Creative Learning: Supporting Design Education in the 21st Century

by

Lise Boucher

A Practicum submitted to the Faculty of Graduate Studies of

The University of Manitoba

in partial fulfillment of the requirements of the degree of

MASTER OF INTERIOR DESIGN

Department of Interior Design

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THE UNIVERSITY OF MANITOBA

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ABSTRACT

Traditional models and philosophies of design education have shifted with the rise of postmodernity; the new knowledge age is engaged with interdisciplinary theories, subjective truths, multiple meanings in addition to digital tools and avenues for the delivery and acquisition of information (Raschke, 2003). In light of this change, design educators are searching for the most appropriate ways to educate future practitioners (Schön, 1988; Dutton, 1991; Boyer & Mitgang, 1996; Fisher, 2000; Nicol & Pilling, 2000). Often the physical setting of creative learning is not addressed in these discussions which invites the question: how can the interior design of learning facilities support processes, goals and values of design education in the 21st Century?

The proposal for an urban facility for the University of Manitoba's Faculty of Architecture, responds to this question by engaging in a critical investigation of design pedagogy. The study motivates a conceptual exploration of an interior environment that responds and adapts to contemporary educational needs. The supporting theoretical framework outlines contemporary design pedagogies, modes of design inquiry, as well as social, political and cultural issues in the learning environment. An understanding of these concepts provides insight into the organization of a learning setting that reinforces space as a resource for the exchange of knowledge, for the communication of educational and design values, and for the manifestation of tectonic design principles.

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INTRODUCTION

The discipline of design, in both practice and education, is experiencing a 21st century paradigm shift. Technology increasingly serves as a vehicle to facilitate the ideation process and improve design production. It is also expanding the practice of design into the global arena, where international networking and collaborative design projects are the norm and individual firms are becoming specialists, capitalizing on distinct skills and knowledge sets (Fisher, 2000). Although technology is emerging as a vehicle for advancement and as an avenue for networked relationships, additional forms of practice are emerging where design becomes more embedded in society and is of greater importance to other disciplines (Broadbent & Cross, 2003). Many design firms have begun to offer clients pre-design services, such as strategic planning and marketing support, as well as post-design services such as facilities management and diagnostics (Fisher, 2000).

> The design of buildings and landscapes will still be a major application of the knowledge generated in design schools, but the design of organizations, operations, systems, codes and policies of various sorts will become alternative routes for design graduates to take (Fisher, 2000, p. 6).

In light of these changes in practice, design educators and design professionals are together searching for the most appropriate ways to educate the future practitioner. There is currently a shift from a modernist educational model in search of universal design principles and objective truths, to a postmodern model that infuses interdisciplinary studies in the learning process

offering new insights, alternative perspectives and changes in the role of design. Contemporary design education is pluralist in nature supporting a constructivist approach to learning that is layered with multiple pedagogies and modes of inquiry. Equally important is the acknowledgement that design education is situated within a social and cultural framework which has an impact on student learning and the construction of knowledge, the acquisition of skills and the development of creative and critical minds.

In many of the discussions surrounding the education of the future design practitioner, the physical learning environment is not addressed. This is unfortunate, because a complex and layered educational process such as design education deserves critical consideration of its physical setting, such that it can play a role in further engaging people in the learning process. For centuries, the formal learning spaces of university environments have remained largely unchanged where institutional architecture has provided an optimum environment for instructor centered practice that is primarily concerned with the one-way delivery method of information (Jamieson, 2003). Moreover, many institutes for higher education have prioritized the design of architectural icons for learning facilities to attract students or even manifest a particular ideal (Jamieson, 2003). History demonstrates that the architecture and design of some design schools have often been a manifestation of an era's architectural ideals. A case in point would be Ludwig Mies van der Rohe's Crown Hall at the Illinois Institute of Technology in Chicago and, alternatively, the University of Manitoba's John A. Russell Building. These buildings are characterized as

modernist due to the era in which they were constructed as well as the open

span construction, minimalist interiors, glazed curtain walls and use of steel,

glass and concrete as materials. These buildings projected an educational value

system that supported modernist educational philosophies which have shifted

and changed in this 21st Century context.

The 21st Century has introduced a new student demographic that is having

an impact on higher education. This new generation of learner represents a

demographic that has grown up in the digital era of hyper-stimulation and

instantaneous access to information. In addition, as numerous schools, including

design schools, have expanded their undergraduate and graduate educational

programs, the added accessibility to post secondary education results in a

change in the average age of students as well as more diversity in gender and

ethnicity. These issues are significantly affecting the culture of the learning

environment, increasing the dependency on technology as a learning tool and

dissolving the traditional patriarchal systems that once prevailed in schools

(Fisher, 2004). Students are working and learning in more flexible ways, in

different spaces and at varying times of the day (Fisher, 2004). Consequently, it

is becoming imperative that schools adapt to alternative educational needs and

values and adopt a desire to develop more engaging learning environments that

respond to the needs of this new demographic. Strategies to address this

involve re-examining pedagogical models and learning methods, but also a

reconsideration of the design of existing learning environments. There is growing

evidence that demonstrates the need to rethink the planning, design and use of

school facilities in a way that reflects changing educational demands and needs, takes greater advantage of new technologies and offers new insights into the nature of teaching and learning (Weiss, 2006).

Considering the above context, I am critically addressing the relationship of the built environment to the educational process in design. Driven by the following questions: Are the buildings of design schools, built on educational models of the past, appropriate for today's methods of teaching and learning? How can the interior design of learning facilities support educational processes, goals and values in the discipline of design? How should the buildings of design schools be planned to adapt to educational changes as they evolve through the 21st century? By addressing these questions through an understanding of the critical facets of design education and developing a responding spatial design strategy, a relationship between interior design and human engagement in the learning process can be suggested. The result will be a conceptual learning setting that reinforces space as a resource for the exchange of design knowledge, for the communication of educational and design values, for the manifestation of tectonic design principles as a learning resource, and as an adaptable and flexible entity through which to support future agents of change in education.

The proposed project is conceptual and primarily driven by educational theory. The intent is to explore ideas and concepts about design education and apply them practically to an interior design project.   The proposal could be considered in the context of many design schools as an alternative way of

thinking about the spaces for creative education, from location and setting, to interior space configuration and furniture. This particular project considers the Faculty of Architecture at the University of Manitoba as the user group for the study. The project suggests relocating the Faculty from its current suburban Fort Garry Campus location, to a central urban Winnipeg location. This suggestion maintains the rationale that students in the current suburban campus are isolated from the urban built environment. The urban environment forms the basis of their design projects, and reinforces design education in the setting that students will eventually help shape as professional practitioners in the future.

The proposed site is on Main Street north between Logan Avenue and Henry Avenue in Downtown Winnipeg. The project will take advantage of redeveloping two vacant buildings, the Starland Theatre and the Epic Theatre (historically known as the Rex Theatre) with three adjacent vacant lots. This area is well known as a degraded and impoverished area of the city in need of development initiatives and the integration of social programming. Recently, more attention is being dedicated to infuse vitality in the area and position the necessary support systems to assist the current demographic. The proposed facility for the Faculty of Architecture attempts to take part in that endeavor where design education draws inspiration from the surrounding urban community and acts simultaneously as a valuable resource for the community.

The investigational methods for this project are varied. They include a comprehensive review of literature and of precedent case studies; an observational study of behaviour traces; and an interior design exploration. Sources are drawn from a variety of fields including education, interior design, architecture, and psychology.

Chapter One begins with a description of the study that explains my personal motivation. It defines the relevant language through key terms, communicates the project context and identifies the project objectives. Chapter Two describes the design investigation methods used to develop this project including a literature review, a precedent review for inspiration and an informal observational study of behaviour traces. Chapter Three consists of a literature review of key topics, issues, and theories separated into five primary areas of focus: (a) foundations of design education, (b) postmodernity, (c) models of design pedagogy, and (d) the organizational climate for creative learning. This investigation allows for an understanding of design education in the 21st century and provides an educated platform on which to base the design exploration. Chapter Four discusses the human factors of this project through a description of the user profile and behavioural issues uncovered in an observational study. In Chapter Five, a culmination of design implications are presented through a discussion of the power of space in the learning process. The implications are informed by the ideas and issues raised in the literature review and informal precedent and observational studies. Chapter Five outlines the design strategy with a definition of a proposed spatial vernacular for creative learning

environments, a presentation of the design programme and a discussion of the approach for design development. Finally, the conclusion discusses the design results by answering the driving questions and identifying any limitations or emerging issues that might be addressed in the future.

The emphasis of this investigation is on exploring educational theory and presenting different design concepts for creative learning environments that support contemporary design pedagogy and inquiry. This project does not attempt to draw definitive conclusions about how the spaces of the Faculty of Architecture at the University of Manitoba should be designed. Rather, this project seeks to contribute to the growing interior design knowledge base surrounding the subject by illustrating ways educational pedagogy and learning can be addressed through design and integrated in the manifestation of interior space. As an interior design practicum, the project demonstrates the application of theory to design and reconsiders the practices of planning, designing and constructing learning environments. The project also invites educators to critically engage in their teaching environments, by questioning and evaluating whether their spaces and facilities support learning processes.

1. STUDY DESCRIPTION

This interior design practicum investigates contemporary forms of design education and addresses the findings through the development of an interior environment responsive to design teaching and learning. The study will reconsider traditional conceptualizations of educational spaces by exploring a wider range of alternative interior typologies that are appropriate for a 21st century educational context.

A Personal Story

My personal experience in design education has motivated a desire to investigate and understand the nature of my education and has increased my curiosity in the role of the built environment as an influencing factor in shaping creative learning experiences. Throughout this practicum process, my personal philosophy as an interior designer has evolved. I feel as designers it is our responsibility to use our skills to give back to the community we are a part of, whether a regional community, social community, cultural community or educational community. This project touches the educational community that I am from and I have found this personal connection to bring deeper meaning to the process and development of the project. I have spent seven years studying at the University of Manitoba, six of those years in the Faculty of Architecture moving from an undergraduate experience in Environmental Design to finally pursuing a Masters in Interior Design. Over the years, it has become obvious to me that design is a unique and complex educational discipline. While the project

is primarily driven by educational theory, many of the decisions I made in the

project were, in part, a response to my personal experience of creative learning

in the Faculty of Architecture. My goal in this practicum is to reveal my

investigational process in the hopes of sparking an interesting discussion and

exchange of ideas surrounding the area of interior design for creative education.

Definition of Terms

Before I begin describing the project, it is important first to define the

language that is critical to this investigation in order to provide clarity and avoid

misconceptions and ambiguity. There are three critical terms in this

investigation: *design*, *pedagogy* and *inquiry*.

Design is an ambiguous term, as it is at the same time a concept, a

process, and a finished product. Design is used simultaneously within the

disciplines of the built environment and also within the disciplines of fine arts. It

describes graphic representation, fashion creations, interior environments,

products and furnishings in addition to the form and function of buildings,

landscapes and cities. Design is essentially a creative act and a problem solving

process.

> Design is an activity that responds to human needs, maintains the
> world and leads to an executable work, developed through
> reciprocal action of thinking and making. It is an activity that may
> be individual or collaborative, spontaneous or evolutionary, original
> or borrowed that results in the creation of meaningful (continually
> reinterpreted) and material order (Livesey, 1995, p. 53).

This definition clearly applies to a large range of design practices and is most

fitting to this project. Keeping within the framework of Livesey's definition,

'design' is used as a holistic term, referring in a general way to the

multidisciplinary nature of the Faculty of Architecture at the University of Manitoba and encompasses the disciplines of environmental design, architecture, interior design, landscape architecture and city planning and is used to present these together in a discussion about education. Although each of these disciplines are unique in scale, focus, and process, all of them engage in the activity of design as described above.

Another key term for this study is pedagogy. Pedagogy refers to the art of teaching; the activities of educating, of imparting knowledge and skills. According to Scholle (1992), pedagogy is not simply about a teaching technique, but rather refers to those practices that define what is important to know (what is transacted), how it is to be known (teaching methods), and how this production of knowledge constructs social identities (the character of human interactions). This practicum is focused on the use of pedagogy to describe the aims of education, the type of knowledge that is valued and imparted, the methods used to transmit and develop skills, and the character of the relationship that occurs between learner and instructor. Of course pedagogy, or teaching, can not be isolated from learning, and in this practicum, I use the term inquiry to describe the learning process of design. Inquiry is a search for knowledge; a process that seeks information by questioning, exploring and analyzing. Students of design inquire through reflection and action.

Project Context

The proposed facility for design education will consider the Faculty of Architecture at the University of Manitoba in Winnipeg, Manitoba as the user group for this project. The Faculty is a multidisciplinary school of approximately 600 students, specializing in education within the fields of environmental design, architecture, interior design, landscape architecture and city planning. It aspires to provide exceptional teaching, scholarship and community services within its five disciplines. Currently the faculty is set within the University of Manitoba's suburban Fort Garry Campus. The new facility will conceptually relocate the Faculty to a central urban Winnipeg area. The project considers the Faculty's existing primary user group which is composed of undergraduate students, graduate students, faculty members and administrative staff. The project also considers future primary user groups, as well as the community within which it is situated. The proposed alternative context will maintain a strong relationship to contemporary design pedagogy by placing students amidst the urban activity which they study and will eventually help form and influence in practice.

The site is located on an North Main Street block between Logan Avenue and Henry Avenue, where two abandoned buildings (The Starland Theatre and the Epic (Rex) Theatre) and adjacent vacant lots provide an opportunity to revitalize, regenerate and infuse vitality into a degraded urban strip (see Figures 1 & 2). Presently this area is experiencing development initiatives including the Edge Artists' Village, a site which provides local artists with studio and gallery spaces in addition to low income housing. A local architectural firm is also

relocating to the area, as well as a retail store that has deep roots in the community. At a macro scale the goal is to support the development of an arts and design district along Main Street north by creating an interface between art and design education and the public realm allowing linkages to form between the arts community and other design educational institutions and resources such as Red River Community College Princess Street Campus. The facility will therefore be situated as a resource for the general community as a facility for after-hours educational programs and as a resource for students providing connections to local industries.

LEGEND

Faculty of Architecture
Design HQ

1 The Edge Artist Village

2 Future Location of Bridgman
Collaborative Architecture

Sustainable Design Centre

P Parking

Public Transportation Stop

Sun Pattern

Wind Pattern

SITE PLAN (not to scale)
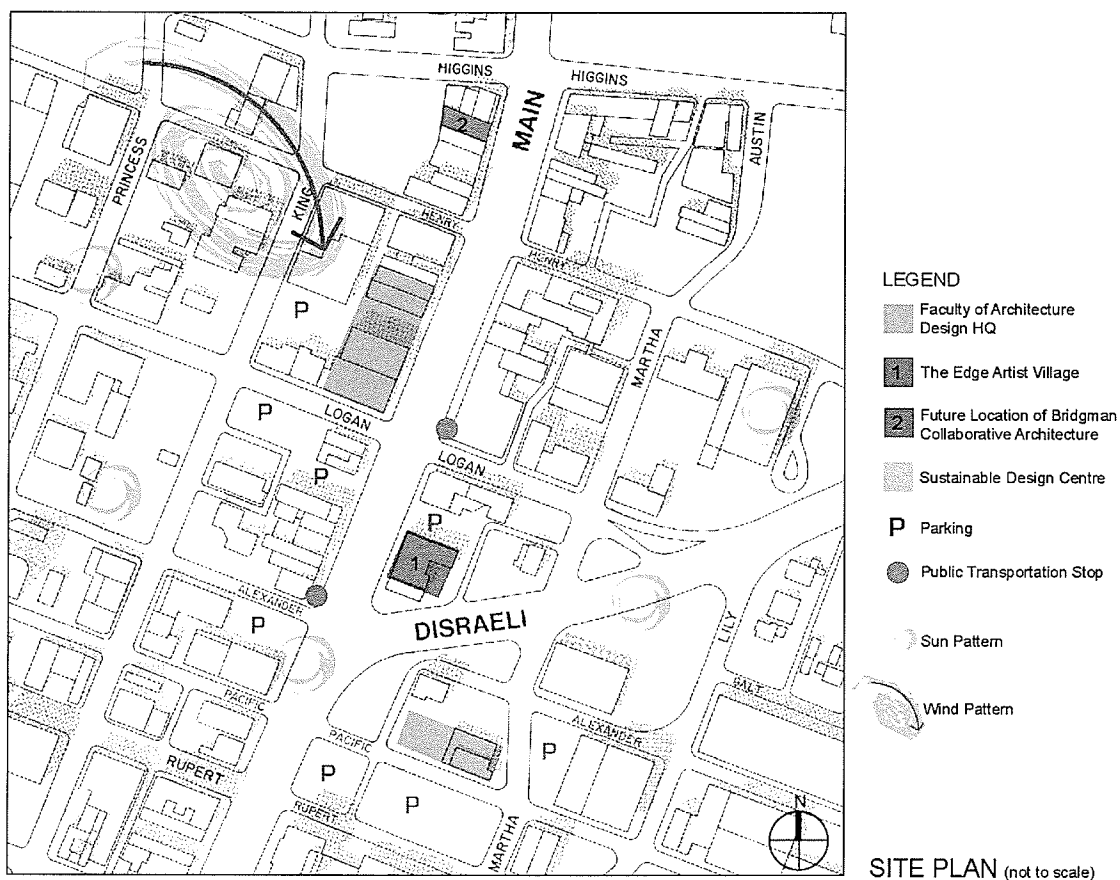
Figure 1. Proposed site location for the Faculty of Architecture learning facility.

Figure 2. Existing buildings incorporated in the learning facility. From left to right: Starland Theatre, Epic Theatre.

Universities have a role to play in the welfare of the community. There is an emerging trend in Canada's large urban centers where universities are moving downtown and getting more involved with their communities by forging partnerships with municipalities and local organizations. These partnerships are intended to fuel urban redevelopment and create important social connections between students, faculty and the communities that surround them (Lorinc, 2006, May). "As urban issues become increasingly important to Canadians, such links suggest that postsecondary institutions are choosing to make themselves an integral part of the complex business of progressive-minded city-building" (Lorinc, May 2006). This argument is all the more relevant for the proposed location in downtown Winnipeg which requires much social and physical attention. Current conditions could be improved with the integration of an educational facility in the community by promoting public awareness of the built environment and advocating the social role of design.

A downtown location for the faculty of architecture would create an influx of students to the city center, generating activity, increasing business and contributing to the downtown economy. The proximity of the proposed project

location to Red River College would create opportunities for inter-institutional collaboration and strengthen the urban design community. There are reciprocal benefits that occur with this proposed location. The alternative context would open more opportunities for community design projects by providing students with greater accessibility to downtown project sites and initiating possibilities for more community collaboration in the design process. Students can learn about the social role of design through exposure to the reality of neglected social and physical infrastructures that exist in the urban environment. This invites opportunities for partnerships between the school and the local community to improve the physical condition of the area through design leadership and student project initiatives. As an educational facility, the project will also extend into the local community as a site available to organizations and community groups for various educational and training programs after hours.

As the proposed location for this project presents a variety of opportunities it also reveals several constraints: primarily a disconnection from the safety, security, services and students of the main University of Manitoba campus. The proposed facility would be self-sustaining with all necessary services including food and beverage, books and supplies and library facilities, some of which could be supported by the extended community. The Faculty of Architecture would also be serviced by a shuttle transportation system which would move students between the main campus and downtown location, similar to the existing service between the Faculty of Medicine's Brody Campus at Winnipeg's Health Sciences Centre downtown. Student and staff parking would be provided by adjacent

parking surfaces. Security would be integrated in the building to provide a feeling

of safety and the University's Safewalk programs would be in place for students

who work at school after hours.

Project Objectives

The objectives for this practicum are to design a facility that supports

contemporary learning and teaching in design education by reconsidering

traditional educational space typologies and defining an alternative spatial

vernacular. In order to achieve this, one goal is to look beyond traditional spatial

language that describes learning environments, such as 'the classroom', 'the

library', 'the lecture hall', 'the cafeteria', which all bring with them various

associations and images. An alternative spatial vernacular will be more

descriptive and contextually appropriate for creative environments.   Another

objective of this project is to demonstrate the importance of strengthening the

relationship between human behaviour and interior environments, specifically

how learning processes are heightened through spatial planning and design.

Moreover, this project seeks to highlight the potential of interior space, its

construction, qualities, systems and details, to become integral components of

education, where the environment becomes a teaching and learning resource.

2   METHODOLOGY

The methodology used for the design investigation included a critical review of relevant theories, ideas and design precedents, and an informal observational study of behaviour traces within the existing educational spaces. A synthesis of key issues uncovered in the study, revealed design implications that informed the design strategy for the building and the functional spatial programming of the facility. The preliminary design study implemented the strategy to give shape and form to the building design and illustrate the zoning of activities and functions. The design application focused on selected areas of the educational space that expressed four key values in design education.

The literature review initiated the discussion of theoretical and other evidence-based issues that support the study of design education in the 21st Century. Within the review key issues and theories were identified to accurately describe the present nature, methods and processes of design teaching and learning.   The information was evaluated and selected based on four main criteria: (a) the information established a historical and contextual background to demonstrate the evolution of design education and its traditional culture; (b) the information established the contemporary form of design pedagogy in the 21st century; (c) the information demonstrated an impact on the planning and design of interior learning spaces; and (d) the information presented the organizational character of human experience in a creative learning environment.

The informal observation of behavioural traces provided insight into the human factors of the existing student workspaces of the Faculty of Architecture. I conducted the analysis by observing workspace phenomena, workstation function, layout, objects, peculiarities that demonstrate how the different disciplines (environmental design, architecture, interior design, landscape architecture, city planning) use their workspace and how they distinguish themselves as student groups. The main goals of the study were: (a) to identify and demonstrate how the different disciplines organize and use their workspaces, (b) to highlight the critical functional and design issues, problems and successes present in the existing student workspaces, and (c) to gain a better understanding of the overall learning culture within the Faculty of Architecture. I used photographs to record the observations and through analysis I made inferences about spatial use and configuration. This study revealed various design implications for consideration.

Several precedents of spaces for design education were studied for inspiration in this project. They provided examples of key design implications for environments for design learning in the 21st Century and addressed the power of space in the learning process. Six creative learning facilities were looked at: a) The Fashion Institute of Design and Merchandising, Los Angeles California; b) Knowlton School of Architecture at Ohio State University, Columbus Ohio; c) Marne School of Architecture, Marne-la-Vallée France; d) Montgomery Campus of the California College of Arts and Crafts, San Francisco California; e) McGill School of Architecture, Montréal Québec; and f) the Stukerman Building of the

College of Arts and Architecture at Penn State University, Pennsylvania.

Information is pulled from these case studies to provide examples of education

environments that extend beyond the boundaries of tradition educational space

typologies

  The interior design exploration illustrated design strategies informed by

the theory, precedents and observational findings. The exploration proposed a

conceptual design solution that re-oriented the design of educational space

typologies to focus on activities, process, function and social relationships. Most

important, the exploration demonstrated the role of space in the learning process

to support 21st century design pedagogy, to communicate educational values and

to demonstrate tectonic design principles as learning resources.

3   LITERATURE REVIEW

The literature review forms the theoretical foundation that drives the design investigation, by examining the evolution and status of design education. It presents key theoretical issues that inform and shape the design of a facility for design education in the 21st century. The review begins by establishing the historical context of design education. It proceeds with a discussion of the context of education in the present postmodern condition, revealing a new constructivist learning theory in the 21st century. Design education is situated within postmodernity through an examination of four pedagogical models and supporting modes of design inquiry in the learning process. This discussion reveals the pluralist nature of design education through multiple modes and meanings of teaching and learning design. Within the context of constructivist learning theory, the literature review positions design education as a type of social organization with a political, social and cultural climate.

Foundations of Design Education

In order to understand the current state of design education, it is important to demonstrate its evolution beginning with a historical background. This history will establish a set of educational traditions that continue to influence design education today. It will look at the pedagogical models and teaching philosophies of the Craft Guilds, the École des Beaux Arts and the Bauhaus. Design education began as a practical form of training and evolved into a dual form of education through the integration of theory and practice.

The Craft Guilds

During the Middle Ages, the training of architects was done by the craft guilds, which were organized to induct students into pre-established traditions of design and construction based on accepted canons and codes of practice (Gelernter, 1995). The educational pedagogy entailed a form of apprenticeship where a qualified practitioner and member of the guild served as a master to his pupil. The training emphasized learning a building craft such as carpentry or masonry, gaining practical work experience, learning examples of architectural, geometrical and decorative form by means of pattern books and traveling to record observations through sketches and working on building sites to gain experience (Gelernter, 1995). The medieval craft guilds began a learning tradition in design based on an active hands-on process. By assimilating existing knowledge and skill through an understanding of design principles, through the study of acceptable precedents and through building and making, the craft guilds informed the foundational educational structure of the universities (Gelernter, 1995). The university eventually broke the tradition held by the guilds and gained the right to educate in art and architecture.

The École des Beaux Arts

The establishment of the Academies came through a desire to differentiate the academic methods of art and architectural education from that of the early craft guilds, by increasing the status and prestige of certain arts from others (Barnard, 1998). The structure of the universities distinguished between the practical and the theoretical, but stressed the value of the theoretical. During

the Renaissance period, the education of the architect evolved more into an art form rather than a handicraft as it was in the Middle Ages. The integration of theory in the pedagogy of the academies was a way of teaching the architect more knowledge in design principles than skills in making. Students divided their time between "indoctrination" into accepted artistic practices in studio projects and the study of universal design principles in lectures (Gelernter, 1995). Students maintained their traditional role as apprentices in their master's workshop, but in the academy, they acquired the foundational principles of design in lectures.

Following this tradition, the École des Beaux Arts was formally established in Paris in 1819, as an academy that covered a range of disciplines. The school treated architecture as one of the fine arts which inevitably resulted in a greater emphasis on the aesthetic aspects of architecture over the practical matters of building construction (Gelernter, 1995). This arrangement maintained the duality between theory and practice. Eventually the practical nature of architectural education shifted from real building project work, to make-believe or hypothetical design projects. Today's studio culture pedagogy originates in part from this historical educational precedent based on 18th and 19th century French rationalism where the analysis of precedent and the application of reason would lead designers to arrive at a consensus about the truth in a given situation (Fisher, 2000). This has meant that the design studio still features unquestioned authority of the instructor, long hours, a focus on schematic solutions and the rare discussion of users or clients (Koch, Schwernnsen, Dutton & Smith, 2002).

The Bauhaus

The Bauhaus model of education was centered around a pedagogy of designing and making. It introduced a form of education that supported a modern vision of design appropriate for a new century. Walter Gropius founded the Bauhaus in 1919 with an initial goal to re-integrate the arts with technology and craft common to the craft guild model of the past (Gelernter, 1995). Over time, the Bauhaus model evolved and returned to the dual system of education predominant in the academies which resulted in a split curriculum between the *Werklehre* (instruction in craft), the *Formlehre* (instruction in conceptualization and the principles of design) and the *Vorkurs* (instruction in theory) (Gelernter, 1995). Students gained craft skills and learned design through the study of form, through an understanding of the nature of materials and functions and through the understanding of a universally valid language of design that demonstrated the composition of art and architecture as a series of lines, planes, masses and colours arranged according to principles of balance, proportion and rhythm.

The Bauhaus educational system devised a set of tools and basic principles that could be taught and applied to every design project. The model also insisted on creativity and the development of a new expression for a new age without becoming a 'style' in and of itself. Accordingly, this method of education generated an idealistic view of design. It paid attention to star designers, focused on current styles, and strived for freedom from constraints that echo the Hegelian beliefs that history moves through the work of a few great individuals, that every period has its characteristic styles, that history is moving

towards maximizing the freedom of every person, and that cultures progress by a process of synthesizing polarities (Fisher, 2000).

Raschke (2003), best describes the models of design education of the past as: "a controlled repository of standardized, as well as 'canonized' methods, facts and concepts" which lacked the emphasis on meaning and content (p. 13). However, these major traditions in design education formed the roots of experience based pedagogical models which will be described in the following sections.

Postmodernity

The major educational traditions of the past, formed the roots of experience based pedagogical models that characterize 21st century design education. When postmodernity emerged, it introduced a new knowledge age engaged with interdisciplinary theories, subjective truths, multiple meanings in addition to digital tools and avenues for the delivery and acquisition of information. The new context dissolved the more rigid boundaries of traditional models and philosophies of education previously based on standardized and universal methods, facts and concepts. Instead, constructivist theories of pedagogy and learning emphasized the creation of knowledge as a personal and social experience influencing methods of teaching and learning.

The Knowledge Age

Postmodernity is characterized as the new knowledge age, the information age, or the digital age (Raschke, 2003; Lee, 1987). It is the "age of distributed learning, where communication takes precedence over content, inquiry is prior to instruction, results rule over the rules" (Raschke, 2003, p. 11). For design education this evolution from historical ideologies has entailed a radical change in the discipline resulting in what Lee (1987) describes as 'the intellectualizing of architecture'. This new intellectualism is due to the emergence of a new theoretical discourse that aligns the design disciplines with the social sciences. The postmodern ideology has overthrown the rigid boundaries of historical models and philosophies of education previously based on standardized, universal methods, facts and concepts, emphasizing instead subjective truths and pluralism in design pedagogy, inquiry, process and production. Theoretical instruction has shifted from the traditional transmission of design principles and language such as geometry, proportion and balance, to interdisciplinary research that infuses design with values, meaning and the increased awareness of social and environmental responsibilities through such avenues as community advocacy, urban design, environmental design, historic preservation and universal design (Segrest, 1997, August). This type of instruction has expanded design education beyond the walls of what is transmitted in the classroom.

The Digital Age and Hyper-Learning

Postmodernity has also placed the globe in a digital age of networked communities that permit the instantaneous exchange of information independent

of place or space. For most of the modern era, the 'space' of learning has been closely associated with schools, buildings and classrooms. Instruction was something conducted by a particular person in a particular place at a particular time. The 21st century is witnessing a form of *hyper-learning* where learning becomes an activity that permeates every form of social activity outside of school including work, entertainment and home life (Raschke, 2003). Within the culture of hyper-learning, the educational world becomes a communications-based environment that makes all knowledge accessible to anyone, anywhere, anytime (Raschke, 2003). For academic spaces and environments, this has a number of repercussions. Knowledge transactions occur not only in the typical educational venues such as classrooms, lecture halls or libraries, but occur in spaces of spontaneous social interaction, in cafeterias, in corridors, in green spaces, at the café. Learning is no longer restricted to one dominant space, but instead occurs in a multi-centered spatial network whether real or virtual (Raschke, 2003). Learners seek knowledge wherever it can be found; it is an active process, it is an experience, it is an exploration. In this respect, educational pedagogies have evolved to support this form of learning.

Constructivist Learning Theory

Postmodernity has promoted a shift from receptive learning to active learning, where the process of inquiry takes precedence over the transmission of prefabricated knowledge (Segrest, 1997, August). Constructivist learning theory is based on the concept that knowledge is a personal creation, constructed from individual and social experiences (Doolittle & Camp, 1999). There is no direct

transmission of information, knowledge is instead acquired through a sense of puzzlement and curiosity that drives an exploration, an inquiry and the construction of meaning and understanding. An individual's understanding of new knowledge is situated within the framework of what they already know enhancing the idea that an individual or group's history, background and culture will influence and shape their ongoing understanding of content and development of skill (Doolittle & Camp, 1999). More importantly, constructivism also affirms learning as a social experience; where groups of individuals develop socially relevant knowledge, skills, and understanding through language and a process of negotiation and mediation. Whether created from an individual or social experience, knowledge will ultimately vary in its degree of validity as an accurate representation of reality for each individual as they create their own meaning and interpretation of the knowledge they've acquired.

The constructivist educational ideology promotes a dynamic interplay of mind and culture, knowledge and meaning, and reality and experience. An inquiry-based process of learning encourages multiple perspectives and representations of content demonstrating that multiple solutions to any problem are possible. Instructors serve primarily as guides and facilitators of learning. In order to enhance the authentic experience of knowledge construction, constructivist pedagogies take place in real-world environments. (Doolittle & Camp, 1999).

The direct role of these concepts on design education will be examined in the discussion of pedagogy in the following section. This educational pluralism

integrates multiple pedagogies, multiple inquiries with social organization and building tectonics to create a holistic learning experience. People draw on diverse sources of information and means of communication, as well as community engagements, suggesting that learning and information exchange and production occur in socially interactive communities of learners.

Models of Design Pedagogy and Inquiry

This section identifies and describes the teaching and learning models that are critical to contemporary design education. Within the context of postmodernism and constructivist learning, design has a unique pedagogy. It is a type of hybrid learning system that enables the culmination of several forms of knowledge including art, science, social science, engineering, philosophy, mathematics, history and theory. "Architecture is a hybrid, an occupation concerned with the design of usable structures and an art based on the forms of buildings and the experience of passage through space" (Schön, 1988) and it is because of this hybrid nature that multiple styles of teaching and learning exist in design education. Diaz Moore (2001) identifies four pedagogical models in design education, each representing four different epistemological positions using the metaphors of Scientist, Practitioner, Social Activist, and Cleric. These metaphors are structured around their implicit assumptions on the nature of knowledge and the relationship between the knower and what can be known. These models are significant to the theoretical investigation of this project because they illustrate the range of co-existing pedagogical methods and values in design education to reflect both expert and personal types of knowledge

transferred through formal and facilitative interactions. This discussion results in a theoretical position that asserts the processes of inquiry, exploration and social practice as most dominant in contemporary creative learning.

Design inquiry explores the nature and activities of design intelligence. It is most often question based with open-ended problems that encourage exploration (Fisher, 2004). According to Davis & Tesar (2004), "the typical inquiry in design studios draws and builds on the cognitive level of designing as a means to think, to feel, and to act, calling on capabilities of the whole human being" (176). Design exploration occurs through a variety of activities including knowledge transmission, research, dialogue, making, and service. Design exploration through technology is an evolving vehicle for inquiry that impacts the future consideration of design education.

The Scientist

The scientist model initiates the discussion of pedagogy, because it reflects the formal mode of instruction in higher education. This model supports the idea that knowledge is external to the knower and is something which can be acquired and accumulated when dispensed by an expert instructor or through adherence to appropriate methodological technique (Diaz Moore, 2001). The expert holds knowledge or skills gained through some sort of experience, whether advanced education, research or practice, which is to be transmitted and absorbed by students. This form of learning creates a dualist relationship between student and instructor where each is an object that the other responds to (Diaz Moore, 2001). Teaching methods such as lectures, exams and term

papers reflect the assumptions of the instructor as the keeper of knowledge whose main role is to deposit that knowledge in students, while the student's role is to digest and regurgitate the information (Diaz Moore, 2001). Within design education, the scientist model often describes the pedagogy of foundational knowledge courses and support courses in the design curriculum.

For the scientist, knowledge is qualified as a transferable commodity; transferred first from instructor to student, then applied by the student to some form of practice (Schön, 1988). Learning to do design, is in some ways like learning to do science. As a formal educational model in design education, the transmission of knowledge and information through lectures and research, places an importance on the theoretical and technical studies of the built environment. This knowledge is then applied practically to a design project through a creative process. Here, the scientist model is considered in the form of its process. According to Schön (1988), science looks very different depending on whether it is considered in the form of its results, or in the form of its process of inquiry. In design education, science can be interpreted as a method of inquiry; a process that is exploratory and phenomenological in nature, based on discovery and inquiry. Schön (1988) emphasizes on this idea further stating:

> When science is taught to students of the professions as a method
> of inquiry rather than as a body of research results, it can be clearly
> seen to resemble what skilled practitioners do in their own on-the-
> spot research. For skilled practice is a form of experimentation with
> its own discoveries of patterns in phenomena, and its own
> generation and testing of hypotheses.

To consider the scientist model in this manner, stresses the process of critical inquiry, problem definition and problem solution in design; of linking theory to

practice. It brings students to experience direct contact with the phenomena, methods of experimentation and canonical and theoretical examples and to apply these in an exploratory, practical manner to design projects (Schön, 1988).

Design exploration in the scientist method, manifests itself in the process of applying theory to practical projects. As a form of exploration through knowledge transmission, it is also manifested through lectures and research to provide students with the foundation they require to understand and respond to a design problem. Lectures provide the basic knowledge without which design would be random and arbitrary, whereas, the design studios apply this knowledge creatively and make it concrete (Gelernter, 1988). In the design process, learners perceive the world abstractly through theories and concepts and process it reflectively (Davis & Tesar, 2004).

Design exploration through research is another method of linking theory and practice in design. Research can be text based or practically experimental as expressed through the graduate thesis, practicum or comprehensive examination in design schools. This practicum is itself an example of design inquiry through research, where theoretical investigations and studies help define a design problem in order to inform a practical spatial design solution.

The Practitioner

The pedagogy of the practitioner stems in part from the scientist, specifically in terms of process. It focuses not on the formal transmission of knowledge from expert to learner, but instead on knowledge gained through experience and process. The practitioner stresses the constructivist

epistemology that students learn by doing through a process coined by Schön (1988) as *reflection-in-action*. Reflection-in-action is: "a process of inquiry by which practitioners make new sense of uncertain, unique or conflicted situations". Accordingly, when students learn to reflect-in-action, they learn first to apply standard rules, facts, and operations; then to reason from the general rules to more concrete cases; and then to develop and test new forms of understanding when familiar ways of thinking fail (Schön, 1988). Reflective practice allows students to think about what they are doing when they are doing it in order to better understanding how they are doing it and why. In this method, human experience extends greater meaning to the learning process and the construction of knowledge.

The practitioner model is closely linked to the process of design practice, which recognizes that design itself is a social, collaborative process of dialogue and negotiation (Cuff, 1991). Accordingly it recognizes the transaction amongst people as being integrated with the knowledge they share. If practice was "understood more deeply as an activity of making sense together, designing may then be situated in a social world where meaning, often multiple, ambiguous and conflicting, is nevertheless a perpetual practical accomplishment" (Forester, 1985). The instructor and the student are interactively linked where knowledge is created as the process proceeds.

In design education, this pedagogy reflects more closely the practical exploration of design in the studio component of the curriculum. It supports a series of experiences in the design process, where students seek an

understanding of the context of their design projects, define the design problem and provide a meaningful solution through action and exploration in the form of design conception, production and presentation. This process is executed at both an individual and a social level.

Design exploration through dialogue situates conversation, presentation and exhibition in the practitioner pedagogical system in design learning. These activities are at the intersection of language and action and occur through various phases of the design process. Exploration through dialogue builds student performance into the structure of learning design through the process of desk critiques, collaborative ideation, presentations and jury reviews. These are occasions of varying formality in which students develop and present their work-in-progress to instructors, peers and outside critics (Cossentino, 2002). This method of design exploration demonstrates a process of reflective practice as it illustrates an instance where students demonstrate, reflect and discuss the design-in progress throughout the process of instruction and it is through this process that the student learns how to design as well as how to think about design (Cossentino, 2002). "A good dialogue will allow an interweaving of personal sensory, affective, and cognitive responses as [students] reflect on their experiences, and through imaginative reconstruction, give them voice in and through visual representation" (Burton, 2000). This visual representation is expressed and illustrated through exhibition where students demonstrate mastery of the design subject.

Design exploration through making is the means by which students develop the skills of representation to express and illustrate a design activity. This takes place in the form of building, modeling and drawing where students learn the skills of visualization or the ability to 'see' potential results of spatial design (Cossentino, 2002). Within the design production process, students use sketches, drawings, images and models as primary tools for shaping, forming and explaining design ideas and concepts. Design-build is another form of exploration through making, based on the premise that "real acts of construction fuel the quest for knowledge" (Chun & McDonald, 2002). It provides students with the experience of experimenting with the performance and effects of building systems in full-scale fabrications that encourages them to integrate design thinking with material and construction technologies. This process is most often a collaborative learning approach that simulates the design-construction process in professional practice, where students use dialogue and negotiation to work together in developing and executing the design.

The Social Activist

The social activist is used as a metaphor to describe a similar pedagogical system to the practitioner in terms of process, but with a primary focus on results that exhibit revolution, diversity and values. Within the social activist model, knowledge cannot be viewed as objective, rather it must be recognized as value-laden, context-specific and a result of social production (Dutton, 1991). Accordingly, this model is closely aligned with constructivist learning theory as it views the acquisition of knowledge as a dynamic and negotiable process and

supports learning as a participatory and social experience. As a pedagogy that places great value on the responsible understanding of the oppressive aspects of society, the model stimulates action that transforms ignorance and misapprehensions into an informed consciousness focused on social change (Diaz Moore, 2001). The instructor is driven by a moral obligation to impart knowledge and a particular manner of viewing and acting in the world and the interaction between instructor and student is integrated; both are becoming empowered together through collaborative action (Diaz Moore, 2001).

In design education, the pedagogy of the social activist grew out of postmodernity when design education and practice became aligned with the social sciences introducing social and environmental considerations as important values in the built environment. This form of pedagogy infuses design education with values, stressing the importance of collaboration and context-based learning with community interactions. It allows students to view the design of the built environment (interiors, buildings, landscapes and cities) as contributions to the larger civic environment, rather than as unique works of art and demonstrations of self-expression (Glasser, 2000). Dutton (1991) describes the interaction between instructor and student as collaborative. Instructors following the social activist pedagogy, work as collaborative investigators with students to arrive at new understandings of how design expresses cultural meaning. Students, as independent collaborators, work with others to arrive at mutual understanding and proceed with developing that understanding within their own design projects (Dutton, 1991). In this sense, design begins with the assertion of a desired

result; essentially a form of social activism which makes the construction of knowledge a meaningful experience.

At the interface between design education and everyday life lies design exploration through service. This exploration lends itself to the social activist model of design pedagogy through community collaboration, service and context based learning, where students are engaged in social awareness and are encouraged to design projects for the greater good of the community. Context based learning consists of engaging with the community through design and collaboration. This type of learning helps instill values in students through the development of leadership qualities and an appreciation for the social ethics of professionalism, volunteerism, individual responsibility, and community service (Feuerborn, 2005). Design exploration through service allows students to develop the critical skills of planning, designing, and building in practical and socially responsible ways.

The Cleric

The cleric represents a completely different pedagogical model from the ones previously described. It holds the position that knowledge is not transferable, but transcendental; that it surpasses experience and becomes intuitive in nature. In this way, the nature of the phenomenal world may be accessed through particular modes of insight (Diaz Moore, 2001). The cleric model is more inclined towards the demonstration of ways of thinking, acting and being based on entire modes of conduct rather than on the transmission of expert knowledge (Diaz Moore, 2001). The interaction between instructor and

student is reflective of master and apprentice, a traditional educational model where indoctrination into a discipline taught students to accept a system of thought uncritically. In design education, the studios serve as places of conversion and indoctrination where studio instructors act as masters to apprentices modeling appropriate behaviour, values, design strategies and thought process and expecting students to suspend previously held beliefs and become open minded to the master's ideologies (Diaz Moore, 2001). This concept is contradictory to the constructivist pedagogy because it supports the belief that previously held knowledge limits creativity and innovation, in fact it is more reflective of the traditional master-apprentice educational model of the past. However, the cleric model demonstrates a link to the phenomenological experience of the individual within the environment. In other words, for design education, the cleric manifests itself in a pedagogy of the built environment, where students take insight from the physical environment around them. The built environment acts as a learning resource where students can see and experience examples of spatial structures, systems, lighting and materials. Students then develop "a personal understanding of spatial phenomena as they explore their own environmental experience" (Bognar, 1985).

Technology: The evolving tool for learning

Design exploration using technology is a form of inquiry that does not fit into one specific pedagogical model as it is a vehicle for inquiry that crosses all forms of teaching and will expand and evolve into the 21st century. In creative learning, technology is a tool for design exploration, collaboration and design

representation in the form of virtual design studios and digital tech tools. This type of learning exposes students to technologies that allow them to master the skills of communication (interpersonal and representational) appropriate for the evolving realm of practice (Kvan, 2001). The use of digital tools in the studio curriculum, such as computer assisted design software and advanced imaging techniques, create 'moments' in the life of a project rather than a solution that appears fixed and stable such that a design can easily be tweaked in process (Cuff, 1991). Virtual design studios bring students together across time and space to collaborate on design problems and to find a common solution. This concept can connect students in remote areas or even across the globe exposing them to alternative ideas and perspectives. In the 21st century, computer-mediated collaboration may become the future for design education suggesting that the learning environment may eventually be reduced to a computer and a network connection.

Each of the pedagogical models and inquiry methods described manifest themselves in design education at varying degrees. It is important to recognize the role of each in the learning process as influencing the construction of knowledge in unique ways. Different instructors may be more inclined to follow one model more closely than another and different students may respond better to one over another, but the combination of all four in the learning environment demonstrate that there is a variety of ways to think about design and achieve a solution to a problem. Divergent views in the educational curriculum make for a more fruitful educational experience allowing students to develop a process that

is more tailored to their personal understanding of design. By considering and linking different models, as this project does, it demonstrates that although there may not be one given approach to design pedagogy, different methods can coexist and compliment each other. Further discussion on the manifestation of the four models of design pedagogy in the conception and design of this project will be explored in chapter five through a discussion of the power of space in design learning.

The Organizational Climate of Creative Learning

The design studio is a type of social organization, complete with a political and cultural climate that has an influential role in student learning experiences. Students learn as much through the social culture in the school as they do by the content of the courses. This section examines the social nature of knowledge as situated within a constructivist learning framework. The organization of the creative learning environment reveals several social psychological issues at the individual level and interpersonal level. Dutton (1991) describes this layer of education as the *hidden curriculum*. Social relationships can reveal issues of hierarchy and power especially between students and instructors. Student competition, another element of power in the learning environment, is seen as a major motivator for students to excel. An exploration of the unique educational culture at the heart of design education reveals traditions, habits and myths that many design students, past and present can attest to.

Social Organization and Creative Collaboration

The social organization in contemporary forms of design education stems from the social nature of knowledge as described by constructivist learning theories; knowledge is the result of social interaction within a socio-cultural context (Doolittle & Camp, 1999). This context manifests itself in the form of interpersonal relationships, collaboration and creative behaviour. Collaborative learning refers to a wide variety of "educational activities in which human relationships are the key to welfare, achievement, and mastering, wherein instructors help students learn by working together on substantive issues" (Bruffee, 1995). Personal experience can attest that design explorations are most often more fruitful when they include some collaborative efforts whether quick discussions, group brainstorming or idea exchange. Moreover, creative performance is essentially the result of a collective interplay between the individual and both social, cultural and physical environmental factors (Vithayathawornwong, Danko & Tolbert, 2003).   The social circles created in design learning create a sense of fraternity that speaks to the overall cultural conditions of design schools and greatly influence creative behaviour when space plays a role in supporting and facilitating these conditions (Vithayathawornwong & al., 2003). Groups of students spend significant amounts of time together in classes and in the studio, it is therefore natural that social circles form based on commonalities in design process and personal interests.

Hierarchy, Power and Competition

The pedagogical models of the practitioner and social activist, discussed in the previous section, make reference to the social aspect of learning. The practices which structure experiences and relationships in the learning environment are part of the hidden curriculum in design education (Dutton, 1991). This curriculum is defined as: "the unstated values, attitudes, and norms which stem from the social relations of the school, classroom and content of the course" (Dutton, 1991, 167). Students learn as much through the social culture in the school as they do by the content of the courses they are engaged in. Since design pedagogy engages students to work more closely with their instructors and with each other, there are a number of interaction issues that will arise, some more prominent in some pedagogical models than others. Systems of hierarchy and competition emphasizes the manifestation of power in the learning environment that can hinder the development of knowledge and skills in a positive and cooperative environment.

Power systems in design education have manifested themselves since the historic craft guilds, where masters were the keepers of design knowledge because of experience and where apprentices were empty vessels which absorbed and stored the knowledge transferred from the masters. In many instances, today, hierarchy and power still support vertical relations between instructors and students. Not only are the instructors experienced experts and keepers of knowledge, they hold the power of decision making through critique, judgment and grading. Students naturally become more passive and are more

likely to gear their design projects towards satisfying their instructors visions. Structures of power naturally exist within design reviews and presentation where students are being critiqued and judged on their performance and demonstration of mastery. When instructors assume the role of facilitator to the creative learning process, students become empowered to explore their own design understanding and creative expression.

Competition reflects another type of power system in the learning environment that occurs between students. In an academic environment where students are evaluated on a regular basis, it is only natural that competition arise as an issue. Design competitions are a common form of design practice where individual designers or design firms creatively compete against each other to win projects. Many of these projects are high profile and it is usually an honour to win a design competition. Designers and architects have gained success and recognition through this form of practice. Competition is based on individualism and the construction of architecture and design history reflects the master, the individual genius and the notion of the star system (Ahrentzen & Anthony, 1993). Students learn about the endeavors of key historic architects such as Le Corbusier, Frank Lloyd Wright, Mies Van der Rohe that demonstrate individual innovation and novelty so that competition becomes a major motivator for students to excel. Positive competition can exist within a community, where competition occurs against the problem instead of against one another (Ahrentzen & Anthony, 1993).

Educational Culture

As a social organization, the design studio is a manifestation of a unique educational culture based on traditions, habits and myths. The culture of design education lies in the studio, where studio courses command the most credit hours, the largest workloads and the most intensive time commitment from educators and students. Habits and culture are passed on throughout the years and patterns are built upon generations of students, educators and practitioners (Koch et al., 2002). One view of the studio is that it is a place where students work long hours, well into the night with extreme dedication; a place of creative energy, intense relationships, collaboration and fellowship; a time of personal sacrifice, mutual critiques and punishing reviews (Koch et al., 2002). Interestingly, to non-design students, design students seem to maintain the reputation of "crazy students who spend all of their time sequestered in that one building that is always well lit" (Koch et al., 2002). Studio culture is also characterized by the many myths it perpetuates and these myths often influence the mentality of students to promote certain behaviours and patterns, some which are often negative and detrimental to their overall well-being and balanced lifestyles. In many cases, the creative atmosphere of the design studio and its inherent learning and teaching practices assumes the status of a lifestyle.

These ideas all point toward the notion that the culture of design education is based on concepts of fraternity, distinction and differentiation from the greater academic community.   Thomas Fisher describes the fraternity aspect of design where the pressure of the design studio on students becomes "a rite of passage

for membership in the club" (Fisher, 1991, p. 9). Design students are a by-product of their own cultural production as demonstrated through their actions which yields a sense of membership and belonging (Fisher, 2001). Issues of studio culture are commonly made into items that students use to create distinction through such elements as faculty clothing with student designed logos proclaiming humorous slogans, or emails that poke fun at many of the pressures of the design studio including comments on the ability to 'pull late nights' (Koch et al., 2002).   In the Faculty of Architecture at the University of Manitoba, students engage in faculty specific social activities such as social Symposiums, talent shows, a Buddy Barbecue or even the long standing sporting tradition of Ditch Ball in the winter. Most often these activities are bonding moments for students, creating a sense of family with other students who are engaged in the same learning experiences.

4   HUMAN FACTORS

User Profile

In the context of 21st Century higher education, students entering universities represent a changing demographic with constant connectivity to technology and information. A new generation of students who have grown-up in a globally connected, information intense, digitally based culture; is redefining users and their needs in creative learning facilities. As many design schools, including the Faculty of Architecture at the University of Manitoba, encourage students to use computers to explore their design process and graphic communication, students are developing more sophisticated modeling techniques and creative representational skills, expanding the possibilities of design development. Consequently, students become dependent on heightened digital skills and often neglect the development of more traditional methods of creative exploration such as drawing and modeling. They can use technology to their advantage to express ideas with great speed.   Technology is an important, integrated component in contemporary creative learning environments.

A highly mobile global community which has defined a varying and diverse student body throughout Canadian universities. Diversity in languages, cultural backgrounds, family situations, experiences and expectations invite varying perspectives and points of view. In order to financially support post-secondary studies many students work part-time to cover expenses. In addition, many students have families to care for while pursing educational goals. These issues

impact social and academic experiences on campus because they impact the

amount of time students can spend in educational facilities.

These issues apply to the users of the Faculty of Architecture at the

University of Manitoba. The student body of the Faculty consists of

approximately 560 full-time and 35 part-time students in both undergraduate and

graduate degree programs in Environmental Design, Interior Design,

Architecture, Landscape Architecture and City Planning. The school has a rich

student demographic diverse in ethnicity, gender, culture, experience and ideas.

Students in the faculty are engaged in active learning and are encouraged to

creatively express and develop ideas concerning the built and natural

environments. Many students have part-time jobs to support financial needs.

Some seek to gain practical design experience while in school to develop an

understanding of the professional workplace and also take advantage of career

opportunities early on. The work experience these students receive can be

shared with classmates throughout the design process allowing for the exchange

knowledge and skills.

Instructors in the Faculty of Architecture are engaged in teaching,

professional practice, social activism and design research. Instructional and

administrative faculty members combine a broad range of design and teaching

experience, and promote specific individual design interests and areas of

expertise. There are approximately 60 administrative and instructional members

in the school. Adjunct and sessional faculty members represent practicing

professional expertise on the teaching staff, providing a pragmatic design perspective current with the professional workplace.

Technology plays an important role in the design curriculum in the Faculty of Architecture; by their second year of undergraduate studies, design students are equipped with laptop computers and up-to-date creative design software. Within the studio setting, traditional drafting boards are re-appropriated into laptop worksurfaces, as much of the output of design communication is digital rather than by hand.

Many students, myself included, entered design education with the eventual goal of making a difference by providing functional and aesthetically pleasing built environments, by initiating social, political and environmental change, and by maintaining the appropriate skills to become strong community leaders. Design students need to feel optimistic about the skills they are learning, hopeful that they will succeed as professionals and that design can make a social difference. Students therefore want to be engaged with real world issues and learn the process of design through real experiences and design projects that connect them to actual communities, users, and clients.

Design students also value the promotion of a healthy learning climate that includes constructive critiques and democratic decisions. Respect for ideas, diversity, and the physical space of the learning environment are essential needs that enhance architectural education (Koch et al., 2002). Instilling the values of sharing in design education promotes collaboration, interdisciplinary connections and increases communication between students. Design students communicate

in various ways, both directly, through face to face contact, and indirectly, through vehicles of technology, design representation and display. Creative learning environments must place a priority on communication in order to encourage students to work collaboratively and master design together. Students desire a learning climate where ideas and feedback can be exchanged freely without the fear of repercussions (Koch et al., 2002).

Students and instructors are as concerned with the ability of their learning environment to accommodate the pedagogical activities which heighten the development of design knowledge and skills, as they are with the quality of education that is being provided. They feel a connection to their academic surroundings since they spend significant amounts of time in the environment on a daily basis. Within this environment students develop important social relationships with their classmates through assigned project groups and self-initiated study groups, peer reviews and student councils. Students also place importance on the ability to express and display through personalization, identification and group membership.

Throughout the process of this practicum, I discussed the project with several classmates and they all agreed that the current spaces of the Faculty of Architecture needed to be re-evaluated and reconsidered to support more interaction and collaboration, to accommodate concentrated work, to inspire and engage. The students required comfortable and accessible learning spaces that encouraged them to creatively work and learn with their classmates in school, rather than conducting these activities isolated in their homes. Some students

expressed interest in the state of the current learning spaces, suggesting that the ability to alter the space using found materials and personal objects created a strong expression of culture and creativity. Consequently, these same students recognized that the results of this personalization often left the space looking unmaintained.

User Behaviour – Trace Study

A trace study of user behaviour was conducted as a part of the design investigation for this project supports the user profile by providing further insight into the behaviours and needs of users within the existing studio space of the Faculty of Architecture. The analysis revealed important information on how the students use their space and manipulate it to support their individual and disciplinary group learning processes. The study also revealed expressions of distinct creative learning cultures in each discipline.

An unobtrusive trace observation and study was conducted by observing phenomena such as: work area function, layout, objects, and other obvious peculiarities in the design studio. Photography was used as the medium to capture and record behavioural traces for the purposes of analysis and discussion, allowing inferences to be made about how the space is used and configured. The photographs were categorized into five different sections: a) workspace organization (Figures 3-6), b) workspace adaptation (Figures 7-10), c) 'lived-in' workspaces (Figures 11-14), d) storage (Figures 15-18), and e) display and personal/cultural expression (Figures 19-22). Within each section, the photographs of the individual disciplines were combined to identify spatial

and cultural similarities and distinctions between them. The analysis and

evaluation of the study reveal recurring spatial issues and provided insight into

disciplinary distinction and learning culture.

Observations

Workspace Organization

Figure 3. Landscape architecture student work area. Worksurfaces organized in rows.

Figure 4. Interior design student work area. Vertical barriers to separate studio groups.
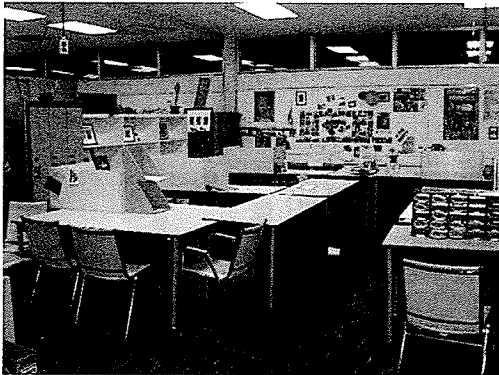

Figure 5. City planning student work area. Tables are used as work surfaces organized into clusters with no apparent individual student ownership.

Figure 6. Architecture student work area. Enclosures created around individual student workspaces.

Workspace Adaptation
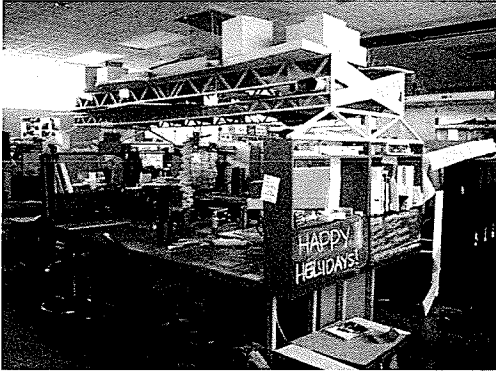
Figure 7. Architecture student work area. A built overhead structure accommodates required storage needs.

Figure 8. Architecture student work area. Student adaptation to address direct sunlight issues.

Figure 9. Architecture student work area. Adapted workstation makes use of furniture items to provide multiple work surfaces to support different activities.
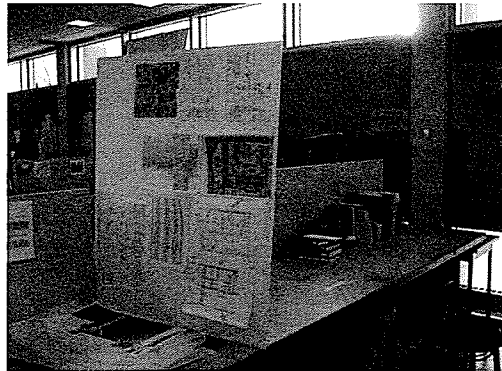
Figure 10. Landscape architecture student work area. Privacy barrier and pin up surface.

'Lived-in' Workspaces

Figure 11. Landscape Architecture student work area. A demonstration of 'lived-in' quality through the integration of comfortable seating and plants.
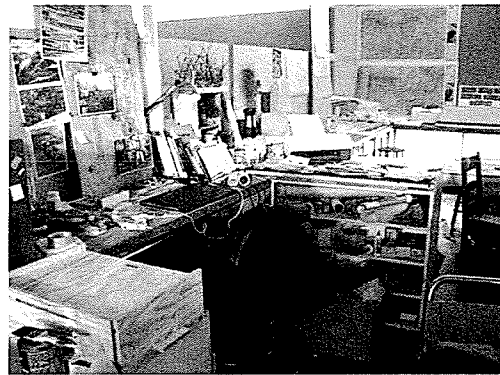
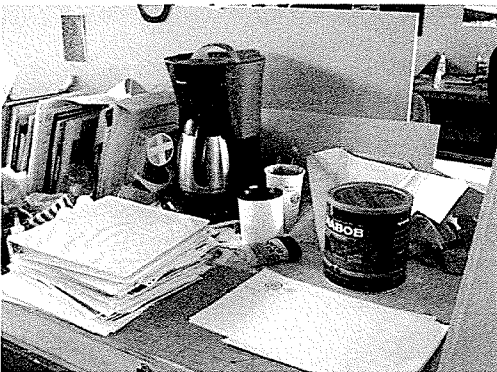*Figure 12*. Architecture student work area demonstrating 'lived-in' quality.

Figure 13. Architecture student work area. Evidence of long work hours.

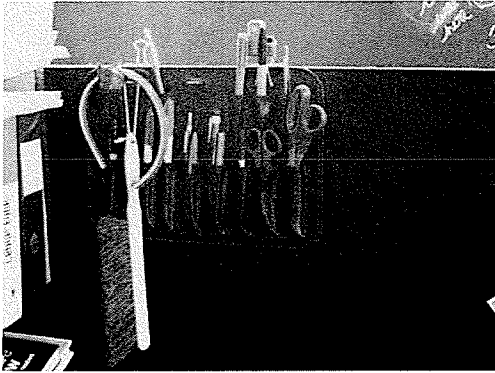*Figure 14*. Architecture student work area. Personal computer tools and refrigerator for convenience demonstrates student spends significant time working in studio.

Storage

Figure 15. Architecture student work area. Accessible storage of personal work tools.
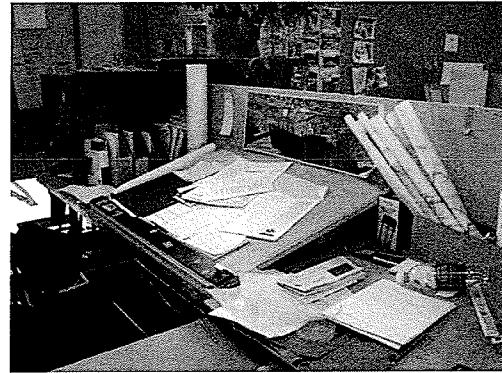

Figure 16. Landscape Architecture student work area. Storage for drawings, papers, and documents.

Figure 17. Interior design student work area. Storage shelf below work surface for large items. Drawer units provide storage of personal design tools.
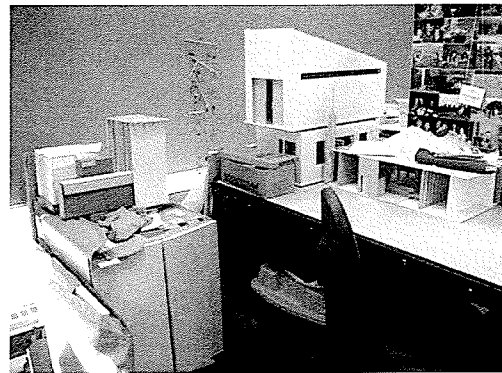

Figure 18. Interior design student work area. Lack of storage for models.

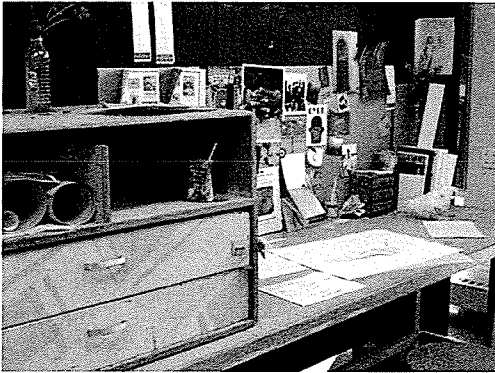**Display and Personal/Cultural Expression**

Figure 19. Landscape Architecture student work area.   Art and photographs on display.

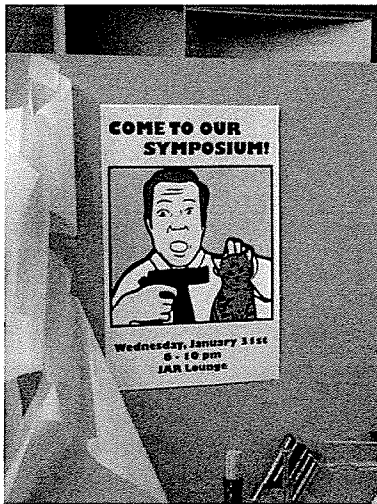*Figure 20*.   Architecture student work area. Display of drawings and scale models.

Figure 21. Architecture student work area. Expression of faculty culture and social events using humour.

Figure 22. Architecture student work area.   Surface for written expression and messages.

Inferences - Cultural Differences

The majority of the insight into the behaviour, habits and needs of design students was drawn from the study of architecture, landscape architecture and interior design disciplines. The overall work areas for city planning students appeared to function as a drop-in space for meeting and collaborating with classmates, rather than an actual work area. The study and photographs revealed unique cultural characteristics between the different disciplines in the way that their work areas are organized and used. Architecture students demonstrate an interest in morphing their own space using found materials and objects. The architecture work area demonstrates the most innovation in workspace adaptation to accommodate personal and group needs such as storage, display, privacy, and comfort. However, each architectural studio group appeared to organize their work environments differently to support their studio project needs. Some had more open organizations while others were more enclosed, influencing the dynamics and relationships between students in each group.

The architecture and landscape architecture areas demonstrated more traces of lived-in behaviour, whereas the interior design and city planning work areas did not. The traces of lived-in behaviour reveal the architecture and landscape architecture students spend more time working and learning in school than the other two disciplines. The provision of comfort is often achieved by the two groups through the incorporation of plants, comfortable furniture, solutions for privacy, personal artifacts such as clothing and footwear, food, and work tools

revealing that these issues are important in the design of a creative learning environment.

The interior design students appeared to maintain a sense of order and neatness in their work area. These students seemed to decorate their individual work areas more than the other disciplines with personal photographs, art work and display shelving. Decoration is stereotypically viewed as a skill of interior designers and it seems as though the students have supported this view in many of the work areas as a demonstration of personality, identity and expression.

For all disciplines, the photographic study demonstrated a recurring theme in the student studio spaces: spatial adaptation, as manifested through evidence of functional adjustment, personal tools and expression, and 'lived-in' behaviour. The photographs speak to the reality that students require appropriate spaces, furnishings and tools to support learning needs, but moreover, demonstrate that students value the ability to manipulate their environment to suit their personalities and personal comfort. Through its design solutions, the project will support key values such as adaptation, personal and cultural expression and a sense of spatial ownership, by providing students with appropriate spaces, tools and levels of flexibility to support learning needs and take ownership of their learning environment, but also encourage respect and maintenance toward the space.

5   DESIGN IMPLICATIONS

The ideas explored on the topic of design education in the 21st century translate into various spatial design implications for the project. The implications primarily illustrate the power of space in the learning process by addressing the communication of values, the facilitation of educational process, and the tectonic manifestation of design principles. To communicate these concepts and to support the established theoretical foundation, five key spatial considerations are identified: configuration, visual accessibility, atmosphere, character and flexibility. Several facilities for design education serve as precedents for design inspiration and reveal recurring spatial concepts that are important to consider in creative learning environments. The noted projects are facilities for design education, specifically specializing in architecture, landscape architecture, and fashion design.

The Power of Space in the Learning Process

The power of space in the learning process presents the interior environment as an educational resource, to teach the processes of design learning by example. The configuration and arrangement of learning facilities should support the educational process of design by providing users with an experience of inquiry through exploration, reflection, social interaction while maintaining a strong learning community and educational culture. The overall design of learning facilities can communicate educational values as well as design values such as sustainability and innovation. The interior space becomes

an ideal pedagogical resource for design education as it can demonstrate the tectonic manifestation of design principles, building systems, sustainability, material uses, connections and details.

Most of the empirical literature pertaining to the design of educational environments is found in environmental psychology, the study of the relationship between individuals and their physical environment (Gifford, 1997) and social psychology, the study of how people think about, influence, and relate to one another (Myers, 1999). Weinstein (1981) identifies four assumptions about the physical educational environment. First, the learning setting can facilitate or inhibit learning both directly and symbolically. Second, the effects of the physical environment on learning are moderated by other social, psychological, and instructional variables. Third, the learning environment should match teaching objectives, student learning styles, and most importantly, the social setting. Finally, learning is optimized when the physical environment is treated with the same care as curricular materials and instructor preparation. All of these assumptions are substantiated by the previous theoretical discussion, and provide a greater justification for the selected conceptual course of action for this design project.

The study of design pedagogy and inquiry reveals that design learning is exploratory in nature with multiple processes and multiple means by which to solve design problems. Accordingly, the learning space should support a program that includes different models of design pedagogy and inquiry. Spatial typologies and functions should facilitate the generation, testing, production and

sharing of ideas and information. The organizational climate of creative learning reveals the need for an interior spatial arrangement that shapes a learning community as a neighbourly environment which integrates faculty and students with the social process of design learning. The key social and cultural ideas present a spatial opportunity to dissolve the traditional boundaries that once existed between educational activity and social interaction. Informal meeting spaces for instructors and students should be provided to help dissolve the power structures and hierarchical relationships. Accordingly, social and collaborative spaces should become integral creative learning environments that offer a source of inspiration to generate and exchange ideas and knowledge. The unique cultural qualities of design education should be fostered and expressed through atmosphere and character to promote a unique educational identity.

A precedent review of different facilities that redefine the meaning and character of creative learning environments provides design inspiration and addresses the power of space in the learning process by revealing important design issues. The Fashion Institute of Design and Merchandising in Los Angeles California makes reference to a display of culture, social learning and a high level of spatial animation through the use of colour, pattern and imagery that illustrates the creative nature of fashion design. The learning spaces reveal a strong deviation from traditional formal learning settings and demonstrate an elevated degree of diversion and enjoyment.

Other facilities such as the Knowlton School of Architecture at Ohio State University in Columbus Ohio; the Marne School of Architecture in Marne-la-Vallée, France; and the Montgomery Campus of the California College of Arts and Crafts in San Francisco California, demonstrate the integration of a main multi-purpose space, a public space and forum as a central point of connection and movement that stimulates engagement and unity between students, instructors and the greater public domain.

The Knowlton School of Architecture and McGill School of Architecture in Montreal Québec demonstrate a commitment to providing open and connected learning communities within student workspaces. There is an emphasis on clustered furniture arrangements and the integration of both permanent and temporary workstations.

Transparent spatial qualities are illustrated in the Stukerman Building of the College of Arts and Architecture at Penn State University. The use of transparent materials and open spatial configurations provide visual accessibility by connecting different areas and functions and enhancing natural daylight penetration within the space. All of these examples demonstrate the importance of educational culture, learning community and enhanced environmental and spatial quality in creative learning environments.

The current user behaviour in the existing student learning spaces of the Faculty of Architecture reveal important spatial implications . Student behaviour has a great impact on the function, appearance and maintenance of a learning facility. This practicum project does not attempt to design space as a way of

changing behaviour itself, but as a way of developing and sustaining certain types of behaviour, specifically those that foster learning through inquiry, social experience, reflection and cultural expression. The behaviour in the existing learning facility illustrates students' constant immersion in the design process. They recognize spatial and design problems in their own learning space and creatively develop solutions to accommodate issues of storage, display, privacy and work surfaces.

Each discipline addresses their space relative to the nature of activities and skills in each area of expertise. Some of these inferences support many of the stereotypical views that exist in each discipline. For example architecture students use construction and structure to manipulate their environment; landscape architecture students use plants; and interior design students use decoration. Each method of adaptation strengthens the unique culture of each discipline. It is essential to create a learning environment for all students that allows each discipline to thrive. A workstation design solution should link all students of the faculty, but provide the necessary flexibility that allows each discipline to shape their environment and express their own distinct culture.

To illustrate the power of space in the creative learning environment, I identified five key spatial considerations to provide the foundation for the interior design: configuration, visual accessibility, atmosphere and character, flexibility.

The configuration of the interior environment plays a role in facilitating educational process and communicating educational values. Through the juxtaposition of multiple learning processes and the connection of different types

of knowledge, the space illustrates the plural nature of design education; the co-existence of multiple pedagogical models and different learning dynamics. The configuration creates an interplay between collaborative and individual learning processes and provides a combination of areas of high interaction and low interaction demonstrating the value placed on social learning.

Visual accessibility is a spatial consideration that speaks both to the communication of values and to the tectonic manifestation of design principles through the integration of transparency and the creation of visual awareness of people, processes and building systems.

Atmosphere and character are vehicles for the expression of community and culture. These reveal opportunities for display and expression and begin to define the quality of the journey through the educational experience.

Flexibility addresses the need for adaptability within the space through the provision of multi-functional areas, mobility, temporary and portable elements and the control of privacy and personalization.

The next chapter reveals the design strategies that are driven by the previous implications. It introduces a new spatial vernacular developed for this project, that supports the creative learning process.

6   DESIGN STRATEGIES

Spatial Vernacular for Creative Learning

One of the primary goals of this project was to propose a spatial vernacular for design education environments that supports and describes the social and cultural character of creative learning. A new vocabulary was generated in order to reconsider many of the previously accepted images and associations. Traditional spatial terms such as 'classroom', 'library', 'auditorium' or 'seminar room' often suggest typical standard programs, layouts, furnishings and equipment requirements that may not necessarily support all types of design pedagogies, specifically those that promote learner inquiry and social engagement.

Spatial categories begin to define the vernacular through an attention to design learning dynamics and required resources that support the pedagogy (see Figure 23). Within the different categories, typologies were established to support various learning activities and introduce a new vocabulary (see Figure 24). These terms imply environments that are relevant to contemporary design pedagogy and emphasize inquisitive, exploratory and social educational experiences, widening the opportunities for the project's creative design exploration.
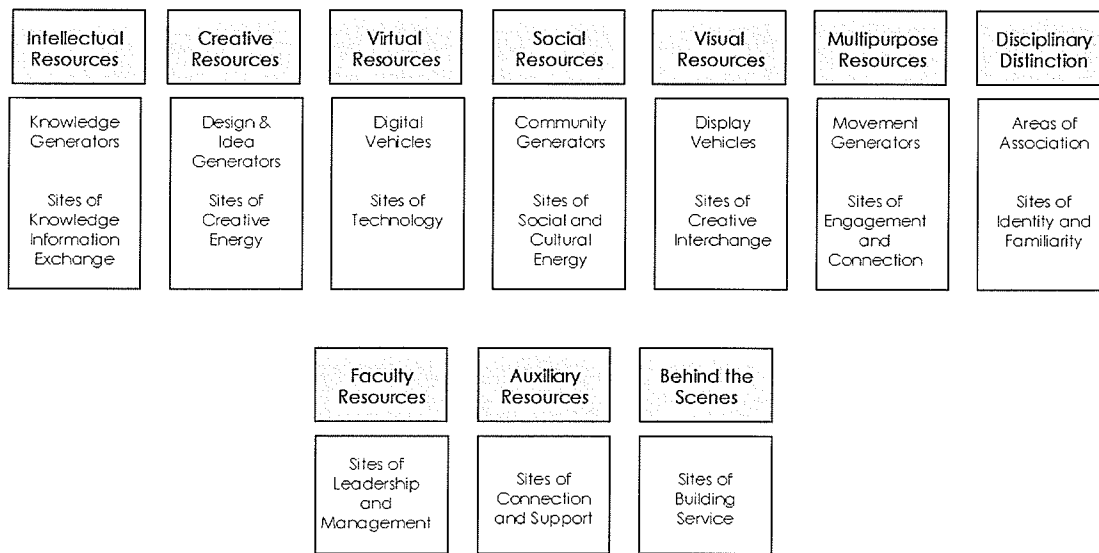
Intellectual Resources	Creative Resources	Virtual Resources	Social Resources	Visual Resources	Multipurpose Resources	Disciplinary Distinction
Knowledge Generators Sites of Knowledge Information Exchange	Design & Idea Generators Sites of Creative Energy	Digital Vehicles Sites of Technology	Community Generators Sites of Social and Cultural Energy	Display Vehicles Sites of Creative Interchange	Movement Generators Sites of Engagement and Connection	Areas of Association Sites of Identity and Familiarity

Faculty Resources	Auxiliary Resources	Behind the Scenes
Sites of Leadership and Management	Sites of Connection and Support	Sites of Building Service

Figure 23. Categories of spatial resources supporting key learning dynamics in design pedagogy.

Intellectual Resources	Creative Resources	Virtual Resources	Social Resources	Visual Resources	Multipurpose Resources	Disciplinary Distinction
Learning Theatre	Hot Spot Workstations	Media Hubs	Playground	Creative Skins	Forum	Turfs
Round-Table Rooms	Suite Workstations	Digital Bars	Café	Spatial 'Blogs'		Clubhouse
Material Showroom	Beta-Sites		Mentor Patio			
Research Hall	Team Incubators		Niches	Faculty Resources	Auxiliary Resources	Behind the Scenes
Reference Patches	Retreats			Faculty Offices	Lobby	Washrooms
Information Post	Inspiration Patches			Administration Offices	Promenade	Storage/ Supply
	Production & Assembly Room				Corner Store	Garbage/ Recycle
	Presentation Runways				Vaults	Loading

Figure 24. Spatial categories with corresponding design typologies for creative learning.

Design Programme

The design programme describes spatial needs that recognize diverse design pedagogies and learning methods and combine experiences that celebrate the design process, the educational culture and the social interactions that increase motivation for learning. The programme identifies the traditional vocabulary of the space, its activities and uses, and provides a description of the environment. The functional programme is located in Appendix A and focuses on the key spaces emphasized in the design development of this project.

Intellectual Resources

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
Learning Theatre	Auditorium	- Transmit knowledge - Large lectures - Seminars - Presentations	- A formal learning space for the transfer of knowledge. - Knowledge is exchanged through seminars and lectures where larger student groups can be accommodated. - Provides a high level of user control over technology with integrated digital and audio-visual equipment and student access to power and data for computer use.
Round-Table Room	Seminar Room	- Information exchange through discussion - Small lectures - Seminars - Meetings - Small presentations	- Flexible, multi-purpose use to support multiple learning and teaching activities. - Fosters face-to-face learning interactions through debate and discussion that builds on the shared understanding of various problems and ideas.
Reference Patch	Technical Library	- Research - Information	- An accessible, resource rich space that supports

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
		Gathering - Reference	information gathering. - Provides access to relevant technical information - Discipline specific for the purposes of targeted research. - Offers a high level of user control and interaction with digital search terminals - Reading and review areas allow for quick review of information. - Provides a high level of user control and interaction with digital search terminals.
Information Posts	Bulletin Board	- Information display and exchange	- High tech nodes that post and display information and current issues relevant to design and higher education. - These areas broadcast varying points of view through digital news bulletins and media clips to engage in critical thinking, dialogue and debate. - Provides an ongoing awareness of activities and events and critical information for the University of Manitoba and the Faculty of Architecture including scholarships, important dates, presentations, cultural events and employment opportunities.
Material Showroom	Product Library	- Inform, interact, touch - Research - Information gathering - Interaction with design	- A resource rich space that expands knowledge of design products and materials. - Supports research and information gathering in building construction. - Displays innovative and

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
		products and materials	sustainable products and information - Provides a searchable collection database providing links to external resources. - A tactile environment inviting a high level of interaction with materials and providing accessible samples to students for use in their design projects.

Creative Resources

Design Conception

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
Hot Spot	Temporary Workstation	- Multiple, short-term independent and social learning tasks - Computer work - Sketching - Reading and Studying	- A combination of individual or group workspaces for multiple learning tasks. - Stations are unclaimed, suitable for mobile students who use the workspace for a few hours or for the day and pack up when they leave. - Clustered arrangements support informal collaboration and sharing of ideas, and can accommodate quick meetings.
Suite	Studio Desk	- Multiple independent learning tasks - Computer work - Drawing and sketching - Reading and studying	- Dedicated individual workstations for multiple independent learning tasks and the exploration of ideas. - A space where students perform common, everyday learning and project work. - Permanent workspaces claimed on a yearly basis by

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
			students who spend a significant amount of time researching, learning and working on projects in school. - Provides a high level of user control of their environment through configuration, digital connectivity and privacy.
Team Incubator	Team Project Room	- Brainstorming - Discussion - Knowledge exchange - Meetings - Collaborate - Idea development - Social learning	- Informal spaces that increase student motivation for learning through group collaboration. - Encourage the formation and development of new ideas. - Enable knowledge transfer and brainstorming to generate, share and refine ideas. - Provides integral writing and display surfaces to make visible the learning process.
Retreat	Study Carrel	- Independent study - Concentration - Reflection - Reading	- A retreat from high activity level learning areas. - A quiet place for concentration. - Offers a high level of user control over privacy to facilitate reflection and deep thinking.
Inspiration Patch	Design Library	- Inspiration - Research - Information gathering - Reading - Display	- An accessible, resource rich space that supports design inspiration - Provides access to relevant design examples that students can learn from to spark project ideas - An area to interact with literature, images and objects.

Design Production

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
Production Room	Workshop	- Making - Building - Modeling - Construction - Cutting - Shaping - Forming	- A space for hands-on creation that turns ideas into reality. - Supports student learning through the experience of making. - Fosters the important relationship between design conception and execution of a work. - Supports building and construction with wood, metal and plastic materials. - Specialized machinery for cutting and shaping materials to suit full scale construction or small scaled models. - Features material and tool storage along with tool rental services.
Assembly Room		- Making - Building - Connecting - Detailing	- Supports material assembly by supplying various work surfaces in addition to specialized and ventilated spaces which support work with finishes and solvents that exhaust heavy fumes.
Beta-Sites	Laboratory	- Test - Experiment - Observe - Demonstrate	- A research area emphasizing innovation through experimentation and testing of material qualities in addition to lighting and building systems technology. - Centers for trial and error that encourage creative thinking allowing students to explore scenarios and prototypes.

Design Presentation

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
Runway		- Presentation - Display - Interaction - Discussion	- Facilitate the sharing, review, exchange ideas and offering feedback on student projects through presentation and display. - Supports audience engagement and provides opportunities to review work at different stages of the design process.

Virtual Resources

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
Media Hub	Computer Lab	- Audio visual creation and editing - Image manipulation - Computer assisted design work - Digitize	- Technology intensive space for the investigation and creation of conceptual architecture and design using specialized digital technology and software. - A creation space that facilitates the communication and representation of design ideas and knowledge using multimedia methods including photography, image manipulation and audio-visual compilations. Features specialized computers, computer software and audio-visual and photography equipment.
Digital Bar		- Scan - Print - Copy	- Accessible resource station for printing, scanning and copying.

Social Resources

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
Playground	Lounge	- Meeting - Eating - Relaxation - Socialization - Learning through play - Informal mentoring - Conversation	- Spaces that support the social experience of design learning through informal interaction - A venue for the expression of an educational community and culture that balances the interactions of learning and social engagement acting as a living room for stimulation and play. - A space for isolated groups to come together and for disciplines to integrate by encouraging spontaneous sharing of ideas and experience. - The space supports multiple playful activities specifically targeted for exploration and diversion. - A small kitchen facility allows students to refrigerate and heat prepared meals. - Community tables provide areas for social connections and informal mentoring to occur.
Mentor Patio		- Meeting - Mentoring - Discussion - Conversation - Display - Informal presentation	- Informal meeting space for instructors and students that support the learning process through leadership, mentoring and the transfer of knowledge. - These spaces assist in dissolving the hierarchical relationships and boundaries between instructors and students as their interactions become more integrated in the learning environment.

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
Social Niches		- Spontaneous meeting - Socialization - Conversation	- Impromptu and spontaneous social zones along circulation paths for planned and unplanned social connection.
Café		- Eating & Drinking - Meeting - Socializing - Entertaining	- Food retail outlet to connect students, instructors and the local community. - Serves prepared food catered by local cafés and restaurants. - The outlet is managed by the design student association and serviced by students. - Facilitates multiple evening and weekend activities and events and entertainment programs accessible to the public.

Visual Resources

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
Creative Skin	Pin-up & display wall	- Display	- Display surfaces that stimulate and inspire. - Display of student project work, studio project work, and design process. - Makes the learning process visible, maximizes sharing of information, and sparks intellectual and creative curiosity.
Spatial Blog		- Personal Expression - Display	- Provide creative level of user control over the environment through the expression of individual and group identity. - Digital displays that support the design learning culture. - A vehicle of expression

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
			integrated spatial to accommodate user statements including inspiring quotes, expressions and ideas, representation and imagery, personal display.

Multi-Purpose Resource

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
Forum		- Exhibitions - Lectures - Faculty Functions - Socialization - Cultural Events - Presentations	- A central, open, multi-purpose space that accommodates a variety of activities. - As a movement generator, the forum draws people through the environment, creates interaction and stimulates and inspires. - A central core which links all other spatial programs.

Disciplinary Distinction

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
Turfs	Studio	- Learning - Individual work - Distinction of disciplines - Individual reflection	- Home bases of familiar areas of residence or expertise that support multiple learning and teaching activities and promote a learning group or discipline's identity. - Area focused on individual reflection and learning tasks. - Promote a learning community through visual

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
			access to classmates when group learning, mentoring and the sharing of resources is required. - Characterized and distinguished to reflect individual disciplines (Architecture, Interior Design, Landscape Architecture, City Planning) and they way in which they organize their learning space and interact with each other.

Auxiliary Resources

Spatial Type (New Vernacular)	Traditional Vocabulary	Activities & Uses	Description
Lobby		- Orientation - Welcome - Information - Security	- Areas are for sharing, reviewing, exchanging ideas and providing feedback on student projects through presentation and display. - Supports audience engagement and provides opportunities to review work at different stages of the design process.

Adjacencies

Spatial adjacencies emphasize flow, experience, movement, core and connection in the learning environment. The vertical zoning of the facility is an expression of the learning process and layers of design knowledge (see Figure 25). A central core moves users through the process of design education where each level focuses on a specific pedagogical experience and provides the

relevant spaces to facilitate them. The adjacencies of spaces and resources on

each floor reveal the juxtaposition of key learning dynamics (see Figures 26-30).
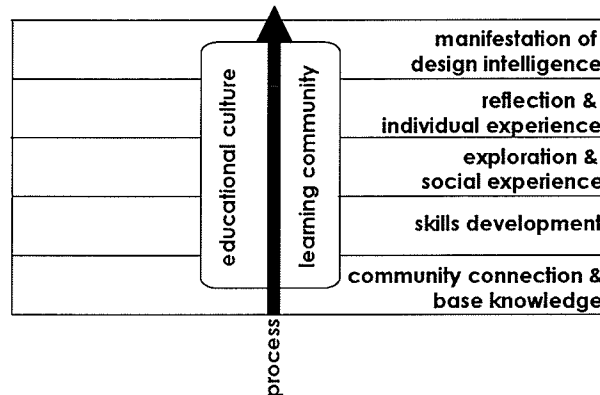
Figure 25. Vertical layers of design knowledge inform functional adjacencies on each level of the building.
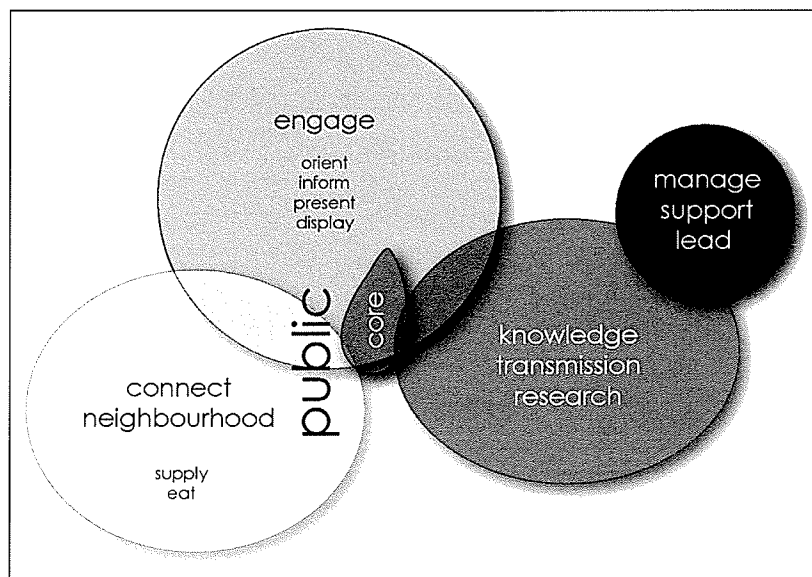
Figure 26. Community connection and base knowledge: juxtaposition of learning dynamics.
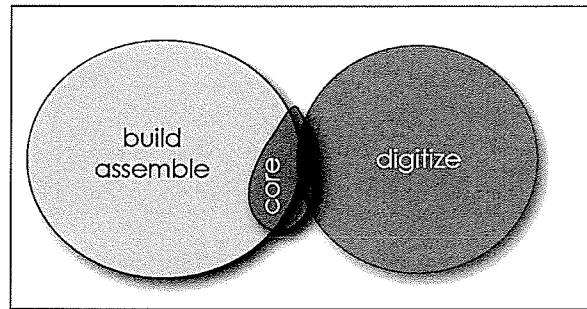
Figure 27. Skills development: juxtaposition of learning dynamics.
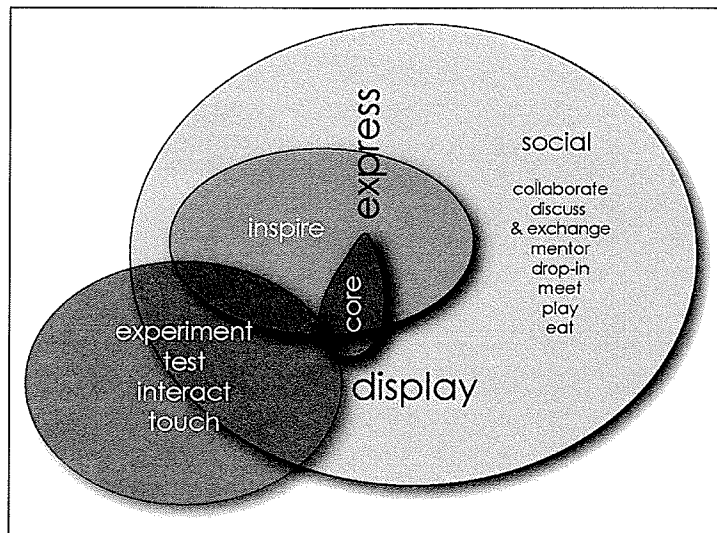
Figure 28. Exploration and social experience: juxtaposition of learning dynamics.
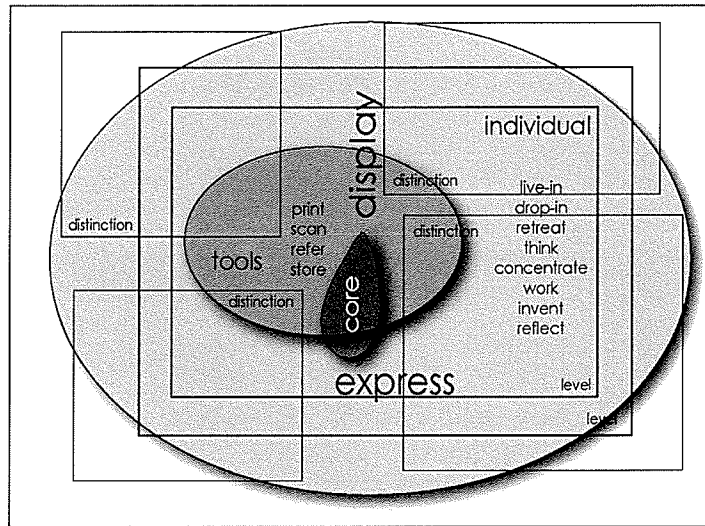
Figure 29. Reflection and individual experience: juxtaposition of learning dynamics.
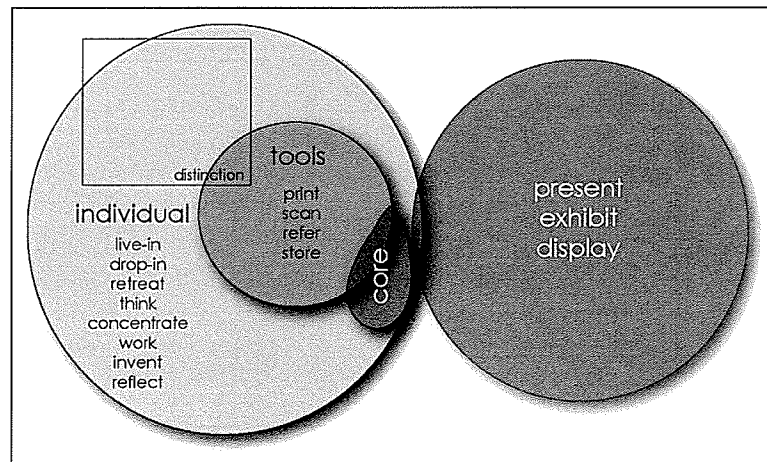
Figure 30. Manifestation of design intelligence: juxtaposition of learning dynamics.

Design Development

The fundamental goal of this project is to link the key theoretical issues of design education to the interior design of a creative learning environment. The design application demonstrates one interior approach that responds to the driving question: how can the interior design of learning facilities support processes, goals and values of design education in the 21st Century? The project's exploration of educational theory translates into an interior design strategy that pushes the boundaries of traditional learning methods and spaces.

A Day of Creative Learning

The design approach is presented as the narrative account of a typical student experiencing new learning pedagogy as expressed through the spatial typologies of the design solution. The scope of detail was narrowed to illustrate the learning environments that challenge traditional learning spaces. The collaborative activities of design education and the expression of a learning community and culture have been stressed in this design approach which supports constructivist learning theory that knowledge and understanding are constructed in part by social learning experiences. The design is driven by a desire to illustrate the qualities, character and function of interior spaces that inspire creative learning through a sense of engagement, curiosity, exploration, play, and collaboration.

The interior design focus illustrates three areas of the facility: the main floor point of entry, the third floor social learning experience and the fourth floor

student learning community. The results forge a link between pedagogy, people

and interior space.

Main Floor – Point of Engagement

How did I learn today?
I was welcomed into school, curious about the events of my day. I
became enlightened by forward thinking theories and design ideas
from guest speakers during cultural events and public design
lectures. I became informed of academic and career opportunities
and intrigued by design media bulletins. I travelled through layers
of learning experiences and witnessed activities and processes...

The main floor of the building introduces students, instructors and the

public to the Faculty of Architecture. This area highlights a welcoming point that

orients, directs and informs users while connecting spaces and educational

experiences. The spatial configuration places a transparent vertical circulation

core and atrium in the center of the facility to visually and experientially links

users with upper floors representing multiple layers of creative education. This

concept reveals an educational value system that embraces and exposes the

processes of design teaching and learning.

Digital media is integrated into the space as a vehicle for information

dissemination, making direct reference to the rising dependence on technology

for learning in the contemporary digital age. The multi-purpose, open

environment unites students, instructors and the public through an engagement

with forward thinking design theories and ideas in lectures, exhibited works,

presentations and other events. Flexibility is achieved through multiple focal

points that ground different activities, moveable partitions that provide acoustic

and daylight control, and mobile furniture for functional reconfiguration.

Third Floor – Place for Social Exploration

...When I was stuck on my design project, I felt inspired to brainstorm with classmates and friends through the exploration of alternative ideas and solutions. I was enthusiastic to discuss design theories and issues with professors and classmates, to understand varying points of view. I expanded my knowledge through exchange and mentorship. I developed a hunger for a picnic and social interaction. I became imaginative through playful creation using sand, clay and building blocks as the tools of my creative learning palette. I was inspired by design books and artifacts and learned the strategies, techniques and design philosophies of great architects and designers. I developed an eagerness to explore and play, and then, to rest and relax...

21st Century design pedagogy is distinguished as an experience based educational model that stresses the importance of social interaction in the learning process. The third floor of the facility illustrates this concept through various formal and informal learning spaces designed to consider the relationship between students, their peers and their professors, and desired learning outcomes. It recognizes that design learning often occurs beyond the classroom in environments that stimulate, inspire and invite students to explore their own ideas and create personal learning experiences.

The interior design for this floor expresses Diaz Moore's (2001) practitioner pedagogy by supporting the process of social inquiry through dialogue, exploration and interaction. It facilitates the activities of mentoring, discussion, brainstorming, collaboration, diversion and inspiration. Spatial elements such as transparency, configuration and furniture arrangement encourage positive interpersonal interactions between students and instructors, and between students themselves. Varying levels of transparency in partitions

define functional areas while maintaining visual accessibility to people and the learning process. This strategy will assist in dissolving negative competition between individual students by encouraging them to connect with each other and work together to generate and explore ideas that respond to common design problems. Surfaces for writing and display extend the collaborative learning experience by exposing student design process, knowledge, skills and design technique so that they learn from each other's work. The provision of mentoring spaces positions student interaction with the instructor within the general social learning environment to encourage positive, informal meetings that dissolve hierarchy and intimidation. Digital media is once again integrated into the space and adds another layer of social interaction by connecting distanced students and professors, and expanding the setting for a creative, collaborative and expressive educational culture.

The human factors analysis of the existing creative learning environment revealed the importance of spatial adaptation in facilitating user needs and personal learning process. A combination of spatial typologies support various social learning activities. Furthermore, provisions for flexible and mobile spaces, furnishings and electrical connectivity allow users more control over the environment to accommodate changing educational functions. Daylight access is integral to the environmental quality of the learning space and direct sunlight is controlled through a system of sensors that responds to the sun's intensity and position throughout the day.

Design inspiration through graphic, textual and literary elements is embodied into a destination area that acts as a dynamic central focal point in the social learning experience. This area interplays colour, light, transparency, texture and views of the city beyond to inspire and engage. An adjacent, playful, social learning zone sparks a sense of curiosity and creativity that expands the sources of inspiration. Tools of basic materials, such as sand, clay and building blocks, merge playful diversion with creative experimentation and reflective practice. The social space extends into an exterior terrace to accommodate social learning outdoors. Operable windows provide a flexible boundary that merges interior with exterior.

Building structures are expressed and systems can be examined providing a practical learning resource for design students. Sustainability, innovation and durability in materials and furnishings, demonstrate important design values and responsibilities. These elements contribute to the power of the space as a resource for creative learning. Students can learn design concepts and principles put into practice and stimulate their own innovative and creative design development. Innovative concepts in material and furniture selection not only define the quality and character of the interior environment, but also invite students to reflect on potential alternative applications.

Fourth Floor – Learning Community

> *...I felt a sense of belonging in a workspace that is mine and I was connected to a broader learning community. I emerged energized from spontaneous encounters with people, processes and ideas. I expressed myself through words, letters, and images. I became hopeful for a few moments of reflection and deep concentration to focus and absorb information.*

The fourth floor experience reinforces the pedagogy of individual reflective practice within a learning community. The design approach for this floor illustrates a typical disciplinary turf providing students of each discipline with a sense of familiarity, belonging and fraternity within the same area of design expertise. Clustered work suites configured into organic patterns challenge the traditional linear rows of tables and stools in the existing Faculty of Architecture studio spaces and provide a sense of connection between students. Learning levels radiate from the core to the edges as students progress from initial to final years within the discipline and central resources connect the different disciplines.

A proprietary furniture system is proposed as an adaptable, flexible solution to meet student learning needs. The system's infrastructure defines the geometry of the configuration, delivers power and incorporates structural arms that can support privacy screens, work surfaces, display shelves and storage cabinets. The system can be changed, adapted, moved and dismantled to create new configurations over time increasing the adaptability and flexibility of the environment as learning needs evolve. Attachable components allow students to configure their suite to suit their personal learning needs and express their personalities.

A reflection space provides a retreat for individual contemplation and concentration. Elements for display create a visual and acoustic buffer between areas with high levels of interaction and those with low levels of interaction.

Lighting

The approach to lighting design for the creative learning spaces of this project reinforces and supports the activities in the space and highlights prominent learning areas. The lighting scheme includes a combination of daylighting, general ambient lighting, task lighting and display lighting to support educational processes.

Daylighting is an important component in the design of learning environments to heighten the quality of spaces and support the users and activities that occur within. Strategies for daylighting include maximizing fenestration along the perimeter of the building. Automated shading devices on the windows control the intensity of direct sunlight that enters the interior and operate on sensors that respond to changing sun patterns. The size and location of the windows allow natural light to penetrate deep into the learning environment enhancing visual quality and user comfort.

A general ambient light system is used to provide a uniform quantity of light throughout the space. This approach is key to the creative learning environment as the design illustrates variety in task locations and opportunities for spatial reconfiguration. Ambient lighting is produced through a direct and indirect system that incorporates a combination of downlighting and uplighting. This dual system places luminance on horizontal worksurfaces, furniture and

floors and to accommodate tasks and activities, and also places luminance on the ceiling plane to increase vertical illuminance in the space where task activities are not required. General lighting fixtures are placed on the ceiling in an organized, uniform pattern. Low-brightness louvers are integrated with the fixtures to avoid glare and establish the primary focus on the activity portion of the visual field. Linear washes of light along boundaries of learning areas, help define and separate key learning functions to articulate spatial form and functional orientation.

Task lighting systems are suspended from the ceiling above key task related areas such as the hot spots, where higher values of task illuminance are required at the worksurface. Lighting in these areas are supplemented with ambient lighting. The lighting of vertical surfaces is important for creative learning environments to highlight and communicate displayed work. Display lighting systems, in the form of continuous, linear, point-source spotlights , are positioned along the perimeter of vertical display surfaces to create unified illumination and avoid scalloping on the visual surface.

The lighting strategy uses energy efficient luminaires and fixtures. Energy effective lighting design is also achieved through lighting controls and the provision of various lighting scenes with multiple luminaire types. This approach supports the multipurpose spaces, such as the round-table rooms which accommodates different activities, so that the right kind of lighting is supplied where it is needed and when it is needed.

CONCLUSION

The interior design concept proposes one possible solution for a learning facility that supports the processes, goals and values of design education in the 21st century. It demonstrates a strategy that dissolves the planning, function and design of traditional learning spaces that once supported traditional teaching methods as a priority to learning experiences. The results reflect a learning paradigm in creative education that focuses on changing student demographics and needs, multiple coexisting pedagogies, the personal construction of knowledge, concepts of hyper learning and education as a social experience.

The study presents an alternative point of view on the feasibility of suburban university campuses and buildings designed in the modernist tradition to support 21st Century design education. It suggests that these spaces do not support contemporary design education and proposes the relocation of the University of Manitoba's Faculty of Architecture to Winnipeg's urban center where it becomes embedded within the city fabric and engages students in the urban built environment. This strategic decision supports a commitment to the vitality and sustainability of urban communities and social infrastructures, and becomes an expression of social activism, in a postmodernist learning paradigm, that design students can experience and learn from.

The design exploration demonstrates creative ideas and opportunities for the organization and planning of spaces for creative higher education. The vertical and horizontal organization of the learning facility expresses a

commitment to educational process that connects people to design knowledge and creative learning experiences. A new spatial vernacular introduces alternative learning environments that reposition education outside of the traditional classroom. These alternative settings have been designed to meet the social, experiential and inquisitive nature of design learning. The spaces express 21st Century values and goals in design education by supporting social learning and defining a creative educational community and culture.   Flexibility in configuration and furnishings render the space adaptable as needs change in the future, providing users with the control to adapt their environment to suit key pedagogical processes. The interior design facilitates the development and exchange of knowledge and the physical manifestation of design values including sustainability and exposure of building systems and details in furnishings and construction.

The process of this practicum investigation has been a creative learning experience that expressed many of the theoretical issues explored in 21st Century design education; it has been a self-motivated experience that lead me to construct my own understanding of the design problem through theoretical inquiry, observation and design exploration. However, as the investigation approached its completion, I realized that I had conducted this project isolated from many of the key concepts and ideas of social learning that I was trying to promote and facilitate through spatial design. As I sat from day to day in a small apartment isolated from the learning environment at the Faculty of Architecture, it validated the importance of interacting with people, processes and space in

creative learning. Overtime, I realized that I needed to connect with my classmates to exchange ideas. I needed to hear different points of view and I wanted to understand my own project in different ways. It was useful to find inspiration beyond my immediate environment and I recognized that I would learn more if I was engaged with other students, their work and their evolving creative process.

The scope of the design problem presented several limitations and raises new questions and opportunities which could not be addressed in this project alone, but might be considered with further exploration into the subject. Narrowing the design focus to respond to the large scale of the project left many spatial programmes unresolved in the design development. However, it opened opportunities to concentrate on the social process of creative learning, concepts which were not evident in traditional learning environments of the past, and which are only beginning to emerge in contemporary design education facilities.

Some challenges invite opportunities to test the validity of the proposed spatial concepts in educational institutions to determine the feasibility and practicality of the ideas. For example, I proposed a proprietary furniture system for the fourth floor student learning community which raises new questions about the complexity of furniture systems and their practicality in educational environments. It invites a debate on the feasibility of flexible and adaptable furniture to address whether users would take advantage of adapting and changing the system, to address the logistics behind the execution of those changes, and to address whether the small components and parts of the system

would get lost or suffer from damage due to continual use and abuse. This study warrants its own in depth investigation and would be an interesting challenge for furniture manufacturers to demonstrate and test the feasibility of their products in creative learning settings to support educational functions.

It is important to clarify that this practicum study presents only one design consideration for environments of higher education that will contribute to the growing interior design knowledge base on the topic. Additional proposals might expand on some of the ideas, and suggest new considerations. Therefore, the investigation and design solution does not attempt to make conclusive statements about how creative learning environments should be designed, or what kinds of programmatic standards they should follow, instead it proposes ideas for consideration and discussion and invites alternative rationales for the design of learning spaces that support educational pedagogy. Moreover, by focusing on one distinct educational discipline, this study reveals that interior designers should understand the nature of the pedagogy they are supporting in their planning and design, in order to create a space that facilitates the appropriate teaching and learning dynamics and interpersonal relationships.

Researching the relationship between educational theory and interior design provides a place to begin to review the practices of planning, designing and constructing learning spaces, and also suggests functional and creative ways to achieve a supportive and engaging learning environment. Educators, governing principals and planners of learning facilities are encouraged to

consider this study to examine and evaluate the ability of their institutions to sustain contemporary needs, goals and values in 21st Century education.

Predictions on the future of environments for higher learning present both limitations and opportunities for this project. There are a variety of key issues that will impact the evolution of design education as it progresses through the 21st century. Many of these are already beginning to emerge and will a have significant impact on the current and future state of learning facilities. Learning facilities cannot possibly be designed to accommodate all future trends, however designers must consider flexible strategies that can respond concurrently to evolving teaching and learning methods.

Technology and digital communication methods are permitting more mobile access to information. Paper literature is being digitized, increased distance education programs are making courses accessible outside of the university campus, course lectures can take place via the internet and course notes can be accessed online. It is feasible to assume that in the future many of the teaching and learning activities that we are familiar with may cease to take place in educational institutions and may merge into virtual avenues accessible anytime and from anywhere.   This possibility triggers new questions about the role of a learning institution in higher education, suggesting that education may take place in various spaces from retail outlets, to restaurants and cafés to entertainment complexes such that learning becomes synonymous with other types of activities.   Spaces where social interaction becomes a natural part of the learning process. To extend the lifespan of learning institutions, it will be

necessary to adapt existing facilities and design new facilities as multi-centered spaces with programmes that support different social activities and integrate with the local community to support public needs. This practicum proposal responds to this concept. Increasing requirements for life-long learning to support rapid socio-cultural changes further confirm the necessity of learning environments that can respond to the evolving pedagogies of continuing education.

The conceptual design solution represents another way of thinking about the relationship between people, the activities of education and the environments in which they occur. I hope that the results of this investigation will inform future research on the topic and provide a conceptual framework to address the design of creative learning spaces to support twentyfirst century design education.

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APPENDIX A:
FUNCTIONAL PROGRAMME

A   FUNCTIONAL PROGRAMME

The functional programme expands on the spatial program by identifying and describing space allocations and functional requirements for the project. The information provides a relevant analysis of spatial needs that inform the proposed interior design strategy. The outlined information emphasizes only the spaces that are considered for design development. The spatial allocations for the proposed project were measured against an area analysis of the existing learning spaces of the Faculty of Architecture to determine building size and area requirements.

Functional Requirements

First Floor: Point of Engagement

LOBBY	
Floor area	• approx. 1500-2000 sqft.
Functional Requirements	• Orientation and wayfinding • Security station • Vertical circulation
Equipment	• Digital LCD video display terminals
Material Quality	• Durability • Sustainability • Transparency • Colour as a visual cue for wayfinding • Integration of graphics
Lighting	• Access to daylight • Ambient lighting • Task lighting for wayfinding

FORUM	
Floor area	• approx. 3000 sqft.
Functional Requirements	• Mobile/stackable hard seating • Permanent seating fixtures • Vertical visual display surface • Projection surface • Connectivity to power and wireless data

	• Acoustic control • Daylighting control • Retractable partitions for room division
Equipment	• Audio-visual technology • LCD projector • Interactive lectern
Material Quality	• Durability • Sustainability • Acoustic properties • Transparency • Neutral colours
Lighting	• Access to and control of daylight • Lighting controls • Provision of different lighting types and scenes • Ability to manipulate directional lighting

Third Floor: Place of Social Exploration

ROUND TABLE ROOM	
Quantity	• 4
Occupancy	• 10-15 each
Floor area	• approx. 500-800 sqft.
Functional Requirements	• Mobile seating • Mobile and component horizontal worksurface • Vertical visual display surface • Vertical erasable writing surface • Projection surface • Connectivity to power and wireless data • Acoustic control • Daylighting control • Retractable partitions to expand room size
Equipment	• Audio-visual technology • LCD projector
Material Quality	• Durability • Sustainability • Acoustic properties
Lighting	• Access to daylight • Lighting controls • Provision and control of different lighting scenes

TEAM INCUBATOR	
Quantity	• 4

Occupancy	• 4-5 each
Floor area	• approx. 200-500 sqft.
Functional Requirements	• Casual, comfortable seating • Vertical visual display surface • Vertical erasable writing surface • Projection surface • Connectivity to power and wireless data • Acoustic control
Equipment	• None
Material Quality	• Durability • Sustainability • Acoustic properties
Lighting	• Access to daylight • Suspended track lighting

INSPIRATION PATCH	
Floor area	•
Functional Requirements	• Soft seating • Hard seating • Book and journal display • Vertical and horizontal visual display surfaces • Connectivity to power and wireless data • Self-serve material circulation counter
Equipment	• Digital check out terminal • Security system for material control
Material Quality	• Durability • Sustainability • Graphic patterns • Colourful accents • Transparency • Innovation in material selection
Lighting	• Access to daylight • Task lighting • Direct lighting for display

PLAYGROUND	
Floor area	• approx. 5000-6000 sqft.
Functional Requirements	• Flexible/mobile/comfortable seating • Combination of soft and hard seating • Multi-purpose horizontal worksurface • Food preparation surface • Storage

	• Vertical visual display • Connectivity to power and wireless data • Areas for lounging, areas for play • Fun factor in furnishing selections
Equipment	• Refrigerator • Microwave • Sink
Material Quality	• Durability • Cleanability • Sustainability • Colourful accents
Lighting	• Access to daylight • Ambient lighting • Task lighting

MENTOR PATIO	
Quantity	• 6
Occupancy	• 2-3 each
Floor area	• approx. 125-200
Functional Requirements	• Fixed bench seating • Mobile horizontal worksurface • Vertical visual display surface • Projection surface • Connectivity to power and wireless data • Control of visual privacy
Material Quality	• Durability • Sustainability • Translucency • Colour and pattern
Lighting	• Task lighting • Display lighting

HOT SPOTS	
Quantity	•
Functional Requirements	• Combination of fixed and mobile seating • Connected horizontal worksurfaces • Connectivity to power and wire data • Adjacent to storage.
Material Quality	• Durability • Sustainability • Comfort
Lighting	• Access to daylight

	• Integrated task lighting

SPATIAL BLOGS	
Quantity	•
Functional Requirements	• Connectivity to power and wireless data • Track system for suspension
Equipment	• LCD video display terminals

DIGITAL BAR	
Quantity	• 1
Functional Requirements	• Horizontal work surface at counter height
Equipment	• Computers • Printers/scanners
Material Quality	• Durability • Sustainability
Lighting	• Integrated task lighting • Positioning of lighting to reduce glare

Fourth Floor: Learning Community

TURFS	
Quantity	• For 5 disciplines
Floor Area	• 4000-6000 sqft. each
Functional Requirements	• Worksurfaces • Storage • Meeting areas • Display • Connectivity to power and wireless data
Lighting	• Access to daylight • General Ambient lighting

SUITES	
Quantity	• 200 per floor
Occupancy	• 200
Functional Requirements	• Combination of fixed and mobile horizontal worksurface at varying heights • Vertical visual display surface • Ergonomic seating • Connectivity to power and wireless data • Acoustic control

	• Privacy control • Storage • Connected workstations
Material Quality	• Durability • Sustainability • Translucency
Lighting	• Access to daylight • Integrated task light • Provision for glare reduction

RETREAT	
Quantity	• 200 per floor
Occupancy	• 1 each
Functional Requirements	• Horizontal worksurface • Task seating • Connectivity to power and wireless data • Acoustic control • Privacy control
Material Quality	• Durability • Sustainability • Acoustic properties
Lighting	• Access to daylight • Integrated task light

CREATIVE SKINS	
Functional Requirements	• Vertical visual display • Acoustic control
Material Quality	• Durability • Sustainability • Acoustic qualities • Pin-up capabilities
Lighting	• Flexible directional lighting

APPENDIX B:
DESIGN DRAWINGS
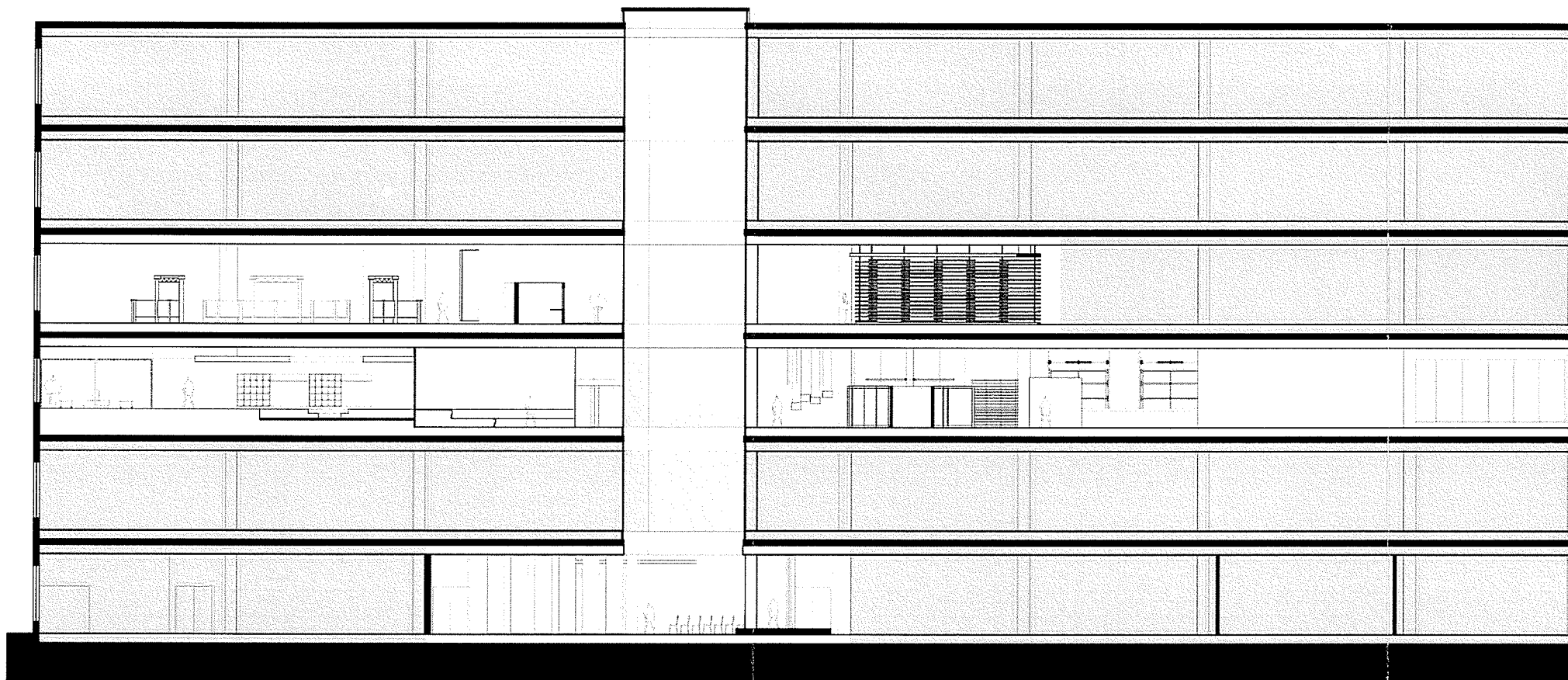
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NOT TO SCALE
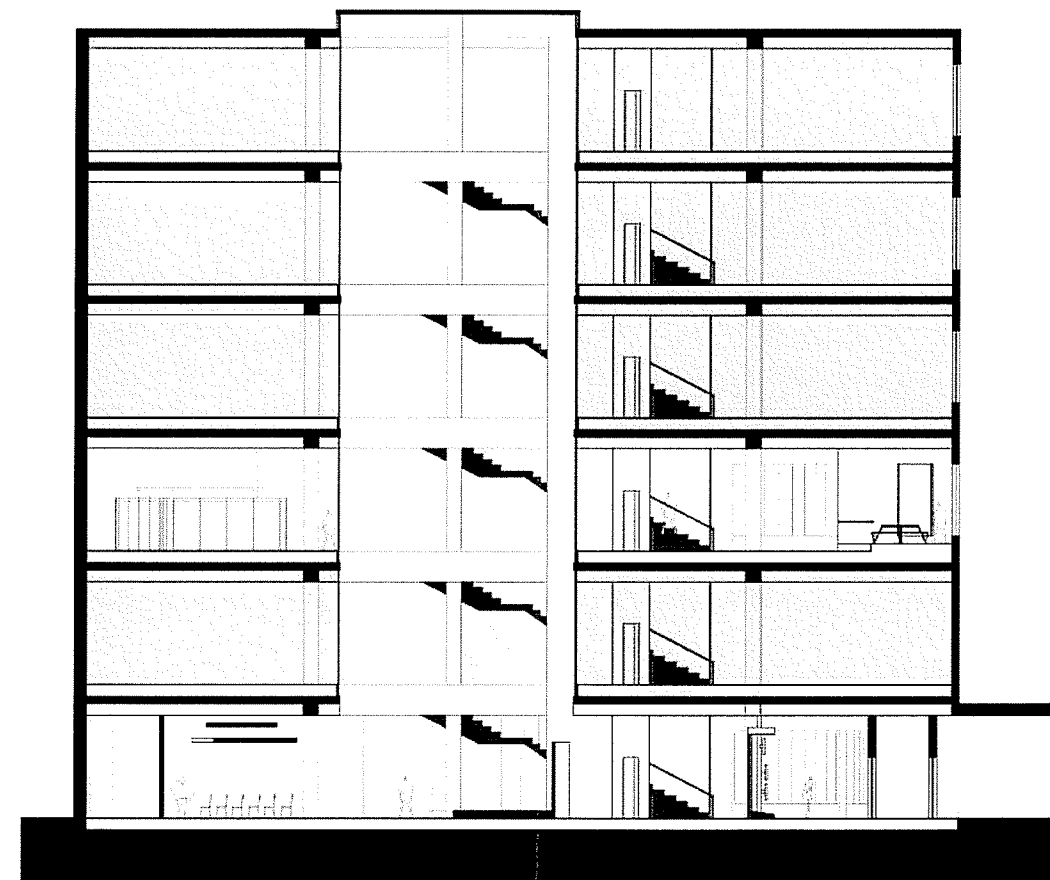
BUILDING SECTION S2
NOT TO SCALE

CAFÉ &
CORNER STORE

FORUM

RESEARCH PATCH

LEARNING
THEATRE

ADMINISTRATION
& FACULTY

ATRIUM

PLATFORM

LOBBY

INFO POSTS

MAIN ENTRANCE
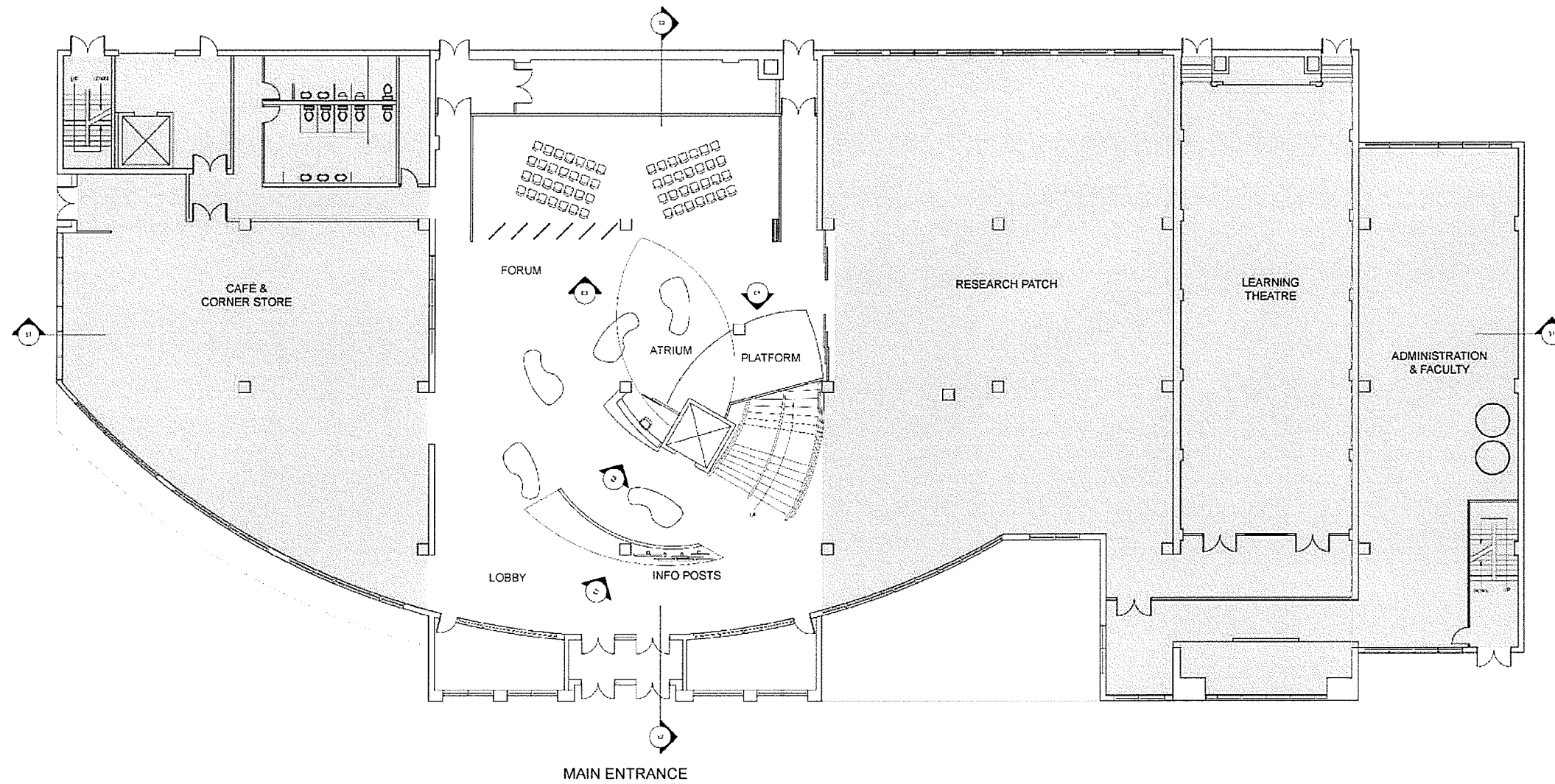
MAIN FLOOR PLAN

NOT TO SCALE

MAIN FLOOR – VIEW OF LOBBY
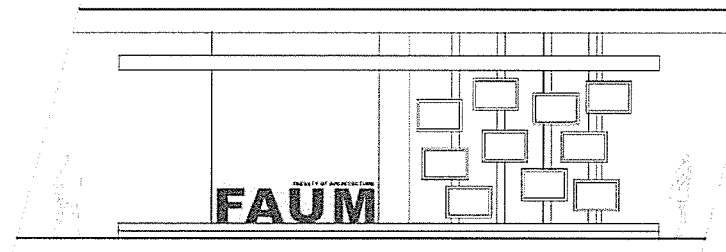
ELEVATION E1: WELCOME & INFO POSTS
NOT TO SCALE
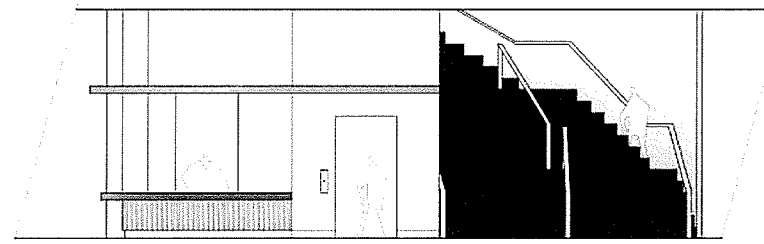
ELEVATION E2: SECURITY & VERTICAL CIRCULATION LOBBY
NOT TO SCALE
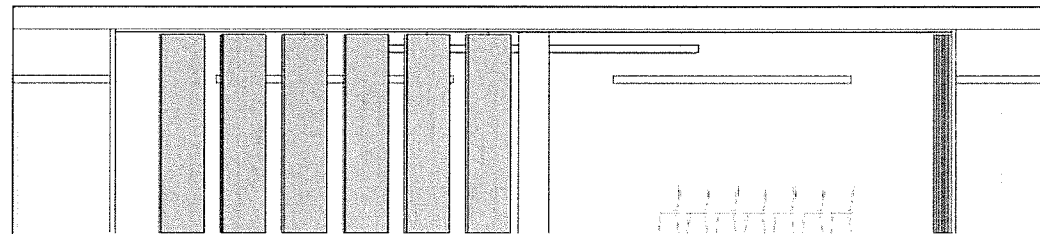
ELEVATION E3: FORUM - PRESENTATION AREA
NOT TO SCALE
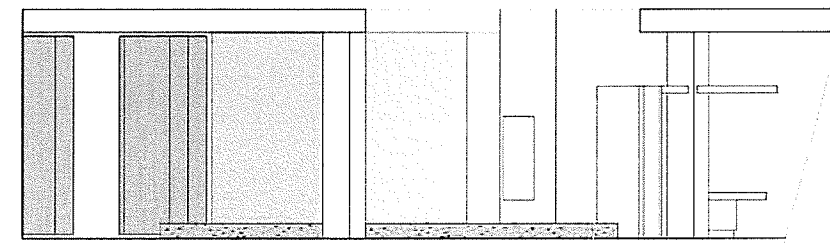
ELEVATION E4: FORUM - PLATFORM AREA
NOT TO SCALE
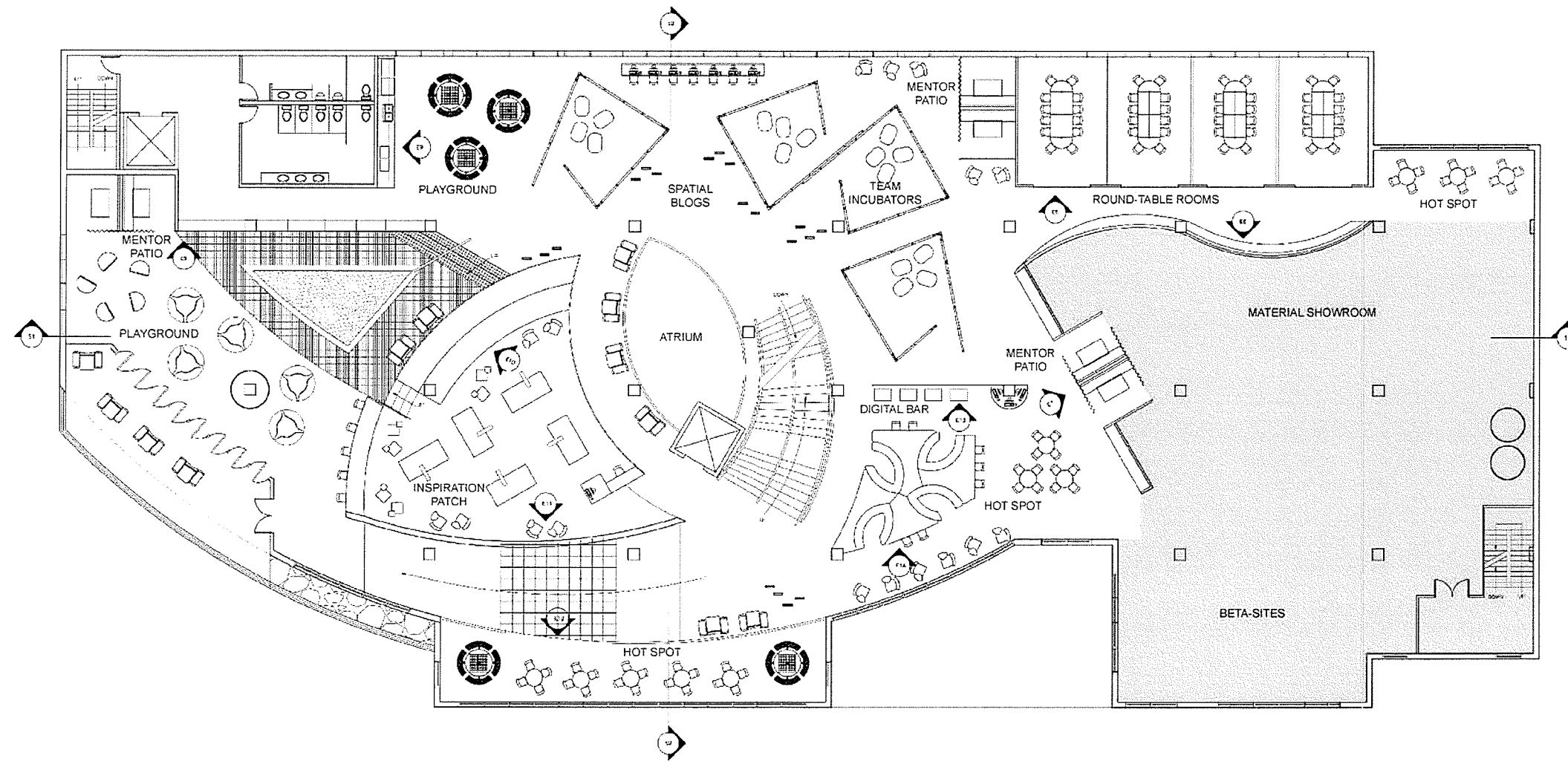
THIRD FLOOR PLAN
NOT TO SCALE

THIRD FLOOR – TEAM INCUBATORS & SPATIAL BLOGS
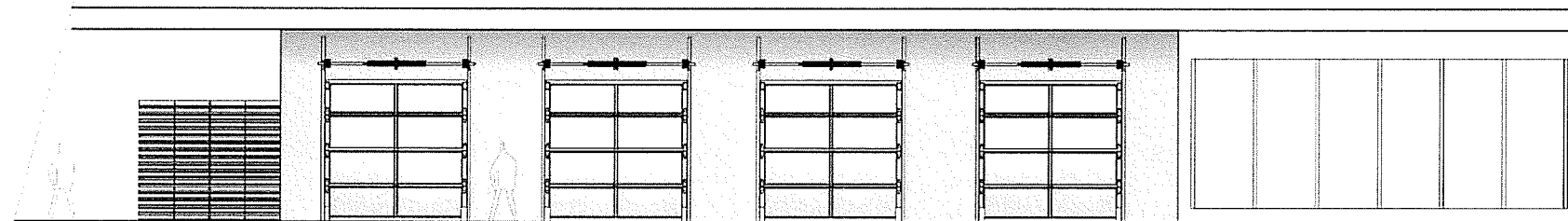
ELEVATION E5: ROUND-TABLE ROOMS
NOT TO SCALE
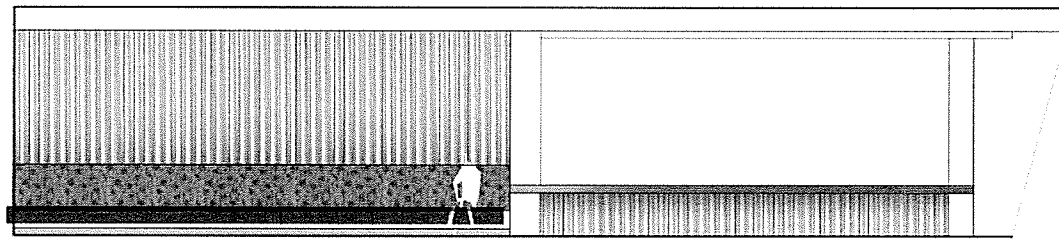
ELEVATION E6: SEATING AREA
NOT TO SCALE
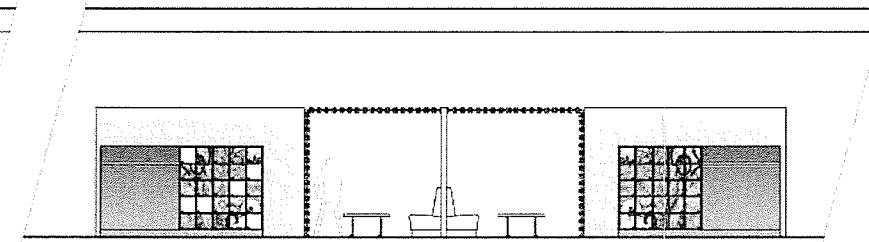
ELEVATION E7: MENTOR PATIO & STORAGE VAULTS
NOT TO SCALE

ELEVATIONS: TEAM INCUBATOR
NOT TO SCALE

SECTION: TEAM INCUBATOR
NOT TO SCALE

THIRD FLOOR - PLAYGROUND
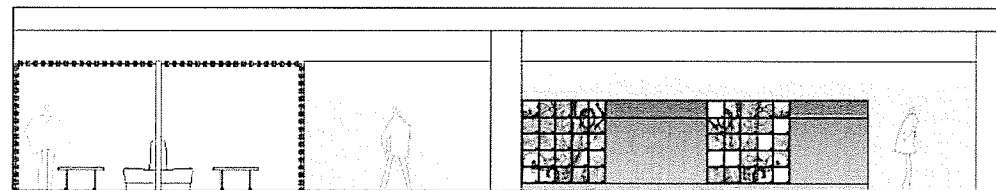
ELEVATION E8: MENTOR PATIO & STORAGE VAULTS
NOT TO SCALE
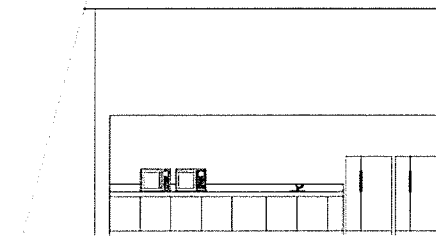
ELEVATION E9: PLAYGROUND - BUILT-IN-KITCHEN
NOT TO SCALE

THIRD FLOOR – INSPIRATION PATCH
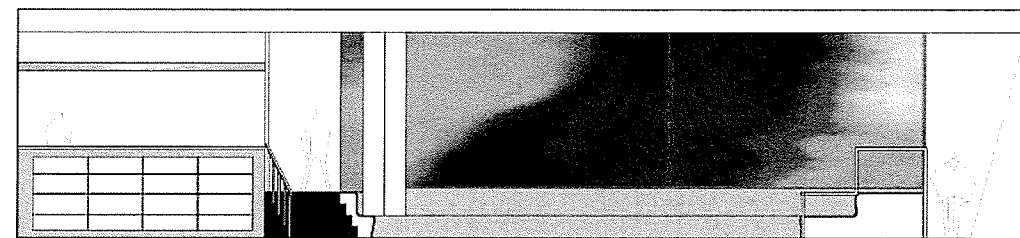
ELEVATION E10: INSPIRATION PATCH - FEATURE WALL & SEATING PLATFORM
NOT TO SCALE
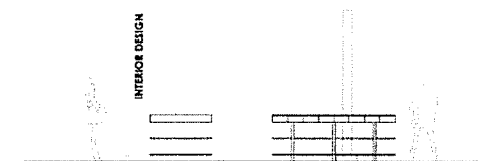
ELEVATIONS: BOOK CART AND LIGHT BOX
NOT TO SCALE
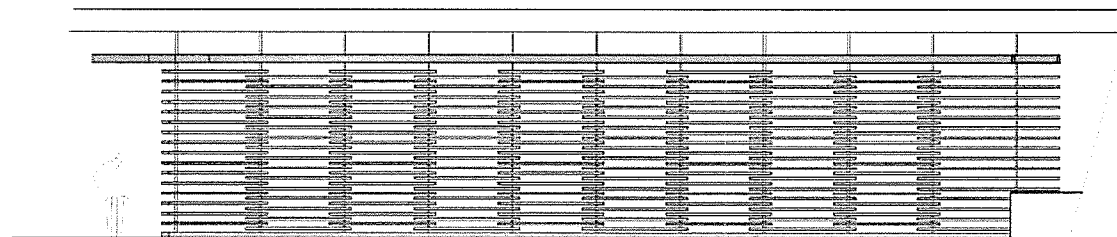
ELEVATION E11: INSPIRATION PATCH - SLAT WALL
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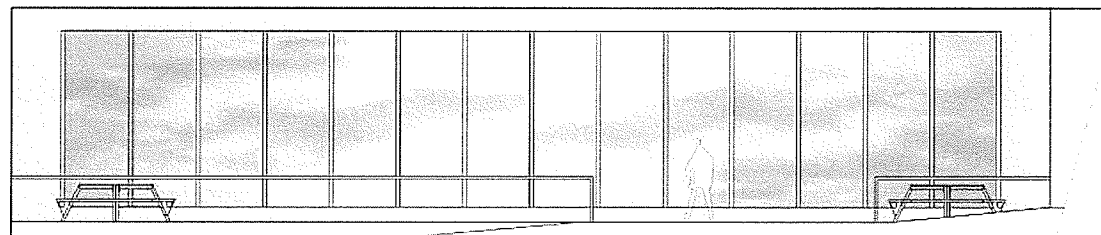
ELEVATION E11: HOT SPOT WITH A VIEW
NOT TO SCALE
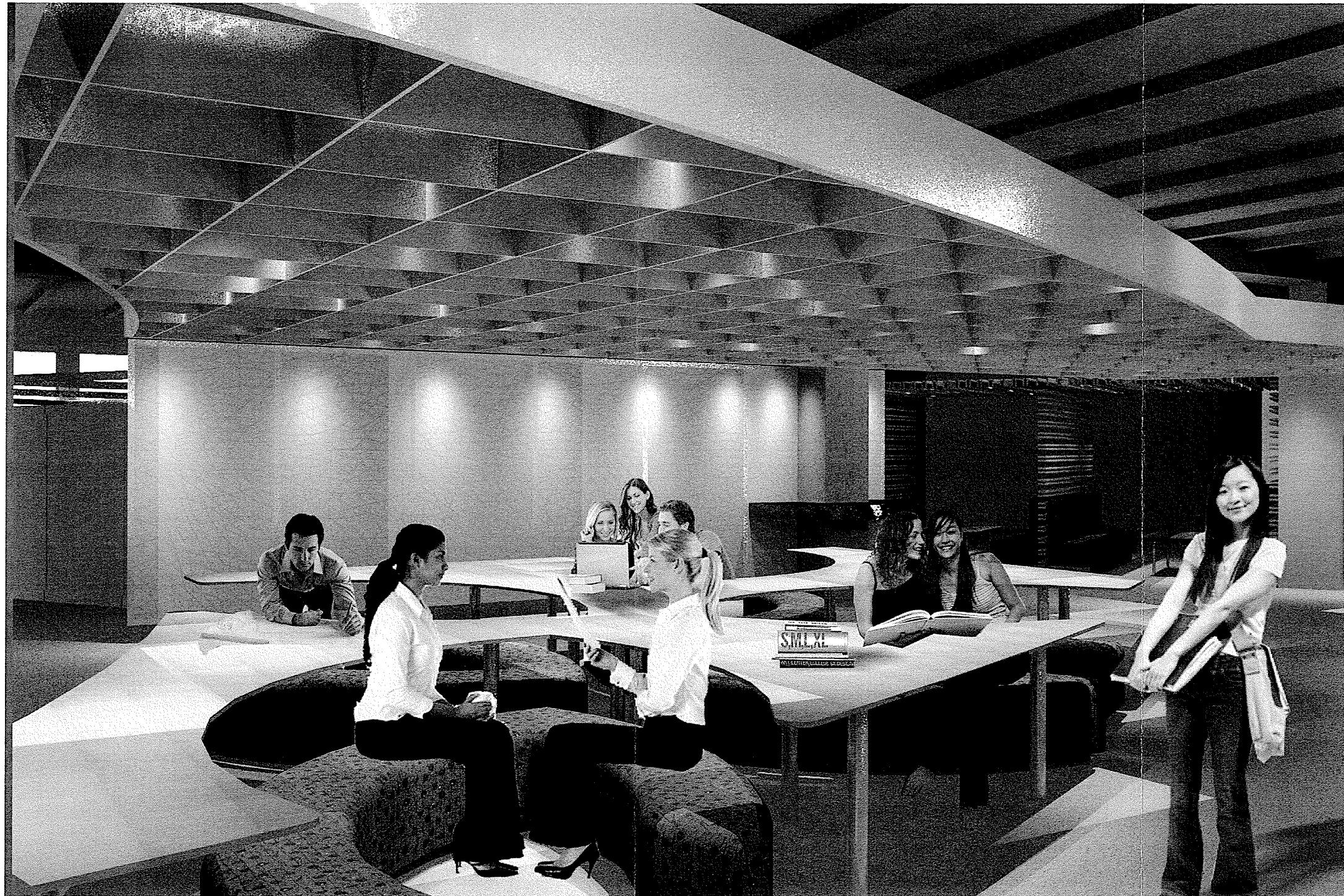
THIRD FLOOR – HOT SPOTS
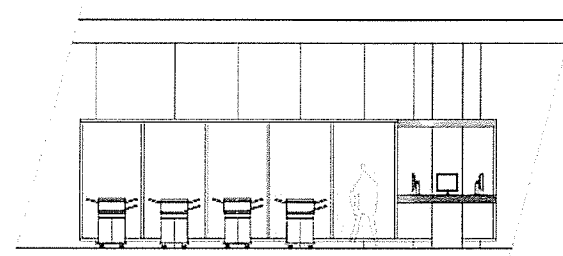
ELEVATION E13: DIGITAL BAR
NOT TO SCALE
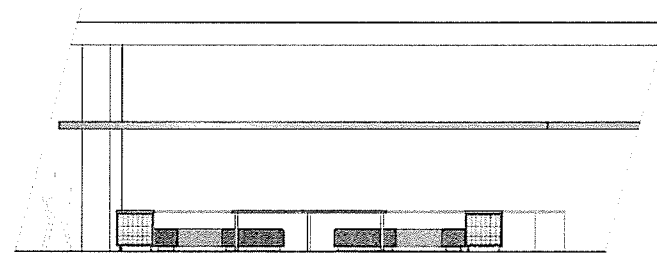
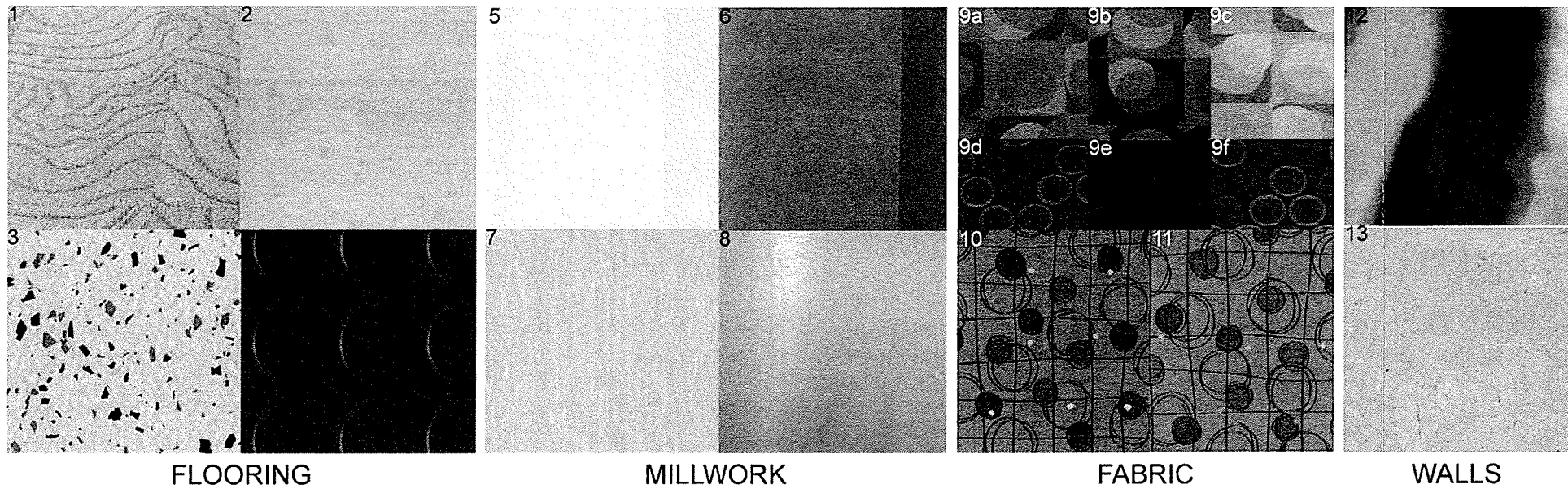ELEVATION E14: HOT SPOT WORK AREA
NOT TO SCALE

RETREATS

REFLECTION
GARDEN

CREATIVE
SKIN

SUITES

ATRIUM

REFERENCE
PATCH

LAYOUT

TURF
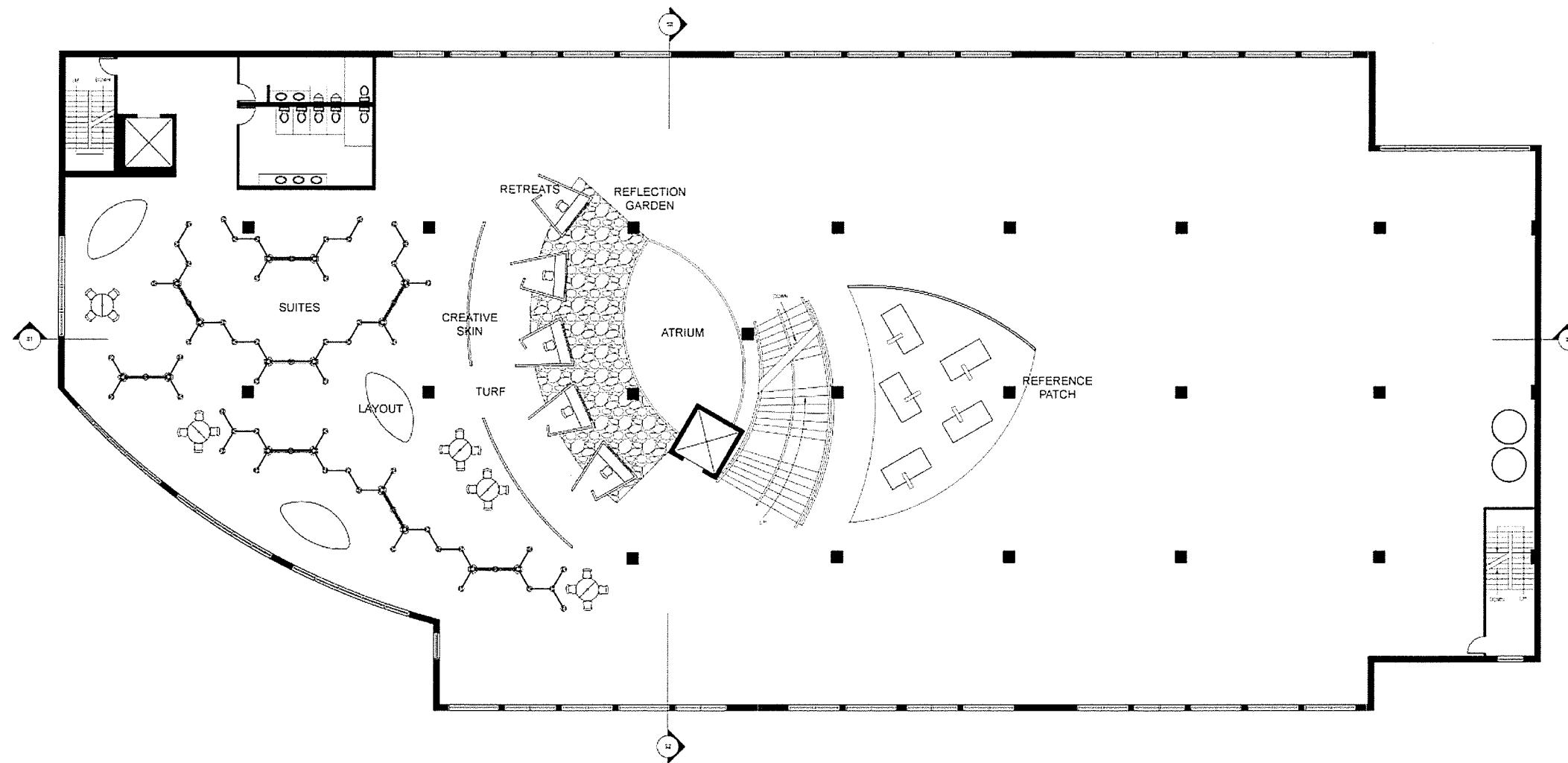
FOURTH FLOOR PLAN
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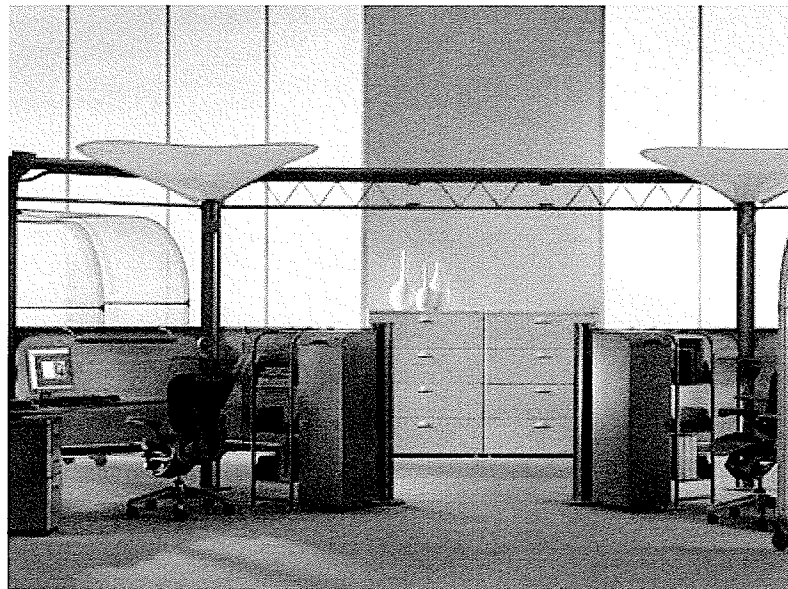
Herman Miller Resolve System
http://www.hermanmiller.com

FLOORING   MILLWORK   FABRIC   WALLS

Materials

1	2	3	4	5	6	7	8	9a
Shaw carpet tile, Angela Adams Collection	Bamboo flooring	Nora rubber flooring Norament 925 lago Colour: Ibiza Contains recycled content.	Nora rubber flooring Norament 825 Colour: Vermillion Contains recycled content.	3form resin panel Chroma Colour: Ghost Recyclable	3form resin panel Chroma Colour: Cranberry Recyclable	Maple wood	Stainless steel	Upholstery Design Tex Sonic Plus Colour: Confetti Contains natural fibers
Location: Inspiration Patch	Location: Mentor Patios	Location: General flooring	Location: Circulation core stairs	Location: Inspiration Patch Various	Location: Digital Bar	Location: Various	Location: Various	Location: Mentor Patios

9b	9c	9d	9e	9f	10	11	12	13
Upholstery Design Tex Sonic Plus Colour: Pool Contains natural fibers	Upholstery Design Tex Sonic Plus Colour: Pistachio Contains natural fibers	Upholstery Design Tex Round About Colour: Paprika Contains 100% recycled content	Upholstery Design Tex Round About Colour: Ocean Contains 100% recycled content	Upholstery Design Tex Round About Colour: Leaf Contains 100% recycled content	Upholstery ArcCom EcoTex Hopscotch Colour: Blueberry Contains 100% recycled content	Upholstery ArcCom EcoTex Hopscotch Colour: Kiwi Contains 100% recycled content	3form resin panel Varia Colour: custom Contains recycled content	Concrete
Location: Mentor Patios	Location: Mentor Patios	Location: Mentor Patios	Location: Mentor Patios	Location: Mentor Patios	Location: Hot Spots	Location: Hot Spots	Location: Inspiration Patch	Location Exposed structure

Furniture

Oasis Bench

Designed by o4i – Henrik Kjellberg
and Jon Lindström
http://www.core77.com/blog/object_
culture/oasis_public_seating_
by_o4i_4829.asp
Location: Forum
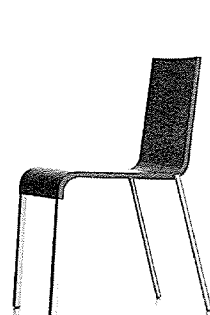
.03 Chair

Designed by Maarten Van
Severen for Vitra
http://www.vitra.com/products/
office/cafeteria_mass_seating/

Location: Forum

Omni Beanbag

By Sumo

http://www.sumolounge.com/
omni.shtml

Location: Team Incubators

Groupwork Tables

By Turnstone

http://www.steelcase.com

Location: Round-Table Room

Hilow Cube One seating

By Kyo Design

http://www.kyo-design.com/

Location: Inspiration Patch
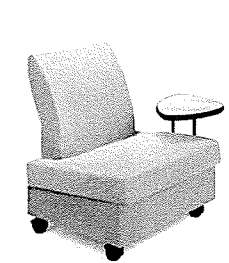
Archipelago Seating

By Metro Steelcase

http://www.steelcase.com

Location: Inspiration Patch
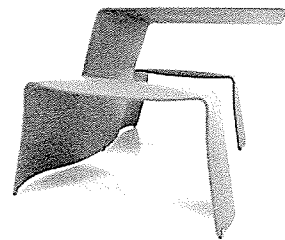
PicNik

Designed by Dirk Wynants & Xavier
Lust for Extremis
http://www.extremis.be/
Location: Playground
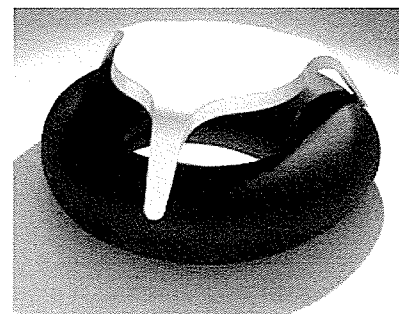
DoNuts

Designed by Dirk Wynants for
Extremis
http://www.extremis.be/
Location: Playground
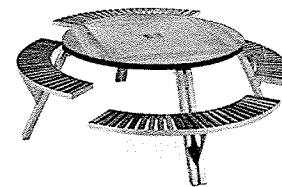
Gargantua table

Designed by Dirk Wynants for
Extremis
http://www.extremis.be/
Location: Playground
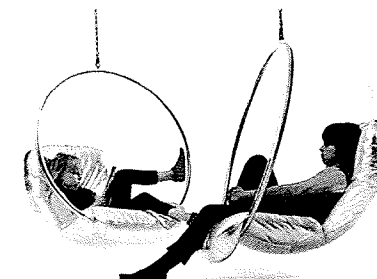
Hanging Bubble Chair

Designed by Eero Aarnio

http://www.plushpod.com
Location: Playground