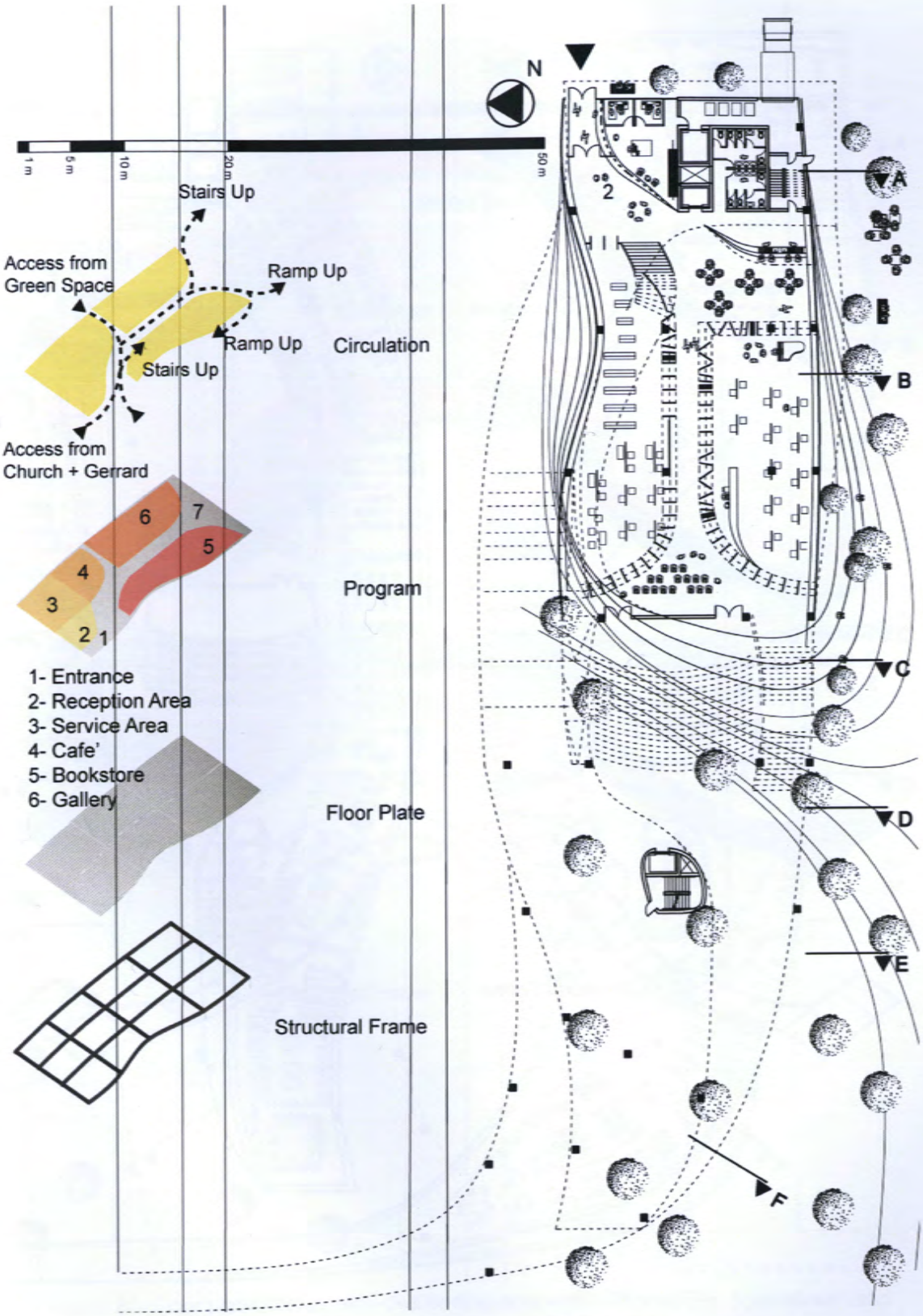


Figure 79- Floor plan of level one- Public Street

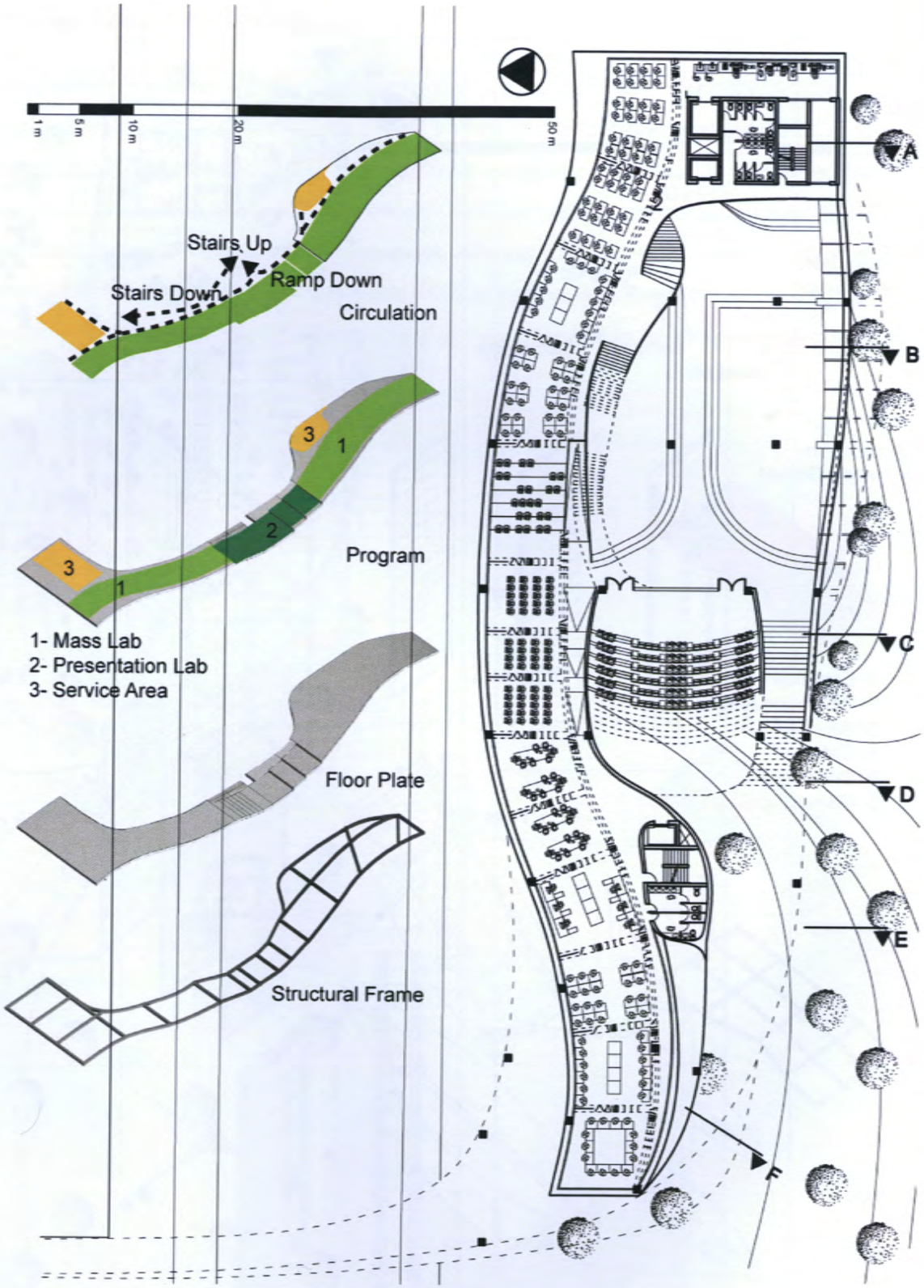


Figure 80- Floor plan of level two- Integrated Labs

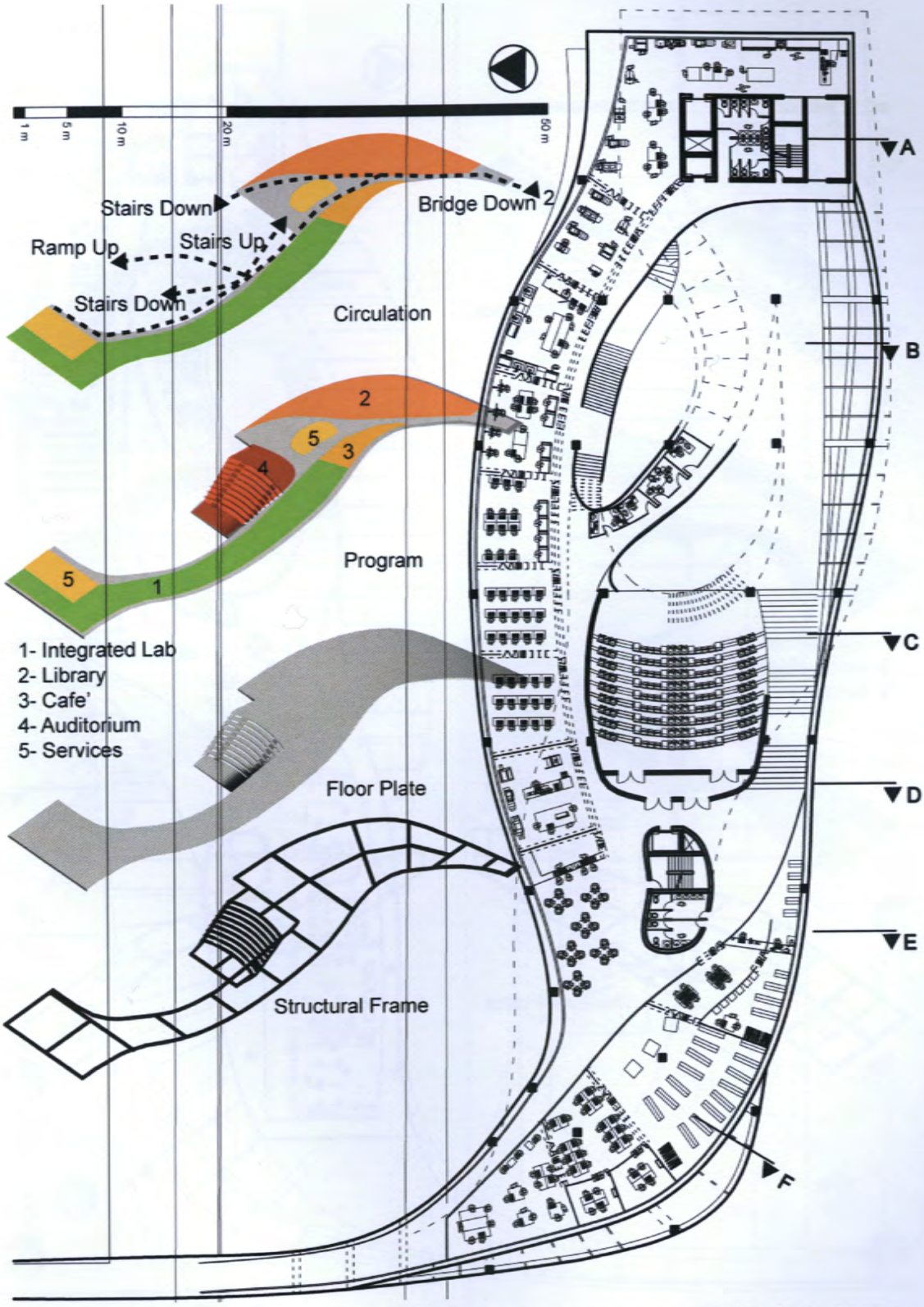


Figure 81- Floor plan of level three- Public Street, Integrated Labs, and Specialized Labs

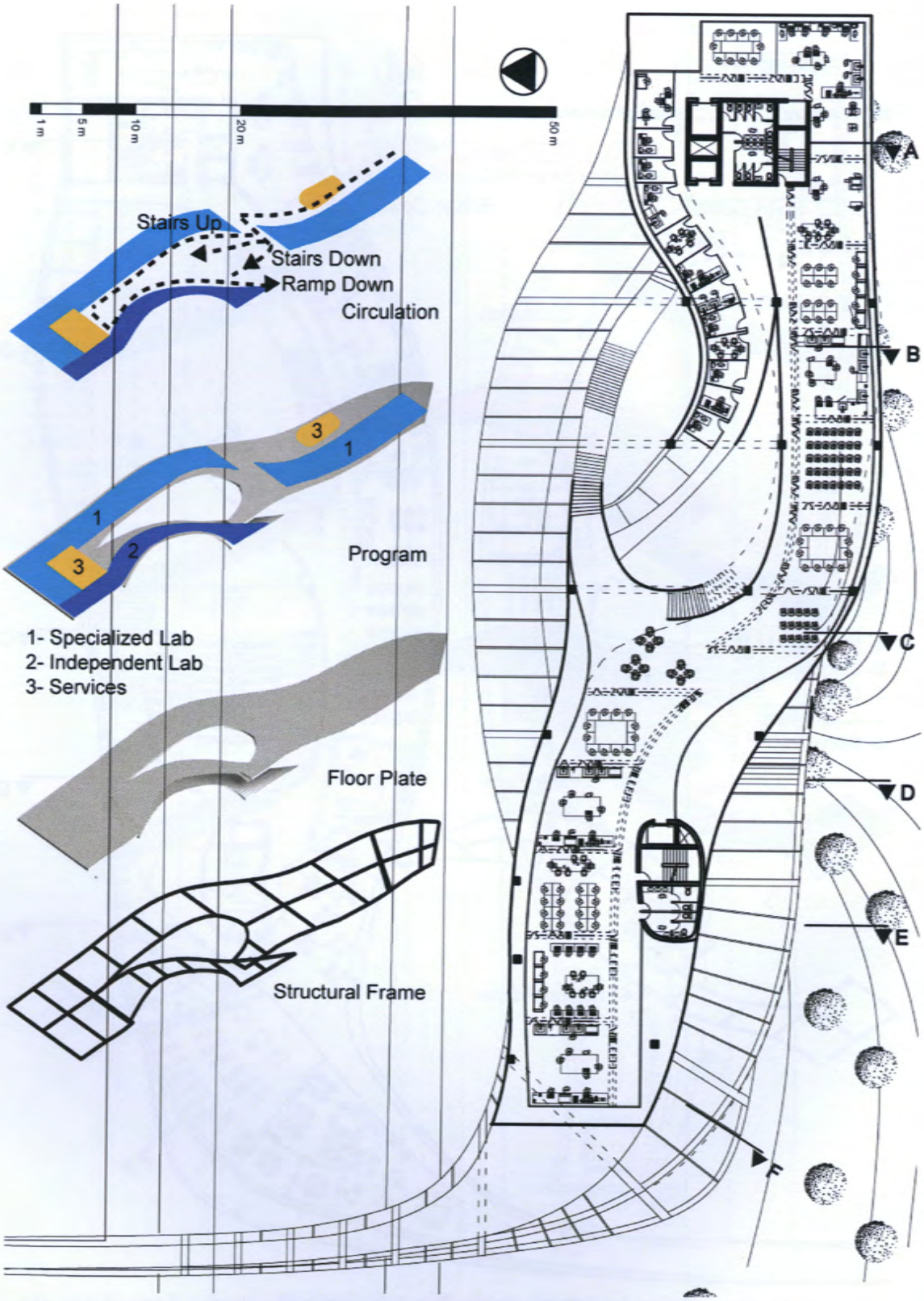


Figure 82- Floor plan of level four- Specialized Labs

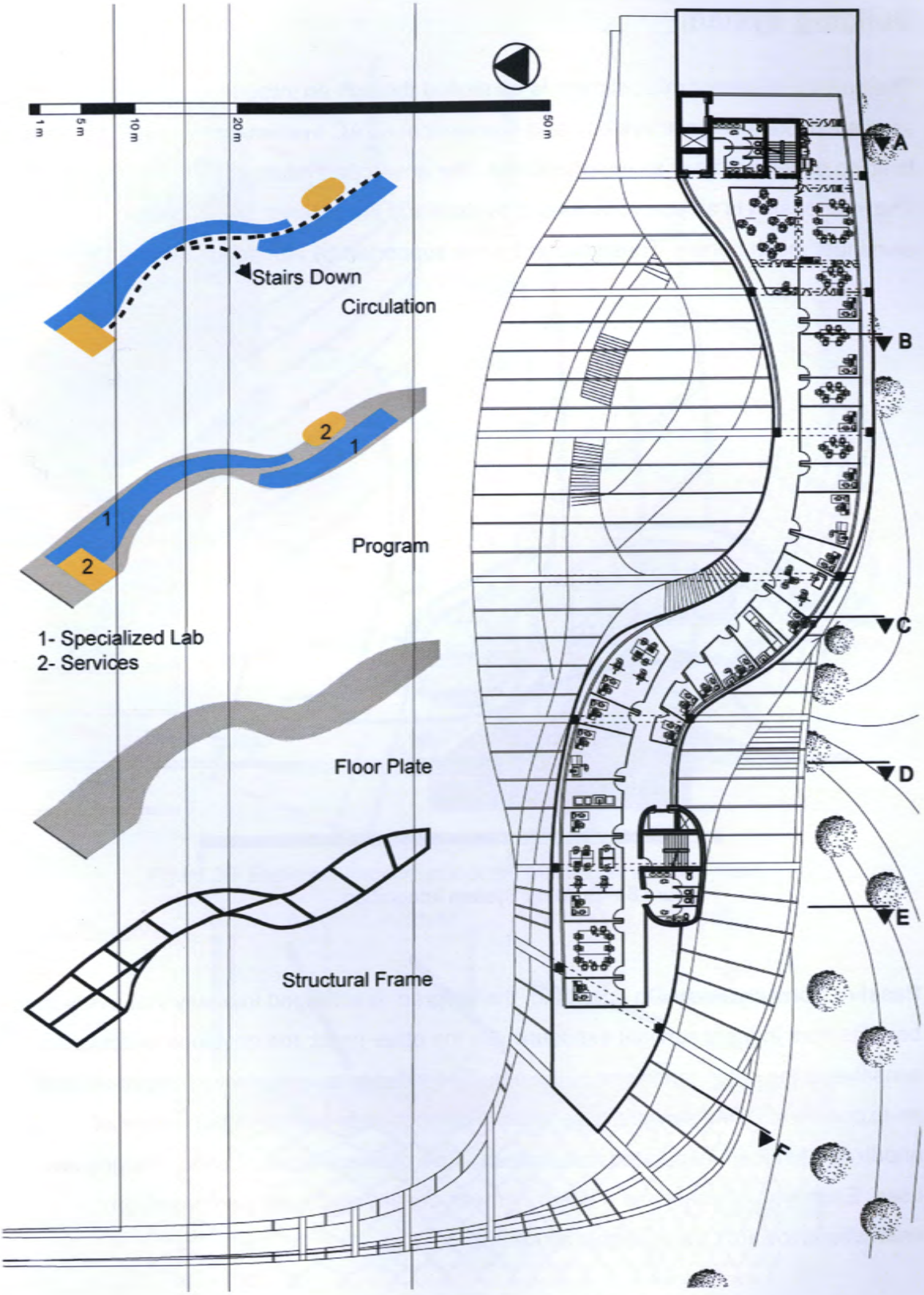


Figure 83- Floor plan of level five- Specialized Labs

Building System

The building's interior microclimate is controlled through an integrated system of natural ventilation, passive solar system, and mechanical HVAC system. In this system, the building envelope plays an important role. The envelope system is a double-skin wall. The interior skin is an operable glazing system and the exterior skin is composed of aluminum mesh panels. These two skins are supported by aluminum framing (figure 85).

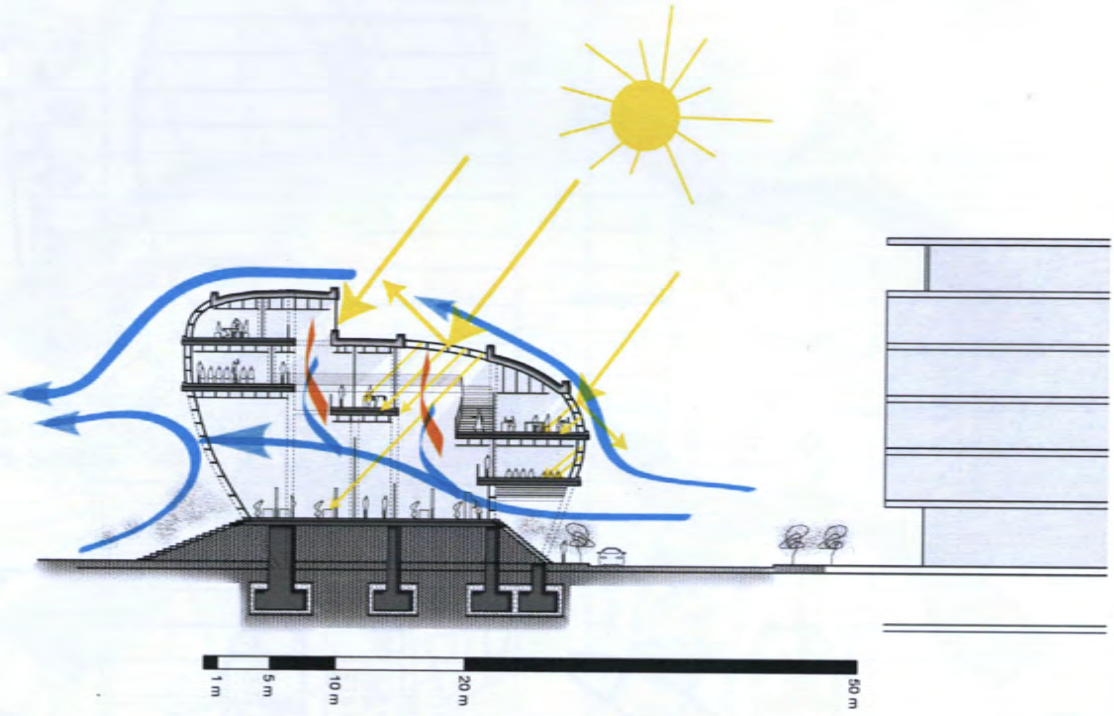


Figure 84- Building System Integration

Passive Solar System: On one hand, the program is arranged in a way that every room benefits from indirect sunlight exposure. On the other hand, the envelope is designed sensitive to the solar conditions of the site. The exterior layer is applied where there is an exposure to direct sunlight. This layer is composed of prefabricated panels of anodized-aluminum expanded metal mesh. Five different types of panel designs are used. Each type of panel has a different mesh density and is defined based on orientations towards the sunlight (figure 86).

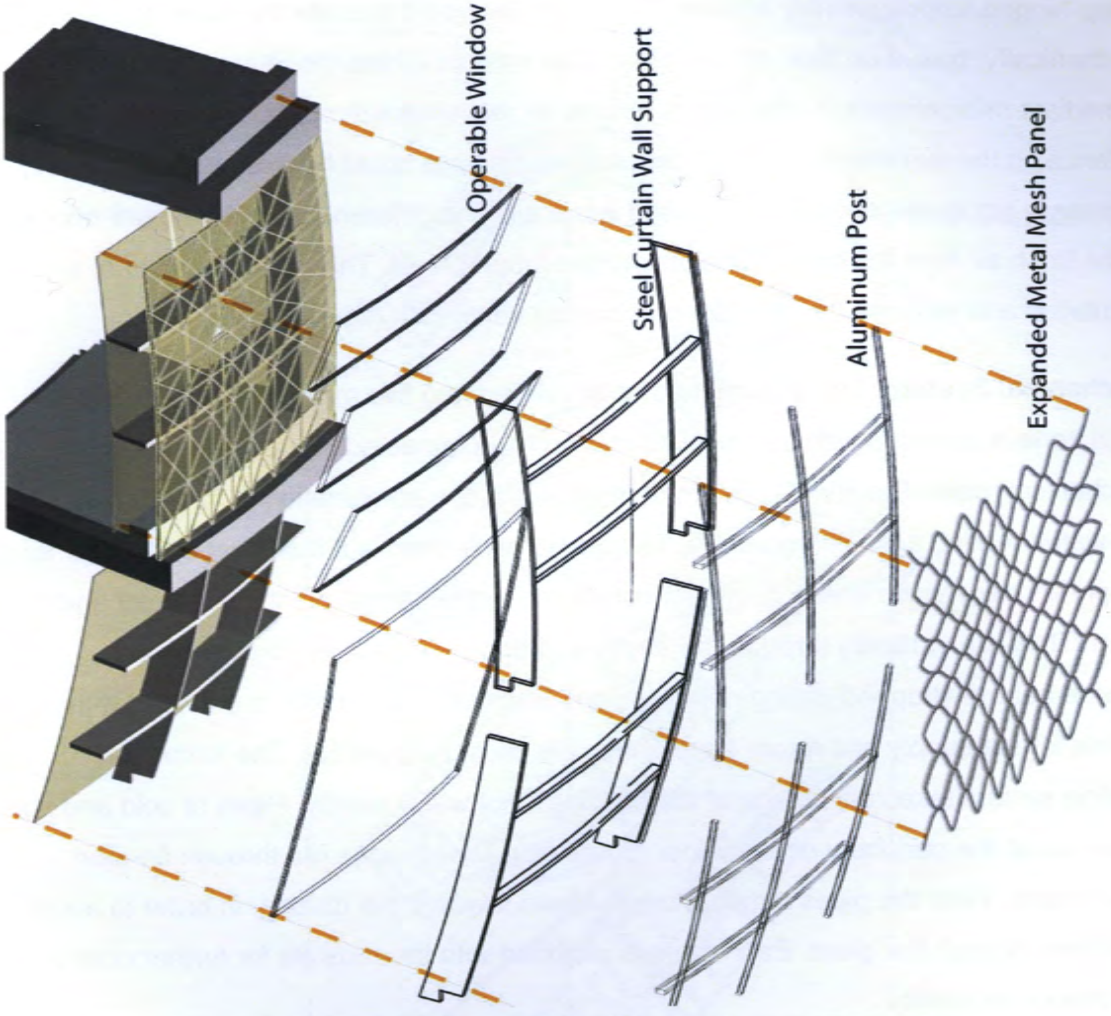


Figure 85- Exploded Axonometric of the building envelope system

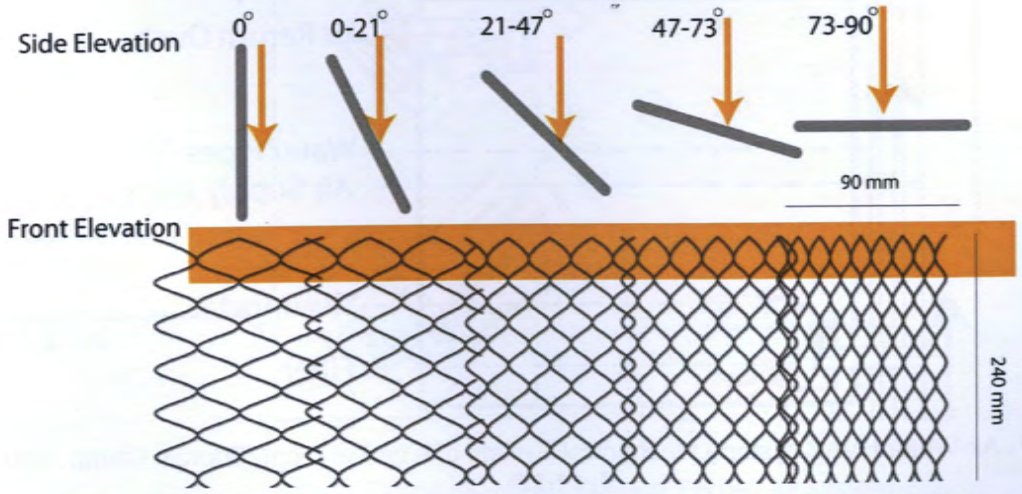


Figure 86- Building Envelope System- five typologies of the exterior aluminum mesh

Natural Ventilation: The interior layer of the building's envelope is an operable glazing of top-hinged sash assembly system. These panels would operate manually or mechanically, based on their accessibility. This system allows the users to control their immediate microclimate. It also allows natural air movement throughout the building. For instance, in the summer the panels over the middle bays could be opened mechanically in order to act as the outlet for the raised warm air. The difference in air pressure brings in the fresh air from the openings closer to the ground level. This creates a natural air circulation and reduces the need for mechanical ventilation (figure 84).

Mechanical System: The building has been divided into two main mechanical zones. Each zone is provided with a vertical shaft, which is connected to the underground Mechanical room. The HVAC system of the building is a combination of forced-air and hot-water heating system (figure 87). The forced-air system is a dual duct system for air-supply and air-return. These ducts are connected to the central plant in the mechanical room. They run vertically through the shafts and access each room by the space provided above dropped-ceiling panel system. Each individual room is provided with outlets for the supply and return ducts within the ceiling (figure 88). The forced-air heating system takes advantage of the building's hot water supply. Pipes of cold and hot water run at the periphery of each floor (figure 89). These pipes run through fin-tube baseboards. Here the pipes temperature is blown towards the glazing, in order to avoid heat-loss through the glass. Each room is provided with thermostats for further control of the interior air quality.

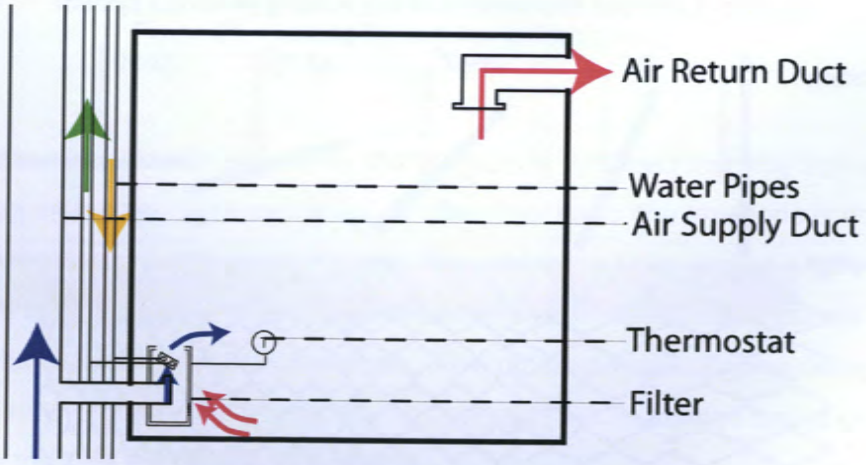


Figure 87- Air-Water HVAC system- Mechanical System of a typical room (Source: Ching, 2000. P. 11.17)

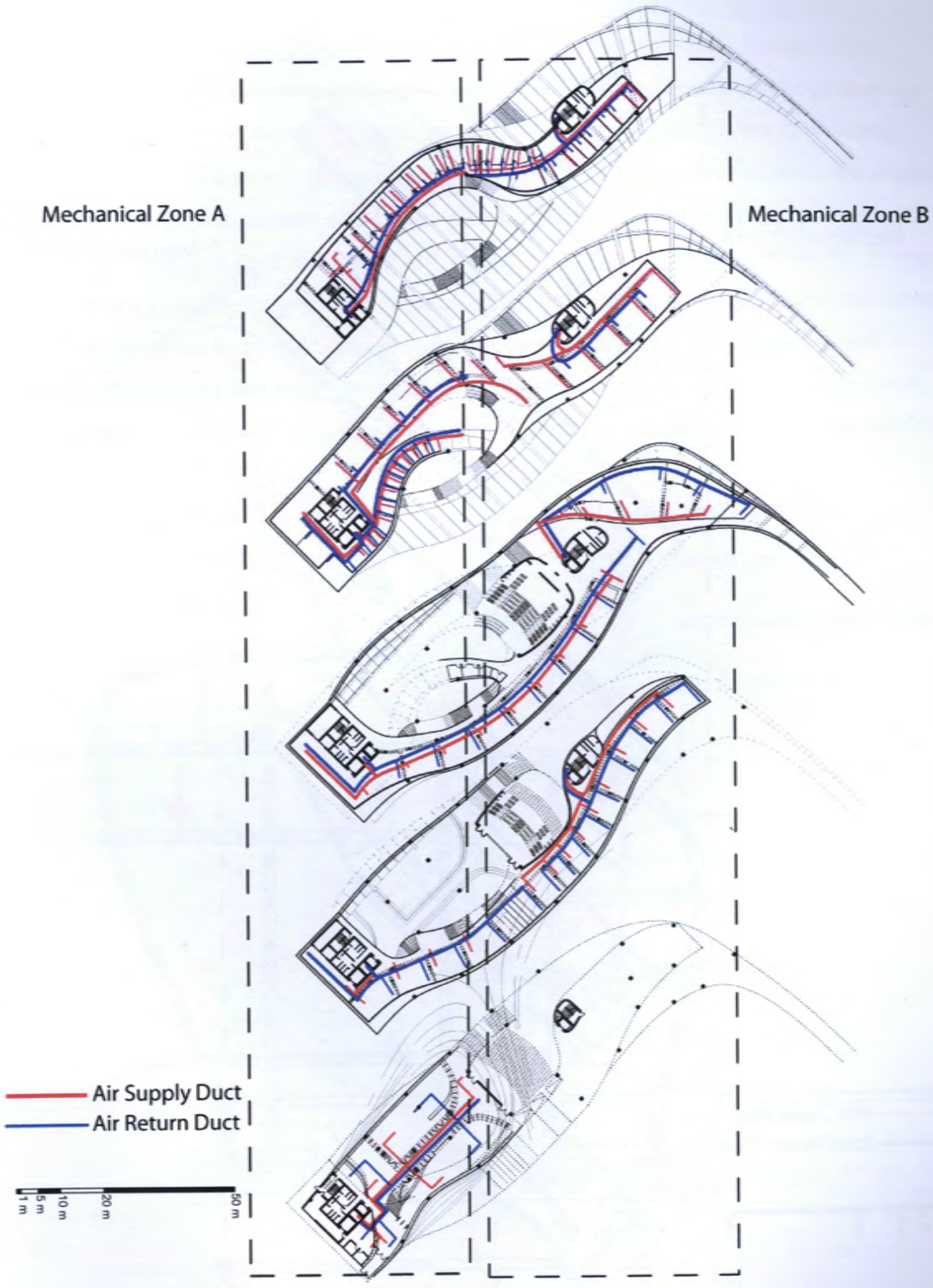


Figure 88- HVAC System, Forced Air system

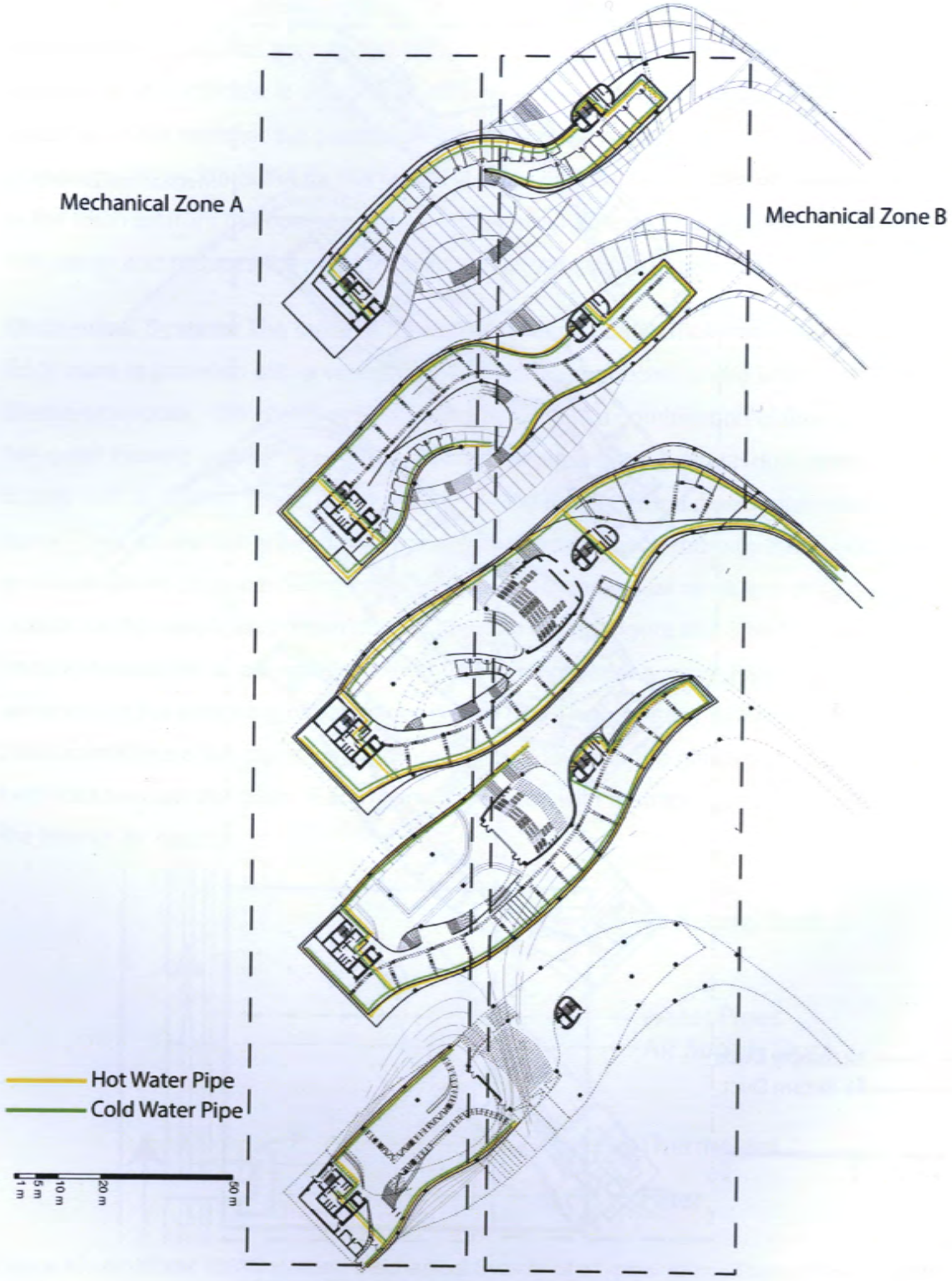


Figure 89- HVAC System, Hot Water Heating system

Structural System

The structural frame of the building is closely tied to its programmatic design. Steel structural frame is chosen due to its compositional flexibility. The central bays that run horizontally throughout the longitudinal section of the building act as the connecting space in between the woven programmatic ribbons. The consistency of this core allows the structure to be a rigid post and beam frame. This core is composed of nine by nine meter bays. This rigid core is flanked with side bays at every cross-sectional rib. These side bays are supported by arched structural elements that are directly tied to the central core. The curvature is created due to the movement of programmatic ribbons and diversity of bay sizes that they demanded. These structural arches curve only in cross-sectional axis, carry loads vertically to the foundation and transfer the excessive load to the central core.

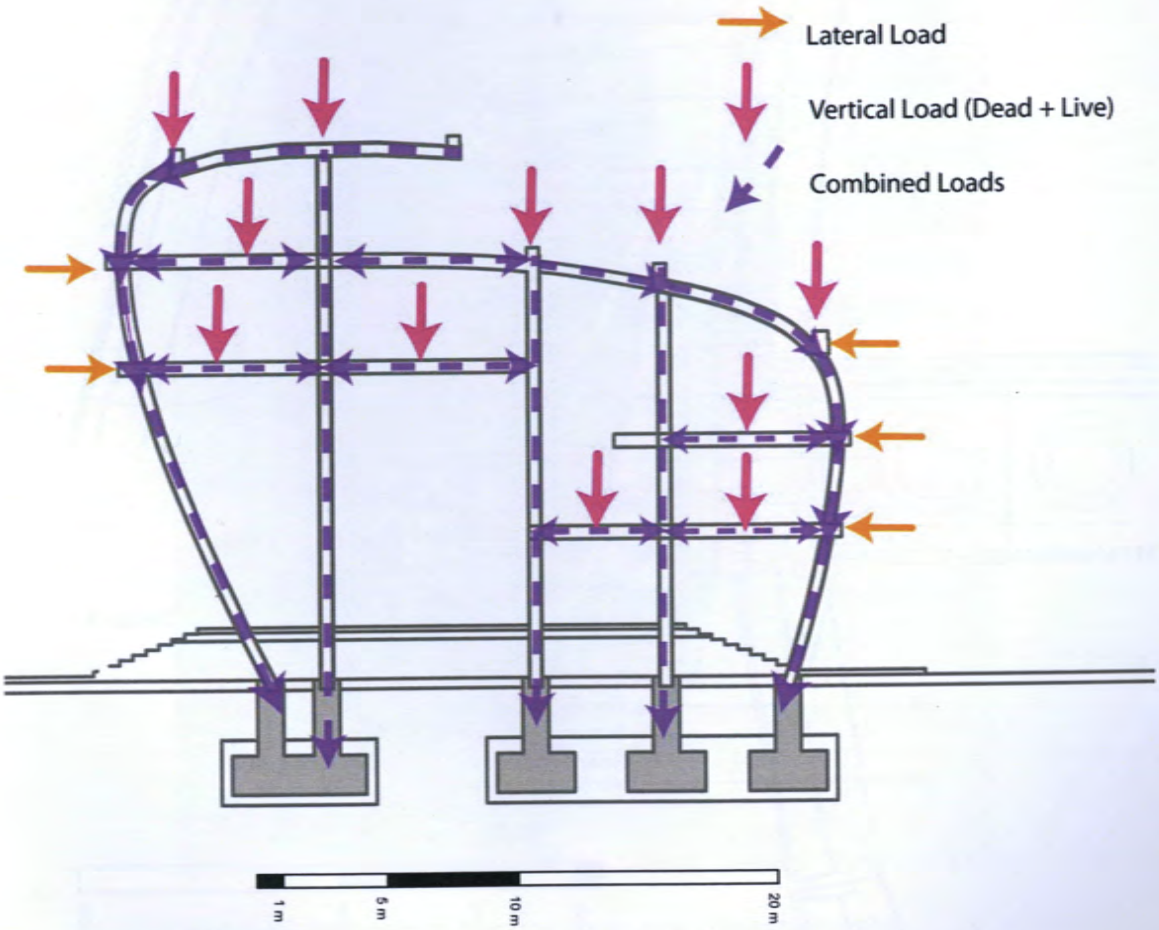


Figure 90- Load-transfer at a typical structural rib

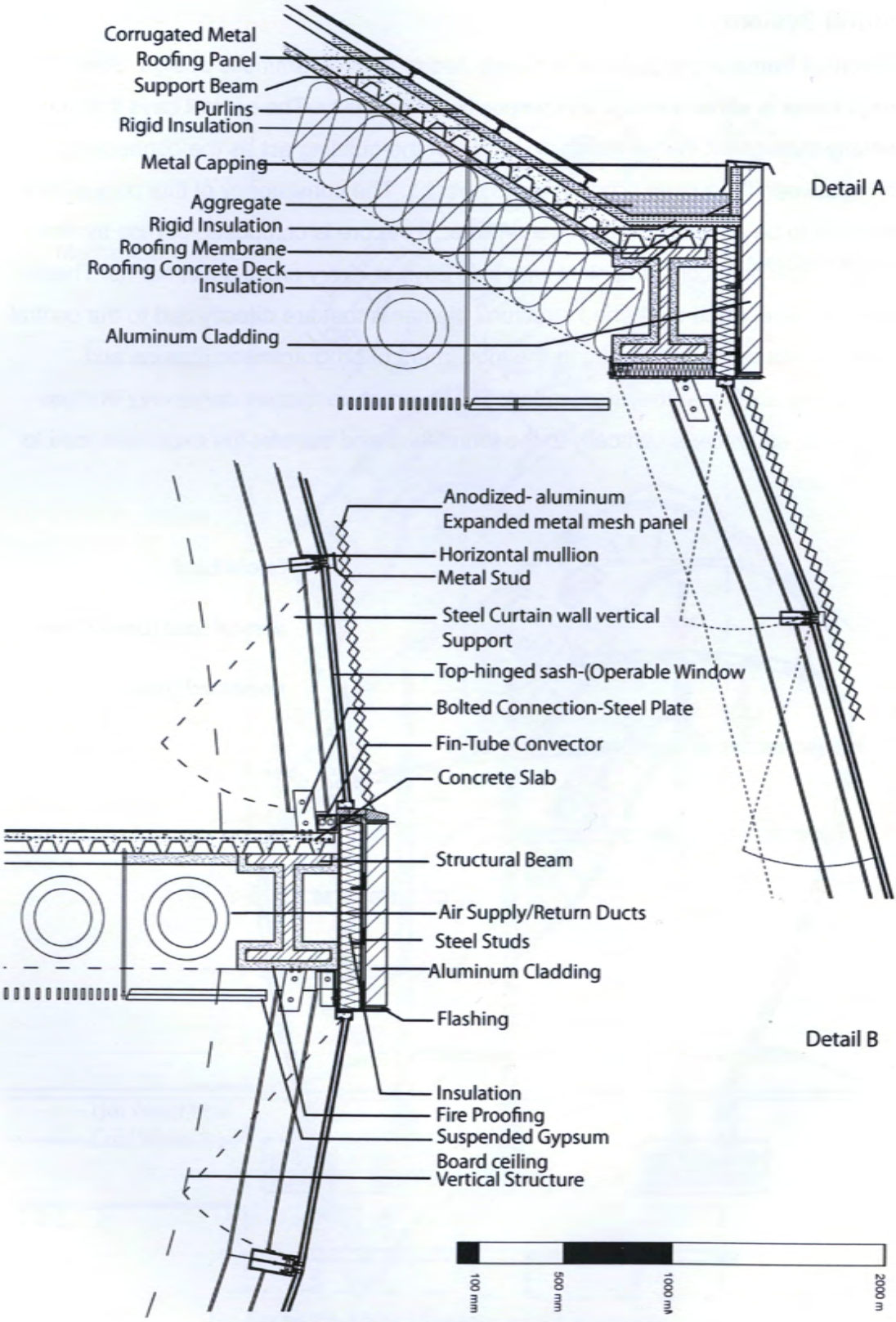


Figure 91- Envelope Connection Detail A and B

Figure 92- Perspective from the south-east corner of the site

Conclusion

Architecture is a constant journey across the boundaries of science and art; visible and invisible; inside and outside. In this journey, Architect is a mediator. Through this mediation s/he visions a new realm where the two unite. The architect offers her/his new world to be inhabited by the others. This inhabitation is simultaneously connected to both embodied realms. Architectural education is simply the practice of soaking into these worlds, moving in between, and creating new ones. A history of academization, departmentalization, and standardization have solidified virtual boundaries and challenged liquid pedagogical journeys. These impermeable boundaries resist growth and change within institutional system. Relatively, the gap between the institution and its dynamic milieu grows and the two struggle to contribute to the well-being of one another. The future of architectural education should reinvent itself in order to become contemporaneous with its environment, celebrate its dynamism, and coordinates it towards positive change. This necessitates a redefinition of inner and inter-boundaries in order to reconnect the heart of education, the individuals, to the world of architecture.

In this new integrated model, architectural education takes on two fundamental roles: to act as a conductor of knowledge and a processor for individuals' growth. It becomes a "Bazaar", in which the conduction of liquid knowledge is endless and the growth of individuals is embraced. This knowledge-based growth is a linear yet spontaneous process. It is a linear process of knowledge perception, critical imagination, and representative production. At the same time, the unconscious psychology and personality of humans make each path spontaneous and unique to each individual. When these paths cross, they form a web of collective and knowledge-based growth. The solidity of this synthetic web is dependent on these crossing points, the thresholds. Relatively, intensification of this web maximizes the potency of a shared growth. This model has formed as a habitat where this interactive pedagogy was optimized and celebrated. As a result, this habitation was reformulated through weaving of its encompassing communicative qualities. This weave creates a temporal experience saturated with thresholds and a journey of constant separation and reintegration between self and the other, the inside and outside.

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Appendix

Appendix A- Research Methodology

The first week of the fall semester was an opportunity to research on various theories and visions for the future of architectural education. Recently, many foundations concerned with the advancement of architectural education have published reports, books and articles that look at today's educational issues and provide directions for the future of it. *Building Community* (Boyer and Mitgang, 1994), *The Windsor forum on design education* (Bothwell et al., 2004), *Designing for Designers* (Nasar, 2007), and various ACSA conference documents were looked at in this initial stage. Also, the research methodologies of these publications were examined and adapted throughout the semester.

The rigorous research process was initiated by looking at the evolution of architectural education from antiquity to the present day. The resources for this stage were major scholarly books and periodicals. *The Architect* (Kostof, 1977) and *De Arquitectura* (Vitruvius, 1999) are amongst these studied references. The purpose was to understand how the educational model of today has been influenced by previous systems. By comparing the context of those systems with today's setting, the validity of those still-existing traditions were analyzed. This analysis indicated the existing and emerging issues of architectural education today.

The third stage was development of a response to those issues. This stage was a parallel act of gathering information, analyzing, and formulating a knowledge-based "Mission" and "Framework" for the thesis. At one level, this stage of research was involved with reading the scholarly publications on future of architecture and architectural education. At the other level, a questionnaire was prepared as the basis for interviews with various individuals who are involved with architectural education community.

The questionnaire was conducted from 20 graduate students and 10 Ryerson faculty members. The questionnaire was set up as the basis for a dialogue in order to diversify the resources, get a broader perspective, and take a knowledge-based position for this thesis. One reason was to not determine and limit the scope of answers. The other was to examine a system of thought development that occurs through engaged interaction as

a pedagogical phenomena. The questionnaire (Appendix-B) was set in two sections. First section asked for individual's analytical thought on Ryerson's Architectural Education. The second section, Asked for their vision of the future of architecture and architectural education.

The fourth stage was solidification of the "Mission" and the "Framework". At this stage, the mission and framework of five top American schools and ten Canadian Schools were looked at. The framework was defined in four sections. Each section was organized base on theoretical discourse, case studies, and relative design principles. The outcome was presented to the thesis committee on February, 17th, 2009.

The winter semester was focused on design based research. The first stage was to study the existing site of Ryerson's Department of Architectural Science and consider other site possibilities. The history of the campus and the future proposal by KPMB Architects (2008) was studied at this stage. This study also included the history of the department and its future orientation presented in *Ryerson Report* (2008).

After, the research was focused on programmatic structure and form generation. This resulted in a schematic design intervention that was presented to the committee on April, 28th, 2009. The process continued as design development. The materials were presented to the committee on August, 07th, 2009. After, the time was spent on design refinements and editing. This book was submitted to the school of Graduate Studies on September, 25th, 2009.

Appendix B- Data Gathering

Questionnaire A: Architectural Education at Ryerson

Personal Information:

☐ Full-time faculty ☐ Part-time faculty ☐ Administrator

☐ Graduate Student ☐ Undergraduate Student Year of study------

Focus: ☐ Design ☐ Building Science ☐ Project Management

Architectural Education at Ryerson

Q.1-Do you believe that Ryerson students are well-prepared for entering the profession after their graduation?

Q.2- How would you rank the skills of Ryerson students? (0 being the weakest and 10 being the strongest)

	0	1	2	3	4	5	6	7	8	9	10
Design											
Construction Methods and Materials											
Research and Theory											
Communication Skills											
Analysis and Planning											
Computer Application											
Sustainable Design Practices and Principles											

Q.3- Do you believe that art and science/ studio and classroom/ theory and practice are well-integrated in our current curriculum?

Q.4- Do you believe we have a strong relationship with other knowledge communities (On and Out of Campus)

Q.5- Do you believe we are well-connected with AEC industry?

Q.6- Do you believe that "New Technologies" are integrated in our current curriculum?

Future of Architectural Education:

Q.7-Do you believe the role of Architects would change in the future? What do you anticipate it to be?

Q.8-What is your vision for future of Architectural Education at Ryerson?

Q.9- What should be the mission of Architectural Education at Ryerson?

Q.10- Do you suggest a model that would serve this mission the best?