DESCHOOLING THE SCHOOL

by

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DESCHOOLING THE SCHOOL

Thesis Abstract

Deschooling is a term popularized by Ivan Illych in his 1971 book Deschooling society. The movement is a criticism of institutionalized education stating that it is used as a tool for the engineering of an ignorant, conformist working class through constant schedules, prearranged time blocks and one-size-fits-all teaching methods. The movement recommends getting rid of schools all together. Since that time alternatives such as unschooling and home schooling have followed suit.

Not all parents can home school their children or send them to private Montessori or Waldorf schools. I propose a middle ground. Architectural designs, organizations of form and program can be developed to provide dynamic learning, teaching and research environments.

CLASSROOMS

HALL
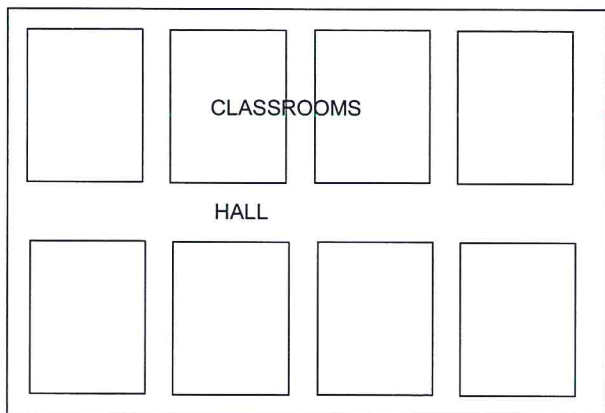
EARLY 20TH CENTURY SCHOOL DESIGN
MODELED AFTER FORD'S PRODUCTION MODEL

Traditional Classroom

X   X   X   X   X

X   X   X   X   X

X   X   X   X   X

X   X   X   X   X

TEACHER DESK

CHALKBOARD

(front of classroom)
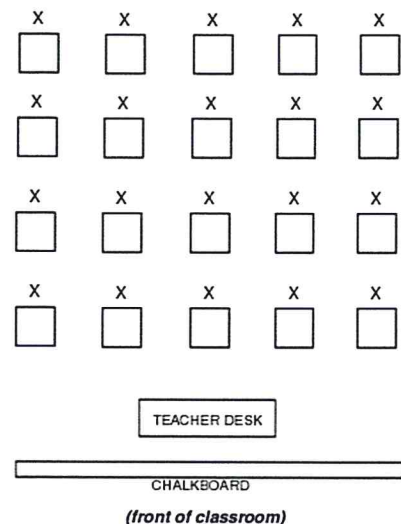
Problem
How can architecture give spatial form to current methods and theories of education?

Current Trends
New changes and trends are evident in educational facility design. Three new changes and trends that can significantly enhance the student learning experience are:
1. Changes in students
2. Information technology
3. Our understanding of learning

Today's students favor active, participatory and experiential learning. They are social and connect with friends and faculty face to face and on line. Furthermore students are multi tasking many working part time while also participating in sports, music and art. With student attention pulled in multiple directions, learning space should promote not constrain learning.

Information technology has changed what we do and how we do it. Students and faculty now rely on networks of peers and information databases both inside and outside the classroom. Today's classroom has moved away from the static blackboard and now uses multi media for learning

Teaching and learning paradigm is moving away from a transmission paradigm to a constructivist paradigm. During the 1900's, basic literacy skills included reading, writing, and calculation. Knowing meant being able to remember and repeat, which was appropriate to an industrial age where workers anticipated having a single profession for the duration of their working lives. Education was based on a factory-like, "one size fits all" model. Talent was developed by weeding out those who could not do well in a monochromatic learning environment.

The constructivist pedagogy states that learners construct knowledge by understanding new information and building on their current understanding and expertise. The emphasis is on active learning, discovery, exploration, experimentation, criticism, and analysis

Child Centered Approach
The chief component of the alternate schooling approaches including Home Schooling, Montessori & Waldorf is that the child has complete freedom to choose when, how and what they will learn. At first I was very skeptical. How could this possibly work? What I later found out is that the freedom is accommodated within a very structured environment. Another consistent element is the way in which learning takes place. Instead of a lecture or passive transmission of information, a project based approached is utilized. Tools, systems and objects are used so the student gets a more hands on intuitive experience.

Guided Inquiry
Students gather with the instructor and begin a "starter". For example the teacher says "what do you want to work on this week??" The students answer " We like dinosaurs" The teacher and librarian play a critical dual role in helping the students with their research. The research is then presented and displayed upon completion of the project. The math component is realized for example, in learning how much soil is excavated to dig up the bones. History, Biology, Natural Sciences are all incorporated together in the research. Design and communication are incorporated in the display, debate and presentation component.
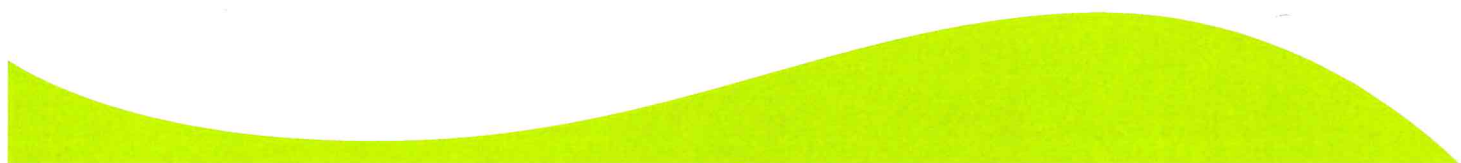
Learning Environments
Required are dynamic knowledge environments which contain facilities for research, debate and display in both individualized and group contexts.

Constructivist Theory
Child centered
Community oriented
Discovery
Exploration
Experimentation
Criticism
Analysis

ORESTAD COLLEGE
AMAGER, COPENHAGEN DENMARK
2007 ARCHITECT:3XN SIZE: 12000

II. INTRODUCTION

III. TABLE OF CONTENTS

This thesis would not have been possible without the support of many people.

It gives me great pleasure in acknowledging the support and help of my advisor, Bradley Shuya MAIBC, MRAIC, Assoc. AIA who was abundantly helpful and offered invaluable assistance, support and guidance.

Deepest gratitude is also due to the British Columbia Island Coordinator, Christine Lintott MAIBC, MRAIC, LEED AP without whose knowledge and assistance this study would not have been successful.

I am indebted to the many students and mentors of both the Vancouver and Victoria Syllabus chapters who offered invaluable support and encouragement throughout my entire course of studies in the Syllabus program.

I also wish to express my love and gratitude to my husband and family for their understanding and endless love, through the duration of my studies.

IV. ACKNOWLEDGEMENTS

CHAPTER 1.0
RESEARCH

Maria Montessori was a physician in Italy. During the 1930's she started working with children with developmental disabilities. When her students scored as good or better on standardized tests there was much attention given to her. She couldn't figure out why there wasn't a bigger focus on why all the other students were doing so badly. She developed a series of learning tools or toys for children to use. The students were grouped in 3 year age groups so older students could help the younger ones. Each student could choose which tool and when to use it. They kept a log book and once a week would meet with the teacher to review it. If there were some areas not covered the teacher would ask the student when they were planning to complete those tasks. The students were expected to retrieve and put away the tools after each use, take care of a plant and clean the classroom.

Montessori Pink Tower. The Pink Tower is a set of ten wooden cubes in equally incremental size from 1 cm cubed to 1000 cm cubed. The Pink Tower introduces children to concepts of three dimensional size variance, weight differential and intricate stacking. It is intuitive in that if the child makes a mistake it is immediately obvious because the blocks wont stack. They get to feel, see and learn the concept of increments of 10

EIGHT PRINCIPALS OF MONTESSORI EDUCATION

1. Movement and cognition are closely entwined and movement can enhance thinking and learning
2. Learning and well being are improved when people have a sense of control over their lives
3. People learn better when they are interested in what they are learning
4. Tying extrinsic rewards like money for reading, grades or tests negatively impacts motivation to engage in that activity when the reward is withdrawn
5. Collaborative arrangements can be very conducive to learning
6. Learning situated in meaningful contexts is often deeper and richer that learning in abstract contests
7. Particular forms of adult interaction are associated with more optimal child outcomes
8. Order in the environment is beneficial to children

Montessori The Science Behind The Genius, Angeline Stoll Lillard Pg 29

Maria Montessori
(1870-1952)

Appollo School & Willemspark School
Amsterdam 1983
Architect:herman Hertzberger

MONTESSORI

1.1 CONSTRUCTIVIST PEDAGOGY

Under the sponsorship of the Waldorf-Astoria Company, the first Waldorf School opened September 1919 in Stuttgart, Germany. The director of the company sought to provide a new kind of education for the children of the factory workers. It was to be comprehensive and highly cultural education that would help them to become creative and balanced individuals in the fullest sense. Open to children from all social, religious, racial, and economic backgrounds, and co-educational, the first Waldorf School was revolutionary for its time. By 1928 it had grown to become the largest non-denominational school in Germany, serving as a model for other Waldorf Schools in Switzerland, Holland,

The system places emphasis on the arts and the inner life. Said Steiner, "Waldorf school education is not a pedagogical system but an art - the art of awakening what is actually there within the human being." He developed a spiritual philosophy and called it Anthroposophy. It took into account the purpose of man's development and stressed a higher view with emphasis on growth and change

PRINCIPLES OF WALDORF EDUCATION

Eurythmy Eurythmy is a unique form of movement with gestures that correspond to sound. It explores rhyme, meter, story and geometric forms. It also brings poise, co-ordination, self-discipline and social awareness to students.

Music All children, class 1 through 8, play the recorder. In class 4 children take up a stringed instrument. The study of notation leads the older children into four part choir, recorder ensembles and string orchestra.

Languages The study of languages begins orally in class one, and progresses to provide insights and customs of other cultures.

Physical Education Gymnastics and Spatial Dynamics complement playing group games and pentathlon events.

Gardening A connection to nature is cultivated in all classes through gardening activities.

Handwork All children K - 8 are taught handwork which develops fine hand dexterity and hand-eye coordination. This includes knitting, weaving, hand and machine sewing, and woodwork

Source: Sunrise Waldorf School Duncan Website
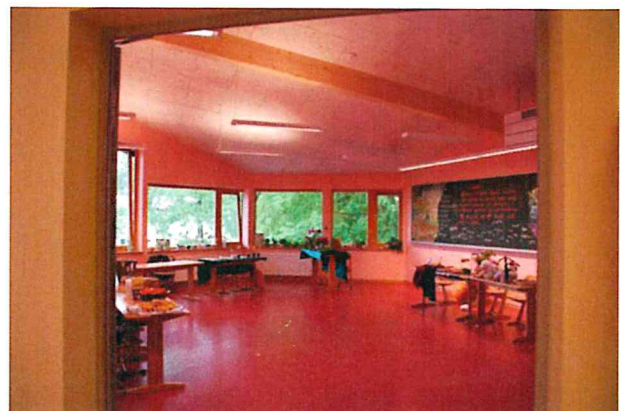
Waldorf School Extension,
Aarhus, Jutland, Denmark 2009
Schmidt Hammer Lassen Architects

The Language of School Design: *Design Patterns for 21st Century Schools*
Prakash Nair, Randall Fielding and Dr. Jeffery Lackney

Prakash Nair is a partner with Fielding Nair International, an award-winning school planning firm. Nair is widely published and has served as a consultant to governments and professional organizations in 19 states and 10 countries on four continents.

Randall Fielding is a partner with Fielding Nair International and Founder of DesignShare.com, building it into the world's largest and most prestigious forum for innovative schools. Fielding is recognized as one of the world's foremost creative and innovative school architects, and is the recipient of numerous design awards
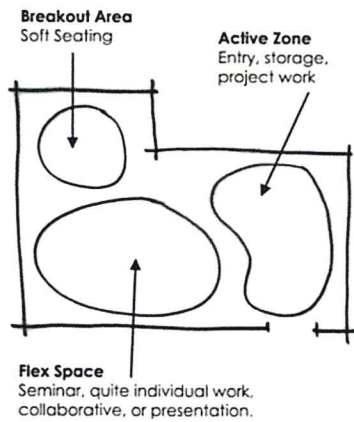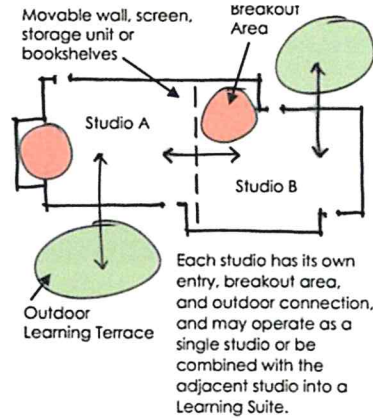
Their book is based on the pattern language system and is intended to be a practical tool and resource manual for builders and designers of schools. The patterns are also available online for use and are shown on the following page.

Their philosophy is to pull the school apart into smaller learning groups. For example don't have one big cafeteria have a number of small cafes spread throughout the school. Don't have one big auditorium but have a number of places where music and theater can be spontaneous. They start by looking at the classroom and renaming it a learning studio. A flexible space suitable for quite work, group work and presentation. They then expand to patterns for neighbourhoods and finally the school as a whole. Below is my synopsis of the basic tenants of the Language of School Design.

- **Flexibility** Allow spaces to be adaptable for many different uses. Allow for flexible partitions to allow for use by small or large groups

- **Transparency** If the children can see what other students are doing they will aspire to emulate them. The issue of distraction is dismissed when the groups are small and neighbourhoods are established.

- **Neighbourhoods** Organize the spaces into neighbourhoods so the children develop a sense of belonging as well as a belonging to the larger school

- **Natural Ventilation & Daylight** Access to natural ventilation and daylight are fundamental to good learning environments. Maintain a connection between indoors & outdoors.

- **Informal meeting spaces** Create spaces with soft seating and alcoves in the corridors for informal meetings as well as individual and small group study.

LEARNING STUDIO

Breakout Area
Soft Seating

Active Zone
Entry, storage, project work

Flex Space
Seminar, quite individual work, collaborative, or presentation.

LEARNING SUITE

Movable wall, screen, storage unit or bookshelves

Breakout Area

Studio A

Studio B

Outdoor Learning Terrace

Each studio has its own entry, breakout area, and outdoor connection, and may operate as a single studio or be combined with the adjacent studio into a Learning Suite.

SMALL LEARNING COMMUNITY

Cafe & Project Area

Small Group Room

Learning Studio

STUDY DISPLAY SPACE

Tackable surface for student work

Rear projection display for interactive display

Horizontal Surface for 3-D project display

HOME BASED INDIVIDUAL STORAGE

Family-like Group

Coat Hooks

Project Table

Whiteboard

Each Student has a desk and two drawers

Bookshelf

FLEXIBLE SPACES

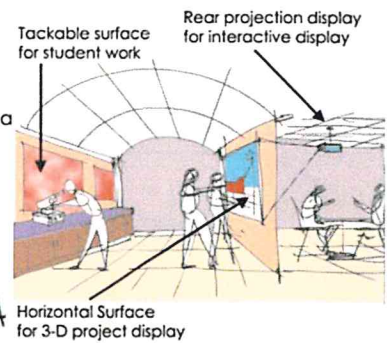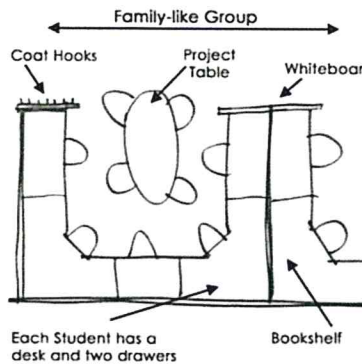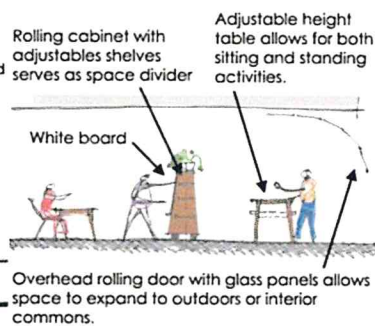Rolling cabinet with adjustables shelves serves as space divider

Adjustable height table allows for both sitting and standing activities.

White board

Overhead rolling door with glass panels allows space to expand to outdoors or interior commons.

SOFT SEATING

Movable seating allows learners to modify their environment.

Electrical power, wired and wireless connections turn soft seating areas into high powered work spaces.

Vistas to the city, community activities or nature foster broad-based rather than narrowly referenced thinking.

TRANSPARENCY

Learning Studios

Watering Hole

Common Area

Visual Transparency

Pathway

WELCOMING ENTRY

"Eyes on the Street"

Student Display

Office

Community Space

Covered Entry

Signature Element

SCIENCE, ART LABS & LIVE SKILLS AREA

Water and power at perimeter & at ceiling, for flexible interior space

Student Display

R&D Think Tank

Active Lab

Exhaust

Soft seating

Messy Projects

High Tables & Stools
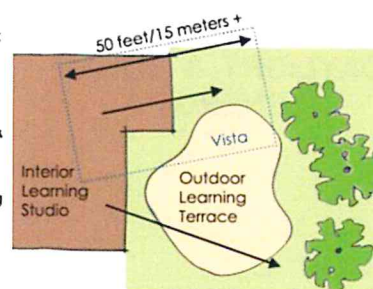
INTERIOR EXTERIOR VISTAS

50 feet/15 meters +

Interior Learning Studio

Vista

Outdoor Learning Terrace

Vistas of 50 feet (15 meters) or more allow us to change our focal length, important to both eye health and comfort.

INDOOR OUTDOOR CONNECTION

A nature trail, while supporting studies in biology, ecology, botany, and animal behavior, can also serve as a running track, becoming a vital part of a physical education program.

Kitchen Garden

Composting

Fish hatchery

Paths and site development can be oriented to animal habits, encouraging existing species to remain and additional ones to return.

PHYSICAL FITNESS

Natural light and ventilation are important in active spaces.

Active spaces and equipment directly adjacent to indoor fitness areas encourage healthful, outdoor activities in all seasons.

Resilient wood or synthetic sports flooring, mirrors, ballet bars, and higher ceilings support dance, yoga, and exercise equipment without requiring a full gymnasium.

ART, MUSIC PERFORMANCE

Movable Screen, suspended from structural grid at ceiling, allows for rapid reconfiguration of space.

Insulated, glass panel rolling overhead door.

Mobile seating risers

Outdoor seating area

CASUAL EATING AREA

Refrigerator, sink, microwave

Project tables

Student Display

Soft Seating

Vista

NATURAL VENTILATION

Electricity generated by wind turbine powers heat pump fan

Low winter sun provides daylight and passive solar heat.

Low intake window and high ventilation windows take advantage of "stack effect."

Water body placed in front of prevailing summer breeze provides natural cooling

Geo Thermal Loop provides both heating and cooling

LANGUAGE OF SCHOOL DESIGN

Solid surface, preferably angled, for strong sound projection (i.e. plaster, wood, two-layers of gypsum board).

Absorptive surface to reduce reverberation

Section

Angled walls and ceilings soften reverberation.

Small group breakout areas

Movable desks & chairs

Floor Plan

Data Projector

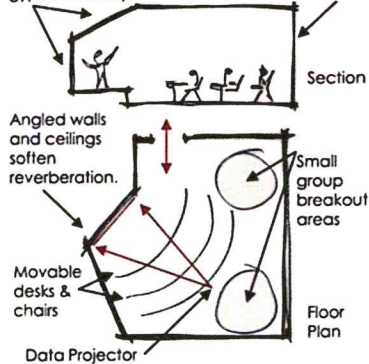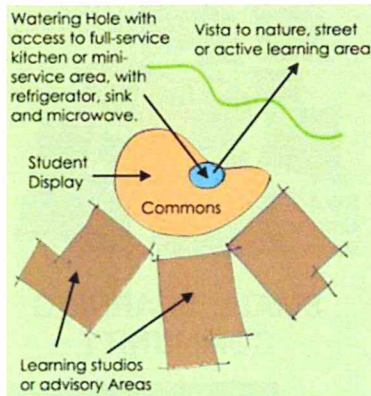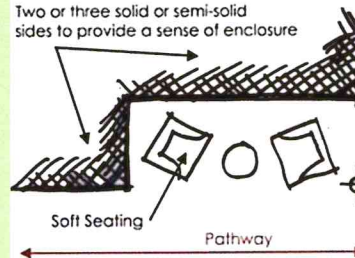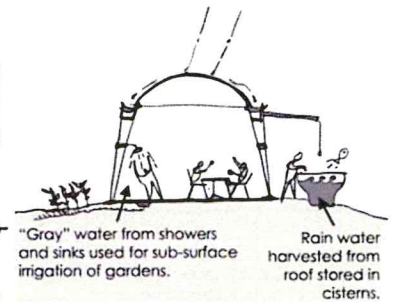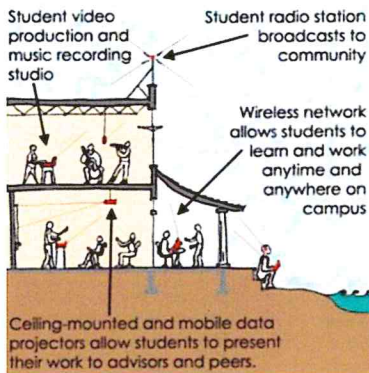**CAMPFIRE SPACES**

Watering Hole with access to full-service kitchen or mini-service area, with refrigerator, sink and microwave.

Vista to nature, street or active learning area

Student Display

Commons

Learning studios or advisory Areas

WATERING HOLE SPACES

Two or three solid or semi-solid sides to provide a sense of enclosure

Soft Seating

Pathway

CAVE SPACES

"Gray" water from showers and sinks used for sub-surface irrigation of gardens.

Rain water harvested from roof stored in cisterns.

SUSTAINABLE ELEMENTS

Student video production and music recording studio

Student radio station broadcasts to community

Wireless network allows students to learn and work anytime and anywhere on campus

Ceiling-mounted and mobile data projectors allow students to present their work to advisors and peers.

DISPERSED TECHNOLOGY

Light shelves bounce light off the ceiling, allowing for greater penetration into the room, beyond the 1:1.5 rule of thumb

Deciduous trees block harsh summer sun and allow winter sun

Height A

Depth B = 1.5 A

It's useful to distinguish between view windows and daylighting windows. The higher the windows the greater penetration into the building. One rule of thumb calls for the depth of the room to be 1.5 X the height of the window.

DAYLIGHT & SOLAR ENERGY

Directional track lighting provides a varied pattern, contrasting with the even wash of the fluorescent pendants.

Sunlight and high color rendition lamps provide a full spectrum of light wavelengths and colors.

Winter Sun

Summer sun

Direct/indirect pendant fixtures with high color rendition index (CRI) fluorescent lamps direct 30-40% down light for tasks, and bounce 60-70% off the ceiling, for gentle, reflected light.

FULL SPECTRUM LIGHTING

The observatory can be seen for miles around, making the school a landmark in the community.

A signature observatory grounds this school in its local context, while providing a memorable place for students to study marine science and astronomy.

LOCAL SIGNATURE

Ecology is about more than saving energy - it's about a web of interrelated relationships.

Partnerships and shared facilities are not only cost efficient, they are a lesson in global citizenship.

CONNECTED TO COMMUNITY
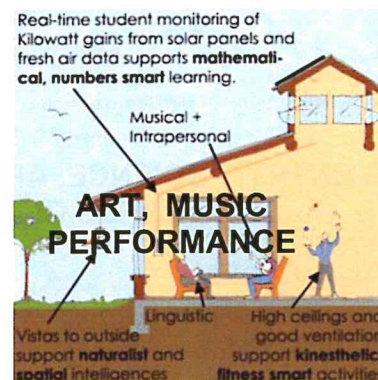
1. LINGUISTIC - WORD SMART
2. LOGICAL - NUMBERS SMART
3. MUSICAL - MUSIC SMART
4. BODILY - SPORT FITNESS SMART
5. SPATIAL - PICTURE / 3D SMART
6. NATURALIST - NATURE SMART
7. INTERPERSONAL - SOCIAL SMART
8. INTRAPERSONAL - SELF SMART

Real-time student monitoring of Kilowatt gains from solar panels and fresh air data supports **mathematical, numbers smart** learning.

Musical + Intrapersonal

ART, MUSIC PERFORMANCE

Linguistic

Vistas to outside support **naturalist** and **spatial** intelligences

High ceilings and good ventilation support **kinesthetic, fitness smart** activities

MULTIPLE INTELLIGENCES

LANGUAGE OF SCHOOL DESIGN

1.1 CONSTRUCTIVIST PEDAGOGY

Space and Learning - Lessons in Architecture 3: Herman Hertzberger

This book is the latest addition of the series published in 2008. As stated in the preface by Hertzberger "Space and learning .. not being told how it should be done but in the words of Maria Montessori, learning to do it yourself. This then is the principle objective of schools: learning to learn."

In reading this book I discovered that Hertzberger sees the school as a micro urban society. The classrooms function as a home base where students can fall back and receive mentorship from the teacher while having the opportunity to explore and experiment in the rest of the school. Something like a house or apartment is in the city. He also makes reference throughout the text to a framework capable of accepting change but doesn't change itself. An example he gives is the street. The street may have many changes in occupants an buildings may get torn down and rebuild but the street remains the same. What follows are diagrams from the book showing opportunities for spatial articulation that enhance interaction

Locate Work Spaces To The Sidelines
Even If It Means Changing The Traffic Flow

Dimension Partition Heights To Screen
Visually And Acoustically

Brede School De Matrix
Hardenberg Netherlands 2007
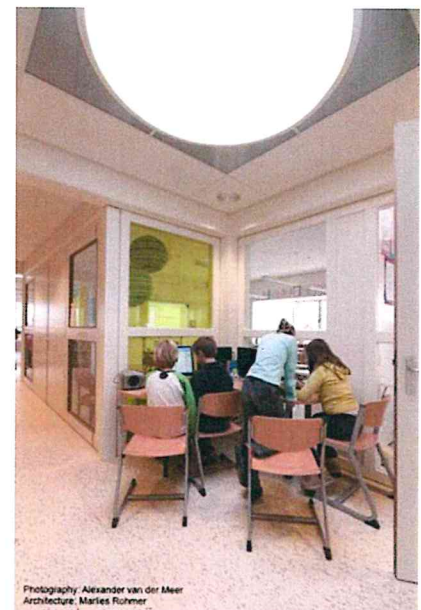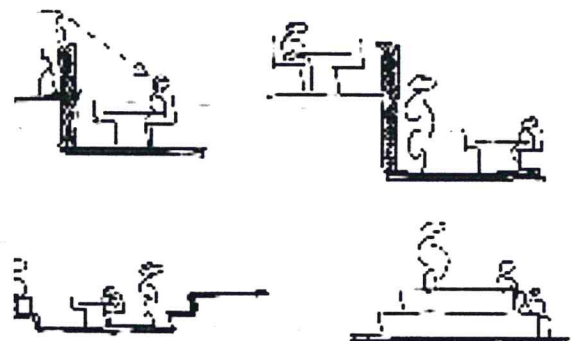Architect: Architectenbureau Marlies Rohme
Size: 4,795 m2

Varied Ceiling Heights Create
Intimate Or Gathering Spaces

Steps Act As A Magnet

Openings In Floors And Voids Provide Vertical
Views And Visually Connect The Storeys
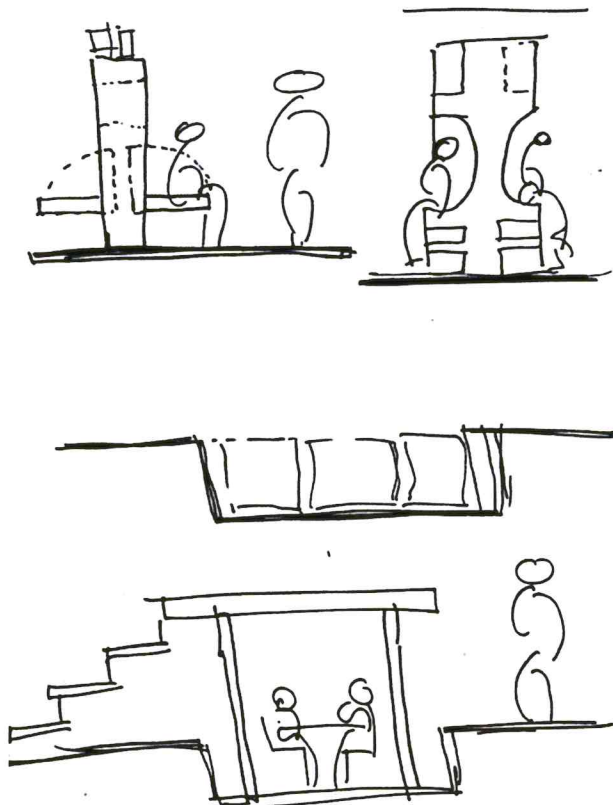
CLASSROOM AS HOME BASE
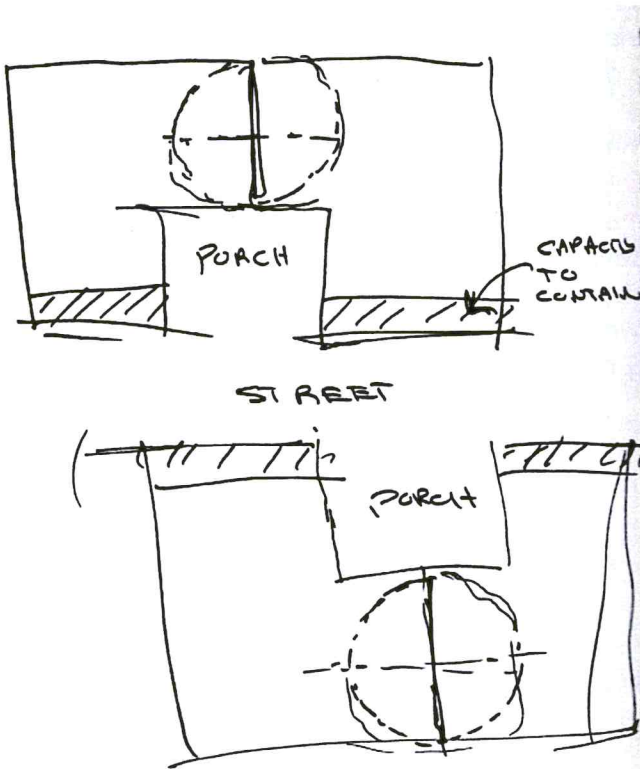
School should function as a micro city where the classroom is the home

Brede School De Matrix
Hardenberg Netherlands 2007
Architect: Architectenbureau Marlies Rohme
Size: 4,795 m2

## CAPACITY TO CONTAIN SPACE

Make walls and floors thick so they can contain space for storage or seating

Nordbyskolen
Nordby Alléé 2, 4800 Nykøøbing Falster Denmark
2004 Architect: Holscher Arkitekter ETN Arkitekter
Size: 7200m

HERTZBERGER
SPACE & LEARNING

1.1 CONSTRUCTIVIST PEDAGOGY

INCITE ENGAGEMENT WITH THE BUILDING

Flexibility invites and incites the users to engage the building
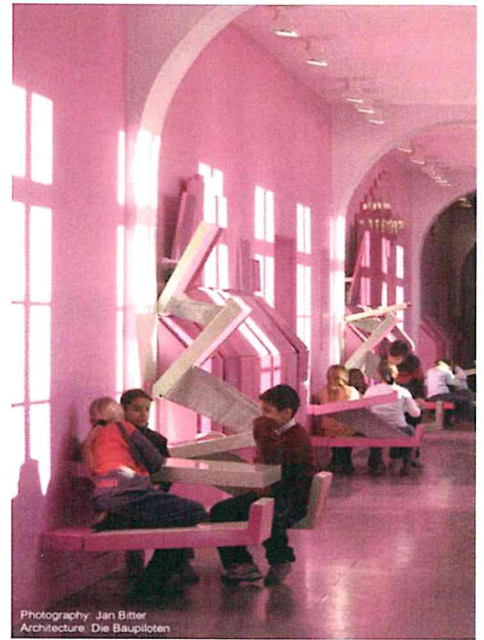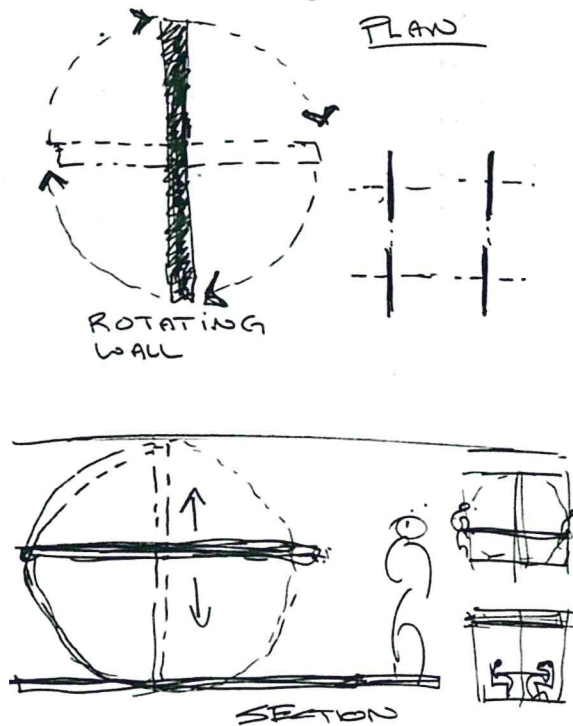
PLAN

ROTATING WALL

SECTION

Erika Mann Grundschule
Wedding, Berlin Germany 2003 and 2008
Architect: Baupiloten Size: 1107m2

SPACE APPROPRIATED

Leave spaces blank so they can be appropriated for use by the users

PLAN   SECTION

ELEU

Nordbyskolen
Nordby Alléé 2, 4800 Nykøøbing Falster Denmark
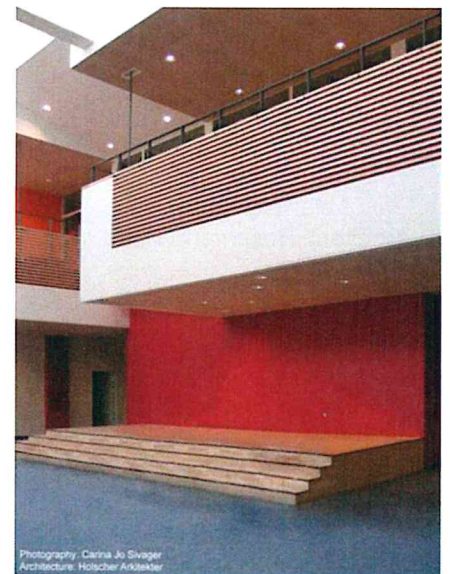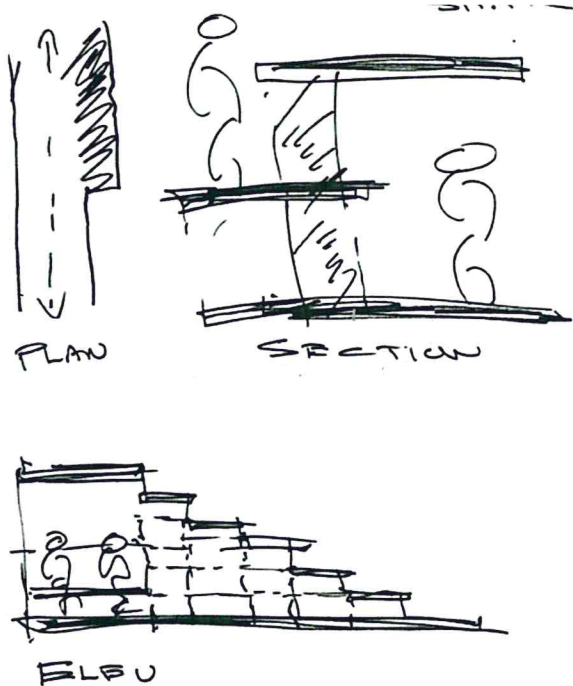2004 Architect: Holscher Arkitekter ETN Arkitekter
Size: 7200m

Photography: Anders Sune Berg
Architecture: Bosch & Fjord

Photography: Anders Sune Berg
Architecture: Bosch & Fjord

Photography: Anders Sune Berg
Architecture: Bosch & Fjord

Ordrup Primary School
Groonnevaeaenge,
Charlottenlund 2006
Architect: Bosch and Fjord

Photography: Anders Sune Berg
Architecture: Bosch & Fjord

Photography: Jan Bitter
Architecture: Die Baupiloten

Erika Mann Grundschule
Wedding, Berlin Germany 2003 and 2008
Architect: Baupiloten Size: 1107m2

SPACES THAT INCITE ENGAGEMENT

1.2 PRECEDENT STUDIES

LAYERING OF PUBLIC AND PRIVATE SPACES
PROVIDE A HOME BASE FROM WHICH TO
EXPLORE
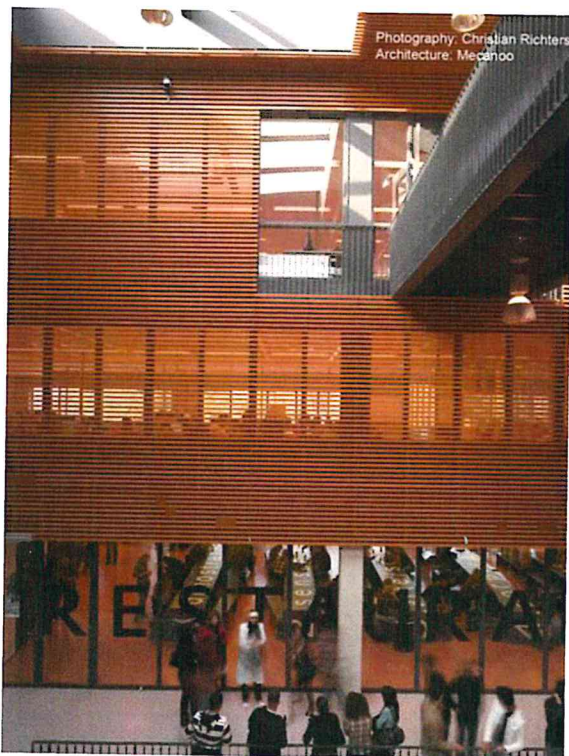
Orestad Collage
Amager, Copenhagen Denmark: 2007
Architect: 3XN
Size: 12,000 m2

Da Vinci Collage
Dordrecht Netherlands: 2007
Architect: Mecanoo
Size: 23,000 m2

STUDENTS ARE ENCOURAGED TO SEEK OUT THEIR OWN SUBJECT OF INTEREST THROUGH THE
GROUND FLOOR SHOP WINDOWS THAT OPEN OUT ONTO A CENTRAL COURTYARD

SPACES THAT INSPIRE MOVEMENT

1.2 PRECEDENT STUDIES

Photography: Rob 't Hart Photography
Architecture: Broekbakema

TEACHING AREAS SPILL OUT ONTO THE STREET
CREATING THE DYNAMIC SPACE.

Photography: Rob 't Hart Photography
Architecture: Broekbakema

THEY CALL THE ATRIUM A "CENTRAL
KNOWLEDGE CANYON" IT IS LESS FORMAL
THAN MANY OTHER STREET ARRANGEMENTS
AND INCLUDES AN AREA WITH STEPPED
SEATING, A CAFE AREA, AND INFORMAL
LEARNING AREA WITH BEANBAG FURNITURE.

Photography: Rob 't Hart Photography
Architecture: Broekbakema

A LECTURE THEATRE POD CANTILEVERS OUT INTO THE
SPACE PROVIDING EVIDENCE OF A MORE FORMAL LEARN-
ING SPACE

Photography: Rob 't Hart Photography
Architecture: Broekbakema

Corlaer Collage
Nijkerk Netherlands 2006
Architect: Broekbakema
Size: 6000 m2

**SPACES THAT ARE
BOTH HOME AND CITY**

1.2 PRECEDENT STUDIES

TRANSPARENCY CONNECTS THE STUDENTS
AND THE SURROUNDING COMMUNITY

CIRCULATION SPACES OFTEN DOUBLE AS STUDY
AREAS AND INFORMAL MEETING PLACES.
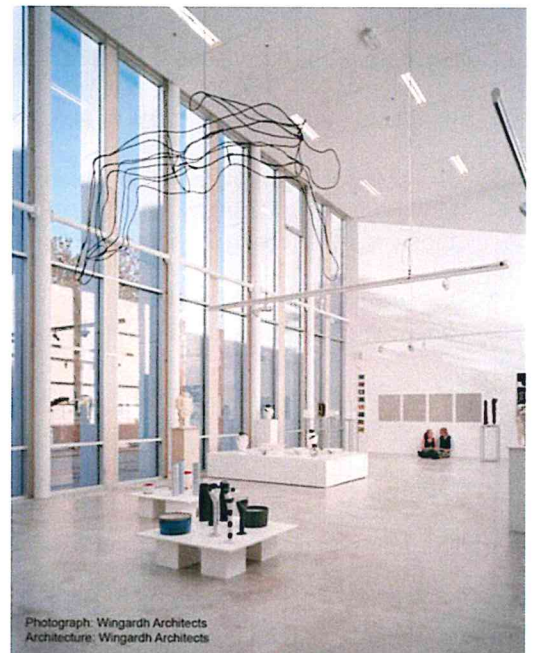
GALLERY SPACE ALSO FOR COMMUNITY
USE BRINGS STUDENTS AND
COMMUNITY TOGETHER

THE BUILDING WAS CONCEIVED AS A SOCIAL
HUB AND CONTAINS A LOWER SCHOOL,
MIDDLE SCHOOL AND COMMUNITY SPACES
HOUSED IN THREE MAJOR BLOCKS

VISUALLY AND SPATIALLY CONNECTED PUBLIC
SPACES ENFORCE COMMUNITY CONNECTIONS

**SPACES THAT PROMOTE
COMMUNITY & FAMILY**

1.2 PRECEDENT STUDIES

Interview with Brenda McDermitt Principal

Maria Montessori Academy
1841 Fairburn Drive, Victoria BC

An interview and tour was conducted April 2010 at the Maria Montessori Academy in Victoria. At that time they were renovating to become one of the first to offer grades 9 - 12. The building they occupy was once Fairburn Elementary School built in the 1960's. I was interested to see the challenges of inhabiting a building designed for the traditional pedagogy.

Q. What challenges does this building present?
A. We could use more space for storage of camping equipment etc. The Fire Marshall will not allow any furniture, storage or use of the corridors due to the fire loading. However we do use them as project space but everything has to be put away at the end of the day. The classrooms are large enough for our use.

Q. How important is the location of the school?
A. Location of the school to parks and work places is important as the students often take day field trips to espore and learn. They also spend weeks at a time away from the school on camp trips and doing work experience in the community. Students in grade 7 & 8 spend the entire day at offices, clinics, stores or the Mustard Seed for a week at a time as part of their curriculum. They then present and discuss their experience with their fellow students.

Q. How do you involve outside experts?
A. Work experience as well as bringing in guest lecturers.

Q. What would the ideal classroom look like?
A. Washrooms would be nice because of rules requiring the teacher must accompany the student to the washroom. Storage for the Montessori materials. There are no teacher desk as the teacher is not the center of attention.

The classrooms are are organized around 5 part Montessori curriculum

1. Practical Life Activities: care of self, care of the environment, control of movement, and grace and courtesy.

2. Sensorial Activities are those which refine the five senses – tactile, visual, auditory, olfactory, and gustatory senses. Children are particularly receptive to developing their senses from ages 2-6, and it's important to give children at those ages as many sensorial experiences as possible.

3. Language Activities: oral language, written language, handwriting, reading, reading analysis, writing and reading, and cultural work related to language

4. Math Activities: numbers through ten, the decimal system, linear and skip counting, tables of arithmetic, passage to abstraction, and fractions

5. Cultural Activities: art, music and dance, geography, history, biological science, and physical science.

The middle and senior grade classrooms are organized with a system of levels along with computer stations along one wall.

Q. How is physical fitness integrated?
A. There is a morning warm up for all students in the Gym. Students are constantly moving so they get their activity as part of the curriculum. We do not have organized sport teams however, the students participate in curling, golf, gymnastics and swimming

Q. How is technology integrated?
A. There are computers in every classroom. Students connect to other students around the world through online classrooms.

Q. How are the parents involved?
A. The Parents Group is responsible for a variety of activities such as Pizza Days, Book Fairs, and Used Uniform Sales. They also organize one major fundraiser per year to assist in funding special events and projects such as playground equipment, theatre events, swimming or gymnastics. Meetings are held the 2nd Wednesday of every month. All parents are members.

1.3 MONTESSORI TOUR

MARIA
MONTESSORI
ACADEMY

STUDENT WORKING WITH
THE TOWERS AND BLOCKS
LEARNING MATH

LEVELS IN THE MIDDLE & HIGH SCHOOL

GARDENING ON
THE SCHOOL
GROUNDS

A TRIP TO GOLDSTREAM PARK

STUDENT WEEK LONG
WORK EXPERIENCE
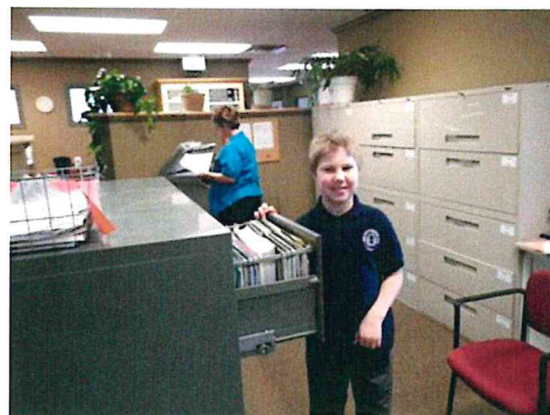
IMAGES COURTESY OF
MARIA MONTESSORI ACADEMY

1.3 MONTESSORI TOUR

SOLUTION

AN ARCHITECTURE IS REQUIRED THAT:
- IS TRANSPARENT
- IS FLEXIBLE AND CONFIGURABLE BY ITS' USERS
- INSPIRES MOVEMENT
- INVITES ENGAGEMENT WITH THE BUILDINGS
- ACTS AS BOTH HOME AND CITY
- PROMOTES FAMILY AND COMMUNITY

Photography: Adam Mørk
Architecture: 3XN

THE CITY IS THE SCHOOL

HOME BASE

OFFSET FRAMES

GLAZED
EXTERIOR

OUTDOOR
SPACE

VISCOUS
CIRCULATION

OPERABLE
INTERIOR
PARTITIONS

COMMUNITY CTR.

EXTG
SCHOOL

LANDSCAPE
AS LEARNING
OPPORTUNITY

PROTOTYPE

HOME
BASE
FRAMES

GARDEN/
MARKET
FARM

LEARNING STREET
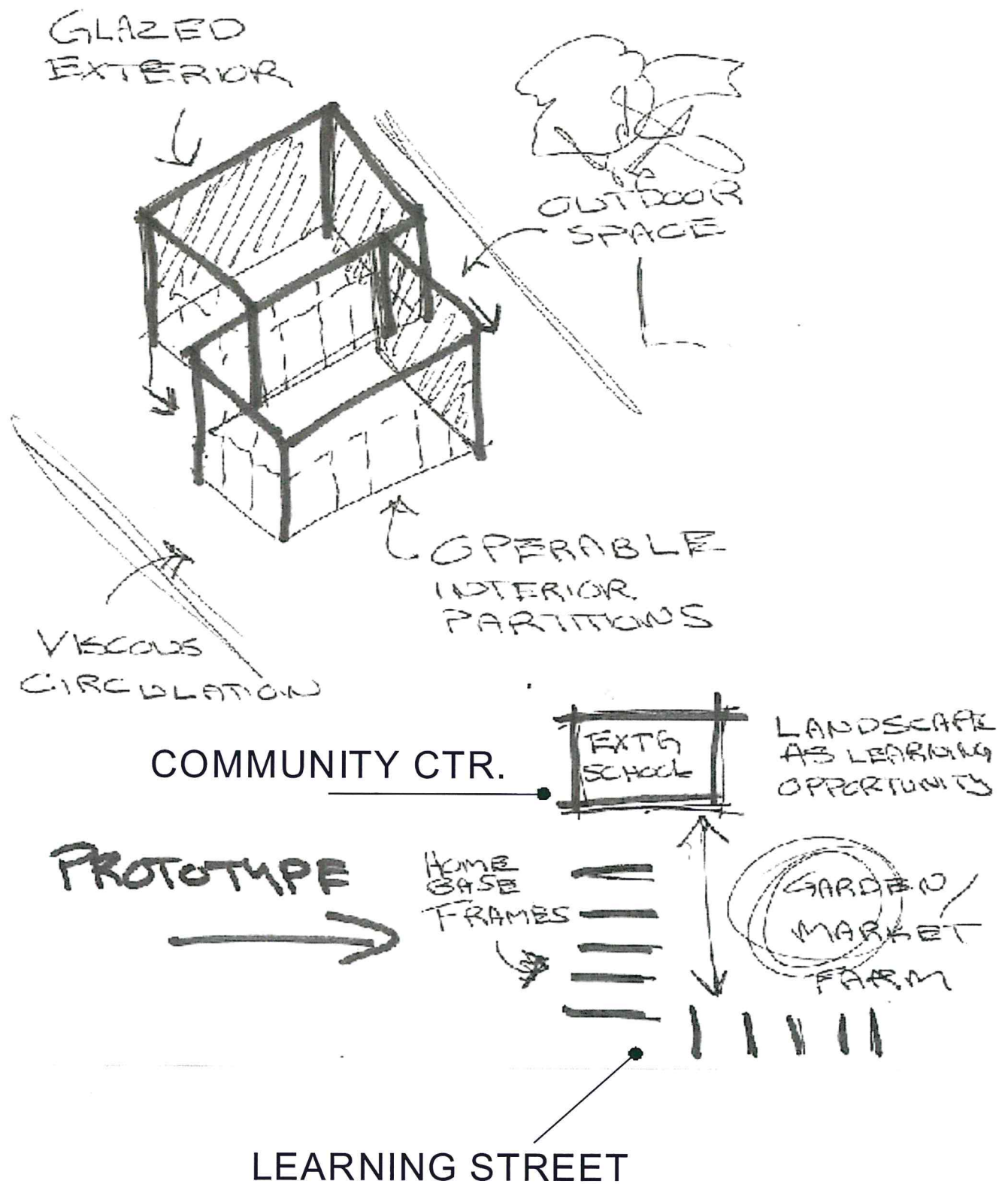
CHAPTER 2.0
PROGRAM

Since the optimum is maximum interaction and exposure between community, family and students I took the approach that all levels of education from the earliest learners to adult / senior learners should be incorporated in the program.

The program are was developed for 1000 students divided into 5 groups of 200. Ministry of Education Area Standards were used to develop the area requirements.

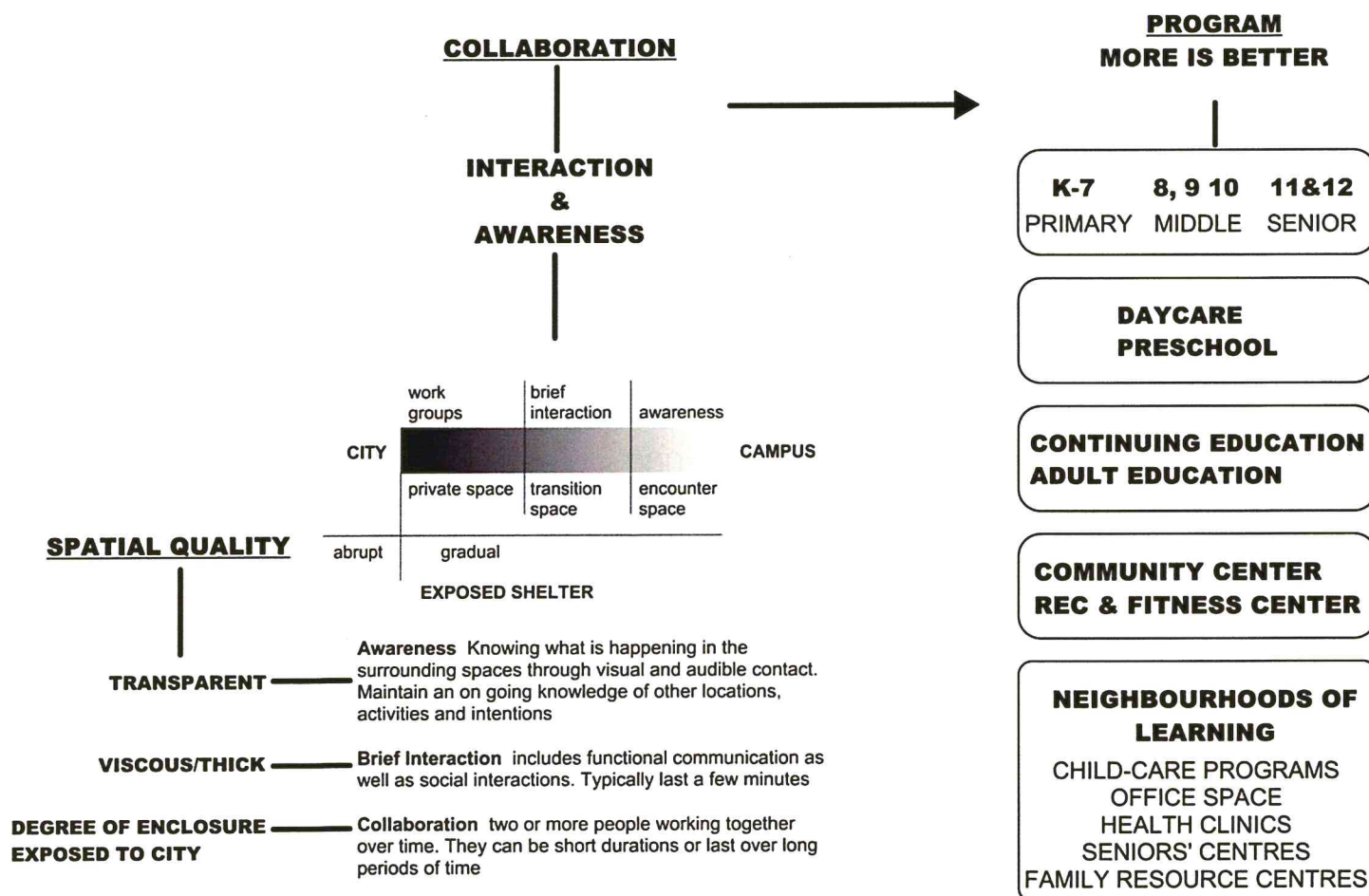## COLLABORATION

INTERACTION
&
AWARENESS

SPATIAL QUALITY

	work groups	brief interaction	awareness
CITY			CAMPUS
	private space	transition space	encounter space
abrupt	gradual		

EXPOSED SHELTER

TRANSPARENT —— **Awareness** Knowing what is happening in the surrounding spaces through visual and audible contact. Maintain an on going knowledge of other locations, activities and intentions

VISCOUS/THICK —— **Brief Interaction** includes functional communication as well as social interactions. Typically last a few minutes

DEGREE OF ENCLOSURE —— **Collaboration** two or more people working together
EXPOSED TO CITY over time. They can be short durations or last over long periods of time

COLLABORATIVE KNOWLEDGE
WORK ENVIRONMENTS

PROGRAM
MORE IS BETTER

K-7	8, 9 10	11&12
PRIMARY	MIDDLE	SENIOR

DAYCARE
PRESCHOOL

CONTINUING EDUCATION
ADULT EDUCATION

COMMUNITY CENTER
REC & FITNESS CENTER

NEIGHBOURHOODS OF
LEARNING

CHILD-CARE PROGRAMS
OFFICE SPACE
HEALTH CLINICS
SENIORS' CENTRES
FAMILY RESOURCE CENTRES

Integrated Services with Agencies and Organizations

- social workers
- health clinics and practitioners
- dental clinics
- seniors organizations
- environmental organizations
- parks, recreation and cultural services

Family Engagement and Support Services

- social workers
- family counselors
- addiction counselors
- clothing exchanges, clothing rooms
- toy exchanges
- parenting education/support programs
- hot lunch and breakfast programs
- community kitchens
- community meals, seniors meals
- parent-teen mediation and transition groups
- youth street workers, early childhood outreach workers

Community Connections and Engagement

- celebrations and town hall meetings
- Halloween fireworks, pumpkin carving,
- Christmas caroling,
- carnivals,
- community picnics,
- Easter egg hunts,
- celebrations and cultural events
- all-candidates meetings
- Boys and Girls Clubs, YMCA

Community and Continuing Education

- computer classes
- high school completion
- adult upgrading
- Online university classes
- exam invigilation
- life skills literacy
- financial literacy
- health literacy and planning
- emotional health management planning
- career counseling

Community Use of Facilities

- dedicated community rooms and welcoming entrances or lobbies with a home-like atmosphere
- dedicated office space for partners and agencies
- meeting and storage space for community groups
- recreational use of school space, indoors and out, for all ages
- gymnasium use for physical activities, community celebrations and large community meetings
- specialized rooms (e.g., theatres, shops, libraries, kitchens, computer access)
- community garden and compost centre

After School and Summer Programs

- Active Programs and Sports
- basketball, volleyball, floor hockey, badminton, soccer, gymnastics, circus arts, mountain biking, rock climbing, climbing wall, swimming, skating, wilderness survival, drop-in gym
- Fine Arts and Cultural Programs
- performing arts: dance and drama, visual arts, woodcarving, felting, photography
- music: community choirs, drumming circles, bands
- Social, Leadership and Homework Programs
- cooking, science clubs, board games, reading programs, tutoring, fossil hunting, boys' clubs, girls' clubs, leadership programs, babysitting courses

Youth Connections

- mentorship programs
- leadership development
- employment centres
- youth drop-ins
- secondary school transition opportunities

Supporting and Enhancing Student Learning through Personalized Learning

NLCs support and promote school goals developed by School Planning Councils with programs and initiatives that enhance the school curriculum and social responsibility through greater involvement and use of community resources through enriched curriculum with programs, volunteers and resources that contribute skills and knowledge for students and teachers (e.g., artists in residence, living history projects, athletic skills, personalized learning).

SECONDARY SCHOOL AREA ALLOWANCES

2.8.1 Secondary School Core Areas

Space Function	NOMINAL CAPACITY										
	200	250	300	350	400	450	500	550	600	650	700
Core area in (m2)											
Admin./ Health	175	175	175	175	175	175	240	240	240	240	240
Counselling	50	50	50	50	50	50	50	50	70	70	70
General Storage	60	60	70	70	80	80	90	90	100	100	110
Gym Activity	600	600	600	600	600	750	750	750	750	900	900
Gym Ancillary	150	150	150	150	150	150	150	150	150	160	160
Media / Tech Centre	270	270	300	300	300	320	320	320	360	360	360
Multi-Purpose	80	80	80	160	160	160	240	240	240	240	240
Special Ed.	80	80	80	100	100	160	160	180	200	220	240
Mechanical Space (3%)	80	90	95	105	115	130	140	150	160	170	180
Design Space (28%)	745	820	900	995	1075	1205	1315	1390	1480	1600	1675
Total	2290	2375	2500	2705	2805	3180	3455	3560	3750	4060	4175
Instructional Space	1200	1460	1700	1940	2220	2460	2700	2940	3180	3420	3660
Max. Gross Area	3490	3835	4200	4645	5025	5640	6155	6500	6930	7480	7835

Space Function	NOMINAL CAPACITY										
	750	800	850	900	950	1000	1100	1200	1300	1400	1500
Core area in (m2)											
Admin./ Health	240	240	240	240	240	280	280	280	280	280	280
Counselling	70	70	70	70	85	85	85	85	85	85	85
General Storage	110	110	110	120	120	120	130	130	140	140	140
Gym Activity	900	900	1050	1200	1200	1200	1350	1350	1350	1350	1350
Gym Ancillary	160	160	270	270	270	270	280	280	280	280	280
Media / Tech Centre	380	380	380	400	400	400	440	440	440	460	460
Multi-Purpose	240	320	320	320	320	320	320	320	320	320	320
Special Ed.	240	280	280	300	320	340	380	420	450	490	530
Mechanical Space (3%)	185	195	210	220	225	235	255	270	285	300	315
Design Space (28%)	1745	1830	1950	2050	2115	2190	2380	2515	2650	2790	2925
Total	4270	4485	4880	5190	5295	5440	5900	6090	6280	6495	6685
Instructional Space	3900	4080	4240	4400	4600	4800	5240	5680	6120	6560	7000
Max. Gross Area	8170	8565	9120	9590	9895	10240	11140	11770	12400	13055	13685

Space Function	NOMINAL CAPACITY									
	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
Core area in (m2)										
Admin./ Health	320	320	320	320	320	360	360	360	360	360
Counselling	100	100	100	100	100	120	120	120	120	120
General Storage	150	150	150	160	160	160	170	170	170	170
Gym Activity	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350
Gym Ancillary	280	280	280	280	280	280	280	280	280	280
Media / Tech Centre	460	480	480	500	500	500	540	540	540	540
Multi-Purpose	320	320	320	320	320	320	320	320	320	320
Special Ed.	570	600	640	680	710	750	780	820	860	890
Mechanical Space (3%)	330	345	360	375	390	410	425	440	455	4400
Design Space (28%)	3075	3215	3350	3505	3645	3805	3965	4110	4255	470
Total	6955	7160	7350	7590	7775	8055	8310	8510	8710	8900
Instructional Space	7440	7880	8320	8800	9280	9760	10240	10720	11200	11680
Max. Gross Area	14395	15040	15670	16390	17055	17815	18550	19230	19910	20580

2.3 AREA STANDARDS

2.8.2 Secondary Core and Elective Modules

The following figures are used with 2.8.3 to select the core and elective Academic/Vocational facilities for an agreed nominal capacity.

Secondary Capacity	Science	Core General Instruction	Elective Modules	Core Modules	Total Modules
200	1	3	1	4	9
250	1	4	2	4	11
300	2	4	3	4	13
350	2	4	5	4	15
400	2	5	6	4	17
450	2	6	7	4	19
500	2	6	8	4	20
550	2	7	9	4	22
600	2	8	10	4	24
650	3	8	11	4	26
700	3	9	12	4	28
750	3	9	14	4	30
800	3	10	15	4	32
850	3	10	16	4	33
900	3	11	17	4	35
950	4	12	17	4	37
1000	4	12	19	4	39
1100	4	14	22	4	44
1200	4	15	25	4	48
1300	5	16	26	4	51
1400	5	17	29	4	55
1500	5	18	32	4	59
1600	6	20	34	4	64
1700	6	21	37	4	68
1800	6	22	40	4	72
1900	7	24	41	4	76
2000	7	25	44	4	80
2100	8	27	45	4	84
2200	8	28	48	4	88
2300	9	29	50	4	92
2400	9	30	53	4	96
2500	9	31	56	4	100

These core and elective figures are based on a grade 8-12 configuration. If a district shows that the stand ards are not suited to a different configuration, the allocation of space will be reviewed at the building program stage.

When selecting the core and elective modules, note the possible alternatives described in 2.6.3.

2.8.3 Secondary Module Areas

The following areas are used with 2.8.2 to select the core and elective Academic/Vocational modules.

Space Function	Module Area
General Instruction	80 m^2
Science (incl. ancillary)	140 m^2
Fine Arts (incl. ancillary	
Choral Music	120 m^2
Art	140 m^2
Drama & Theatre (200-950 nominal cap.)	150 m^2
Drama & Theatre (1000+ nominal cap.)	250 m^2
Music	180 m^2
Industrial Education	
Drafting	120 m^2
Technology (existing Electricity/Electronics)	140 m^2
Metalwork (use in determining existing cap.)	200 m^2
Mechanics	230 m^2
Construction (Wood)	275 m^2
Home Economics	
Separate Clothing or Foods Room	120 m^2
Combined Clothing/Foods Room	160 m^2
Teaching Kitchen	180 m^2
Business Education	120 m^2
Computers	120 m^2

Excepting general instruction modules which must be at least 75 m^2, new modules shall be at least 90 percent of the standard area given above. New modules between 90-100 percent or existing facilities 90-120 percent of the standard area shall have a rating of 1.0.

New modules may be larger than the standard area. The amount of any additional area shall be included in the Design Aid Sheet, either as design space of elective space. In the latter case, the rating shall be calculated as follows:

$$\text{Module Rating} = \frac{\text{actual area of module}}{\text{area of equivalent module in 2.8.3}}$$

Where two or more subjects are combined into one facility (e.g., technology/wood construction), the area shall be calculated individually, based on demonstrated need, and agreed in writing by the Ministry.

CORE, SCIENCE & ELECTIVE AREAS
PER 250 STUDENTS

CORE

180 SQM	180 SQM	180 SQM	180 SQM	**FOOD**
175 SQM	180 SQM	180 SQM	180 SQM	**ADMIN**
180 SQM	180 SQM	180 SQM	180 SQM	**LIBRARY**

SCIENCE

140 SQM	140 SQM	140 SQM	140 SQM

ELECTIVE

180 SQM	180 SQM	180 SQM	180 SQM	**DANCE STUDIO**
140 SQM	140 SQM	140 SQM	140 SQM	**ART STUDIO**
180 SQM	180 SQM	180 SQM	180 SQM	**MUSIC ROOM**
150 SQM	150 SQM	150 SQM	150 SQM	**PERFORMANCE /LECTURE**

230 SQM	275 SQM	200 SQM	**INDUSTRIAL**
AUTO	**WOOD WORK**	**METAL WORK**	

GYM PER 1000 STUDENTS
1200 SQM
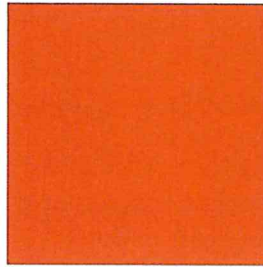
HOME BASES
200 STUDENTS EACH

INSTRUCTIONAL SPACE 120 SQM X 8	960.0 SQM
MECH SPACE X 3%	28.8 SQM
DESIGN SPACE X 28%	268.8 SQM
	1257.6 SQM

1257.6 SQM   1257.6 SQM   1257.6 SQM

1257.6 SQM   1257.6 SQM

1:400

TOTAL REQUIRED 1000 STUDENTS

HOME BASES	6,288 SQM
CORE & ELECTIVE	9,440 SQM
TOTAL	15,728 SQM

EXISTING SCHOOL

UPPER LEVEL - 2230 SQM
1430 SQM CLASSROOM

MAIN LEVEL - 5853 SQM
1980 SQM CLASSROOM

BASEMENT - 1394 SQM
TOTAL 9477 SQM

2.4 PROGRAM AREAS

CHAPTER 3.0
SITE

I took the approach that the Ministry of Education had proposed the following:
There are 8 schools in the Saanich and Victoria districts that are either vacant or under utilized. Which site would be ideal to develop a prototype? Should the existing building be demolished or remain?

4 rural sites and 4 urban sites were researched. The rural sites were intriguing due to the fact that there were few or no community spaces in these areas. The school could be the hub. The urban sites offered the most access both for students to the city and for parents to the students.

Conclusion: If the school is the city then the urban site of S.J. Willis offers the most access and exposure to the city

Why SJ Willis?

This site is child centered because
- It's location allows for the most number of children to get there on their own
- It's location allows for the most number of families to utilize it
- It's location is a good place for home base from which the children can explore and connect with the city

Carbon footprint
- It has an existing building currently under utilized as an adult education school

Urban context
- Large site situated on the boundary between residential, commercial and retail zones

Re purposing an existing building
There is a significant amount of built energy contained in an existing building. My approach was to see how the building can enhance my program not how my program can fit into the building. I thought of it as something plastic that could be molded.

SINGLE
FAMILY
RESIDENTIAL

7.5 ACRES
3.03 Ha

LIGHT INDUSTRIAL

QUADRA VILLAGE

HWY 17 BLANSHARD

MUNICIPALITY OF SAANICH

HILLSIDE/
QUADRA

BURNSIDE

OAKLANDS

VICTORIA
WEST

NORTH
JUBILEE

NORTH
PARK

FERNWOOD

SOUTH
JUBILEE

DOWNTOWN

HARRIS
GREEN

ROCKLAND

JAMES
BAY

GONZALES

FAIRFIELD
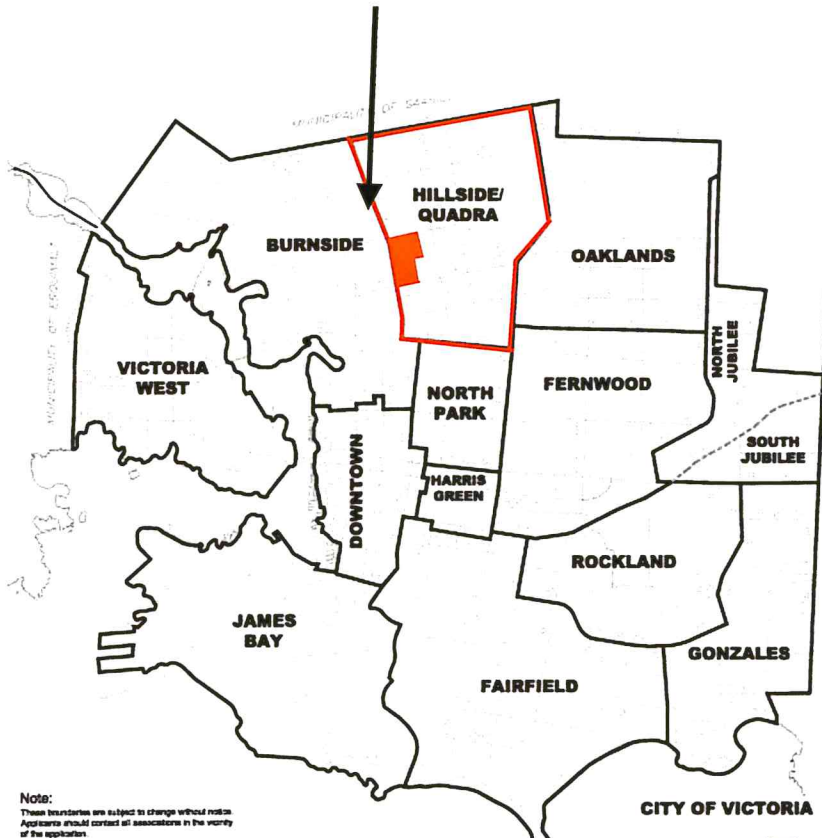
CITY OF VICTORIA

Note:
These boundaries are subject to change without notice
Applicants should contact all associations in the vicinity
of the application.

H
T
R
O
N

3.1 URBAN CONTEXT

IMAGE SOURCE: CRD NATURAL AREA ATLAS

Map labels: Topaz Ave., 4 storey apartments, Quadra St., Shops, Gym, Coniferous Grove, Theater, 4 storey apartments, Classrooms, 2 storey townhouses, Assisted Living Seniors Housing, Garry Oak Meadow, 4 storey apartments, Blanshard, Quadra Village, Retail / apartment, Hillside Ave.

S.J. WILLIS EDUCATION CTR.

ADULT LEARNING GED

QUADRA VILLAGE SOUTH ENTRY
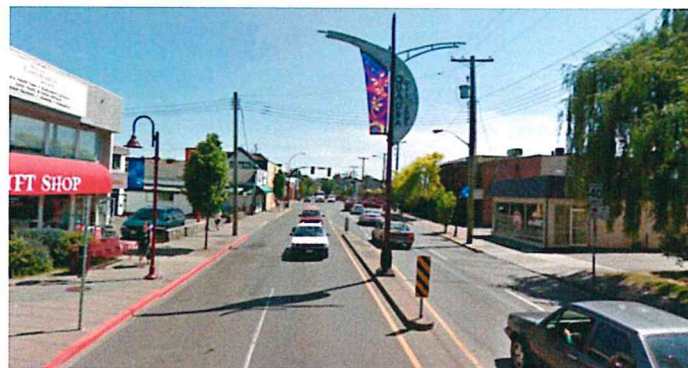
QUADRA VILLAGE NORTH ENTRY

3.2 SITE CONTEXT
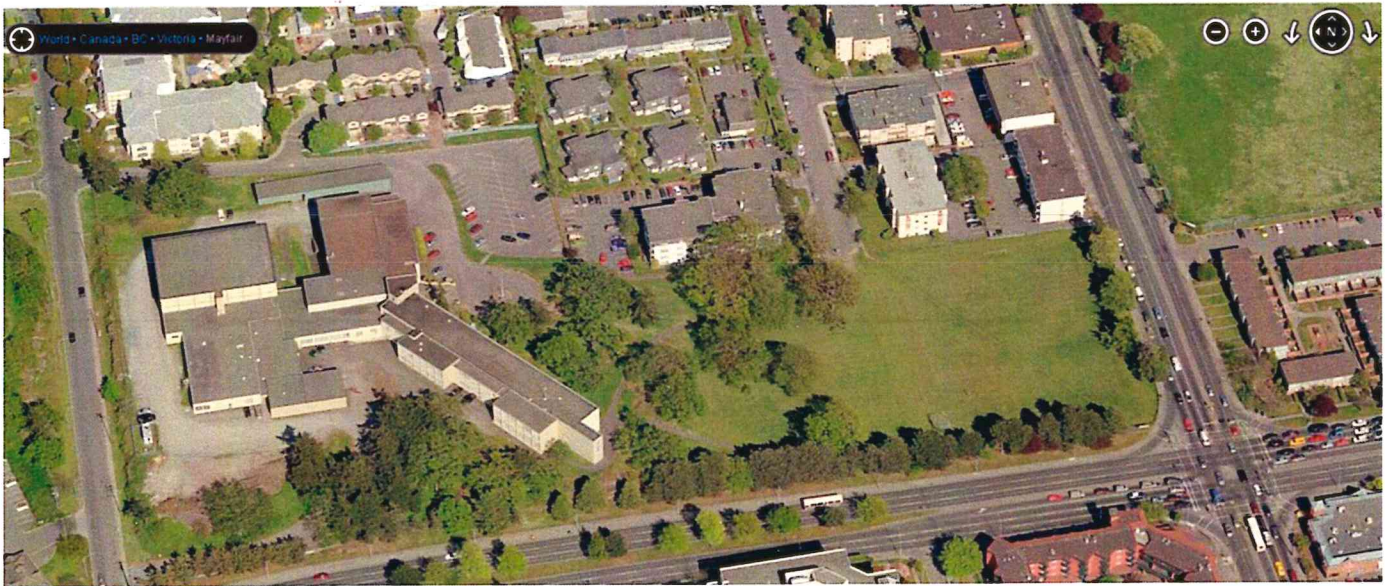
IMAGE SOURCE: BING MAPS

IMAGE SOURCE: BING MAPS

3.2 SITE CONTEXT
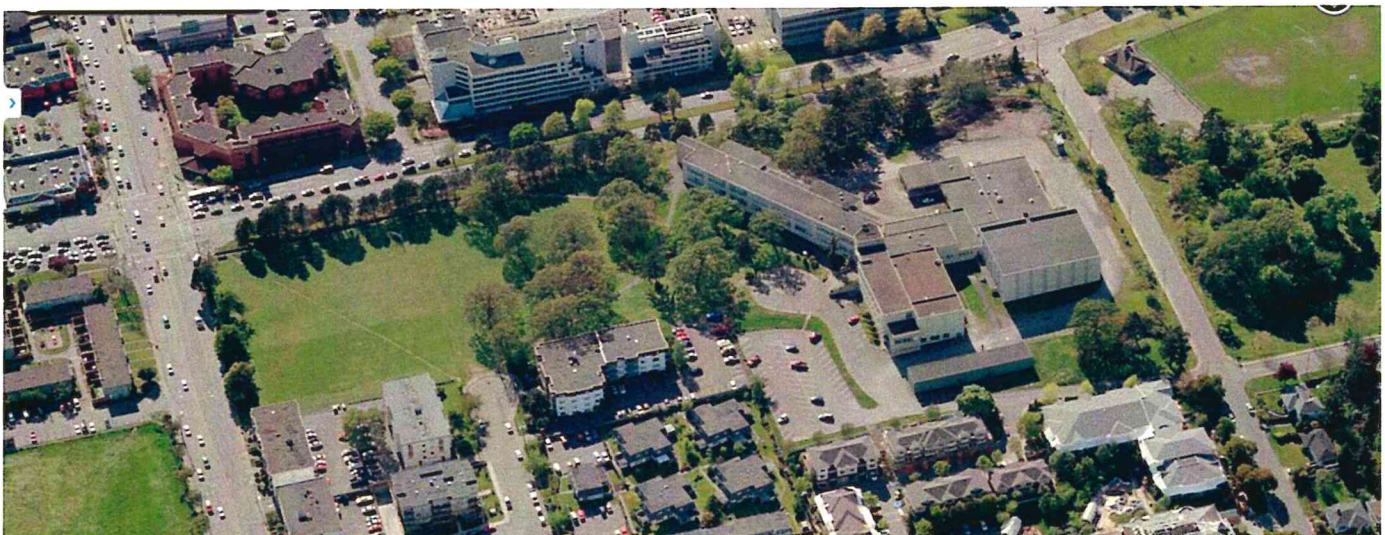
NORTH CONIFEROUS GROVE

NORTH SIDE OF CLASSROOM WING

TYPICAL CLASSROOM

STAIR WING FROM BLANSHARD

3.2 SITE CONTEXT

PUBLIC RESERVES & COMPANY FARMS

1 GOVERNOR'S RESERVE	9 NORTH DAIRY FARM
2 CLERGY RESERVE	10 CRAIGFLOWER FARM
3 CHURCH RESERVE	11 COLWOOD FARM
4 SCHOOL RESERVE	12 CONSTANCE COVE FARM
5 PARK RESERVE	13 VIEWFIELD FARM
6 INDIAN RESERVE	14 ESQUIMALT TOWNSITE
7 BECKLEY FARM	15 VICTORIA TOWNSITE
8 UPLANDS FARM	
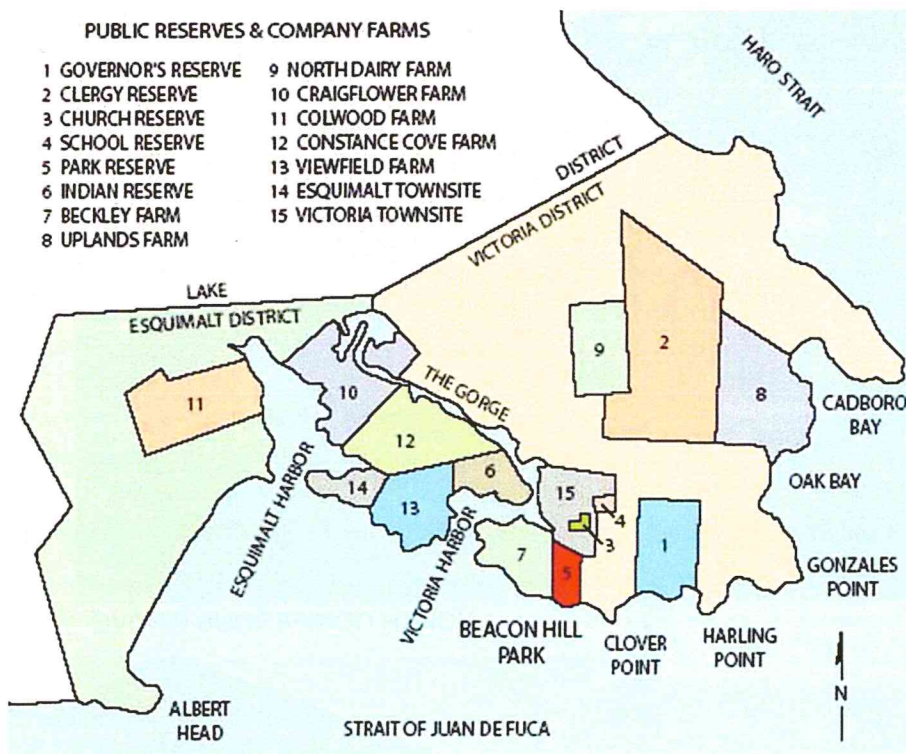
Image source:
Beacon Hill Park History
Chaoter 3 1847 - 1853
By Janis Ringuette
www.beaconhillparkhistory.org

The Wakefield System 1851

The Wakefield system was designed to exclude the lower classes from owning land. However, James Douglas needed surveys and accurate maps of the area in order to carry out the Wakefield land policies. While waiting for a surveyor to arrive, Douglas divided up land around Fort Victoria himself. In this way, Douglas and other HBC employees were able to select the first tracts. The largest Victoria landowners were not "gentlemen" but were instead middle class HBC employees. Not only did Company officers become the elite landowners in Victoria, many successfully made the transition from the fur trade to become founding fathers of the city and members of the Colonial government

For every eight square miles of land sold to private buyers, a square mile was to be reserved for "church and churchyard, schools, or other public purposes including parks.

1858 map shows the Original Properties of the five founding families of Victoria. .
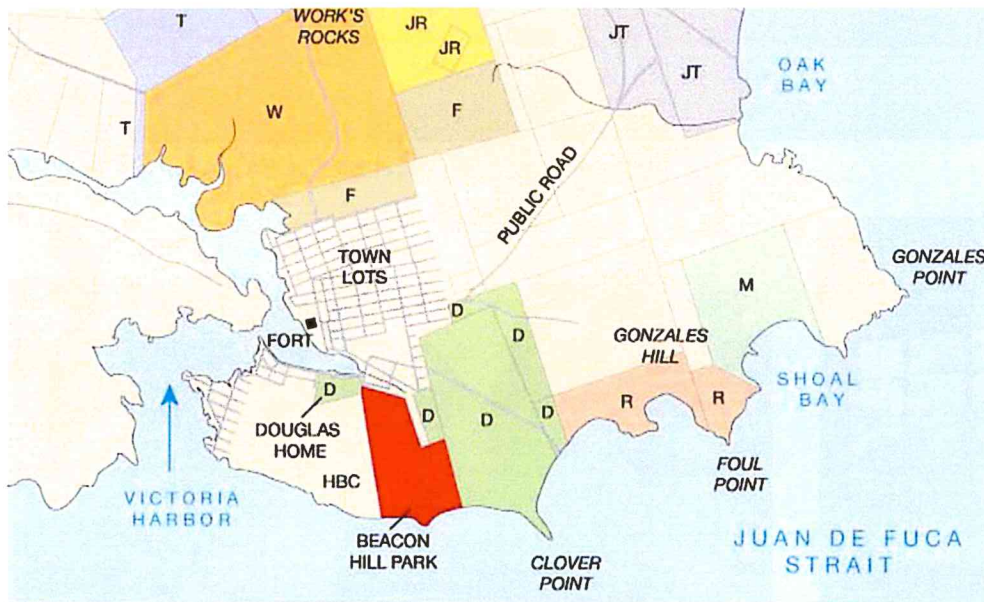
JT	JOHN TOD	D	JAMES DOUGLAS
JsT	JAMES TOD (ELDEST SON)	H	JOHN S HELMCKEN (SON-IN-LAW)
M	WILLIAM HENRY McNEILL	W	JOHN WORK
B	GEORGE BLENKINSOP (SON-IN-LAW)	F	RODERICK FINLAYSON (SON-IN-LAW)
R	ISABELLA ROSS	T	WILLIAM F TOLMIE (SON-IN-LAW)
JR	JOHN ROSS (ELDEST SON)	HBC	HUDSON BAY COMPANY

Image source:
Beacon Hill Park History
Chaoter 3 1847 - 1853
By Janis Ringuette
www.beaconhillparkhistory.org

3.3 SITE HISTORY

Title: Hillside Jail, Victoria, Warden R. F. John and ...

Hillside Gaol   The 66-cell structure opened in 1885 to replace the Police Barracks and Gaol in Bastion Square. Following a fire in 1912 it was demolished. The site remained vacant until the construction of S.J. Willis school in 1950
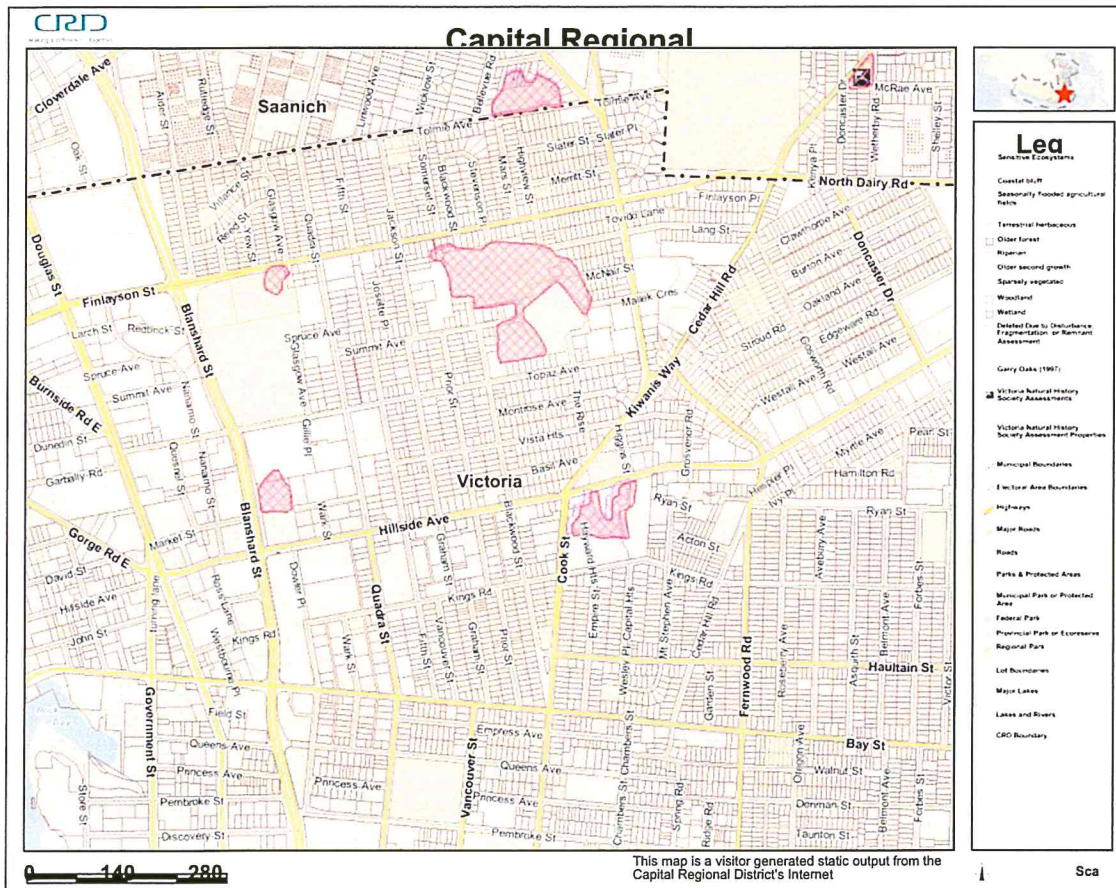

IMAGE SOURCE: SD 61

3.3 SITE HISTORY
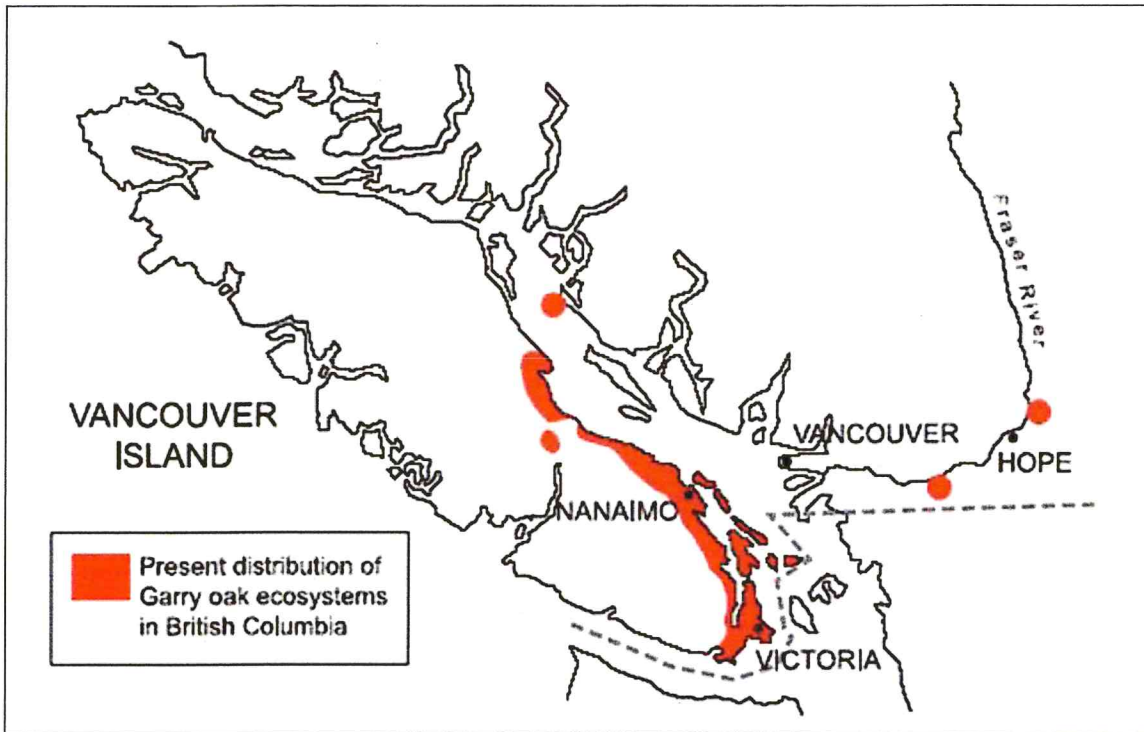
IMAGE SOURCE: CRD WEBSITE

REMAINING GARRY OAKS (1997)

3.4 SITE ENVIRONMENT

CAMAS FLOWER

Common Garry Oak Meadow Plants
Camas (Camassia quamash)
Shooting Star (Dodecatheon spp.)
Chocolate lily (Fritillaria lanceolata)
White Fawn Lily (Erythronium oregonum)
Satin Flower (Sisyrnchium douglasii)
Nodding Onion (Allium cernuum), Brodiaea)
Western Buttercup (Ranunculus occidentalis)
Red Columbine (Aquilegia formosa)
Sea Blush (Plectritis congesta)
Yellow Montane Violet (Viola praemorsa)
Deltoid Balsamroot (Balsamorhiza deltoidea).

EXISTING GARRY OAKS ON THE SITE

GARRY OAK BARK

Garry Oak meadows were once common throughout southeastern Vancouver Island. The Coast Salish people managed the land by using controlled burning to keep the meadows clear of underbrush in order to cultivate Camas. This blue wildflower grows from bulbs that provided an important food staple rich in carbohydrates.

Controlled burning was necessary to prevent the encroachment of shrubs and other large trees. However, Garry Oak meadows can dominate without human assistance in sites with shallow soil. They are often found intermixed with Arbutus and Douglas Fir Trees.

3.4 SITE ENVIRONMENT

TOPAZ AVE.

PARKING

PARKING

PARKING

PARKING

MARKET ST/

BLANSHARD ST

QUADRA ST

HILLSIDE AVE.

- - - PEDESTRIAN

—— VEHICLE

HT RON

EXISTING CIRCULATION

3.5 SITE DEVELOPMENT

TOPAZ AVE.

BLANSHARD ST

MARKET ST/

QUADRA ST

HILLSIDE AVE.

NO ADDITIONAL PARKING IS ADDED TO THE SITE DUE TO PROXIMITY OF PUBLIC TRANSIT AND HIGH DENSITY RESIDENTIAL

PROPOSED CIRCULATION

3.5 SITE DEVELOPMENT

TOPAZ AVE.

BLANSHARD ST

QUADRA ST

MARKET ST/

HILLSIDE AVE.

2 nodes connected by a Learning Street

Use the entire site as an opportunity for learning

HTRON

NODES

3.5 SITE DEVELOPMENT

North Node - Community Library Fitness & Arts

New building

Home Bases

BLANSHARD ST

Home Bases

Home Bases

Senior Center Daycare

Cafe, Health Clinics, Office

MARKET ST/

QUADRA ST

HILLSIDE AVE.
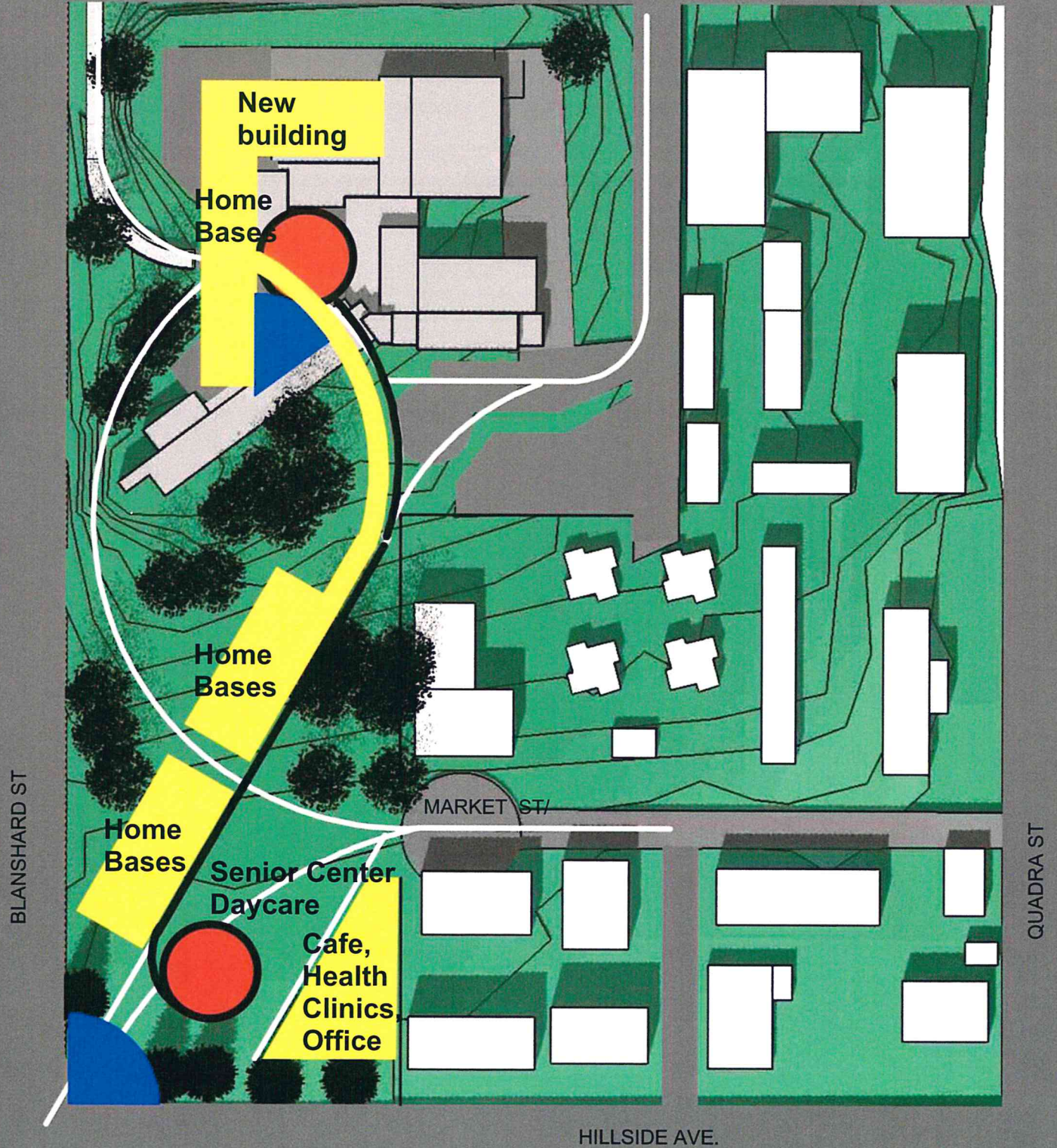
South Node - Community Service Center

NEW BUILDINGS

3.5 SITE DEVELOPMENT

GRASS
MOGULS

PLAY
GROUND

COMM.
GARDEN

POND

HILLSIDE AVE.

MARKET ST

3.6 SITE MODEL

3.7 SITE PLAN
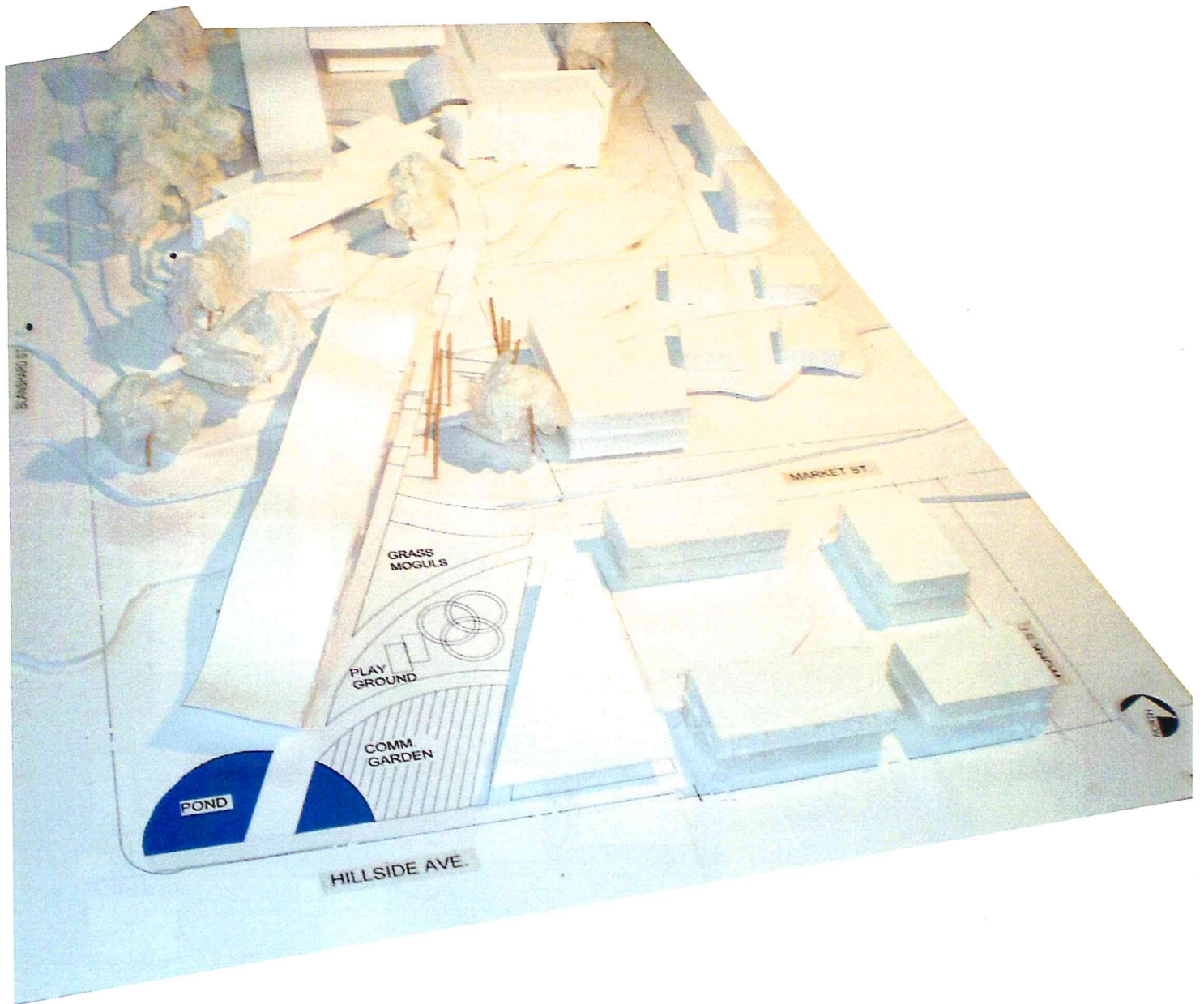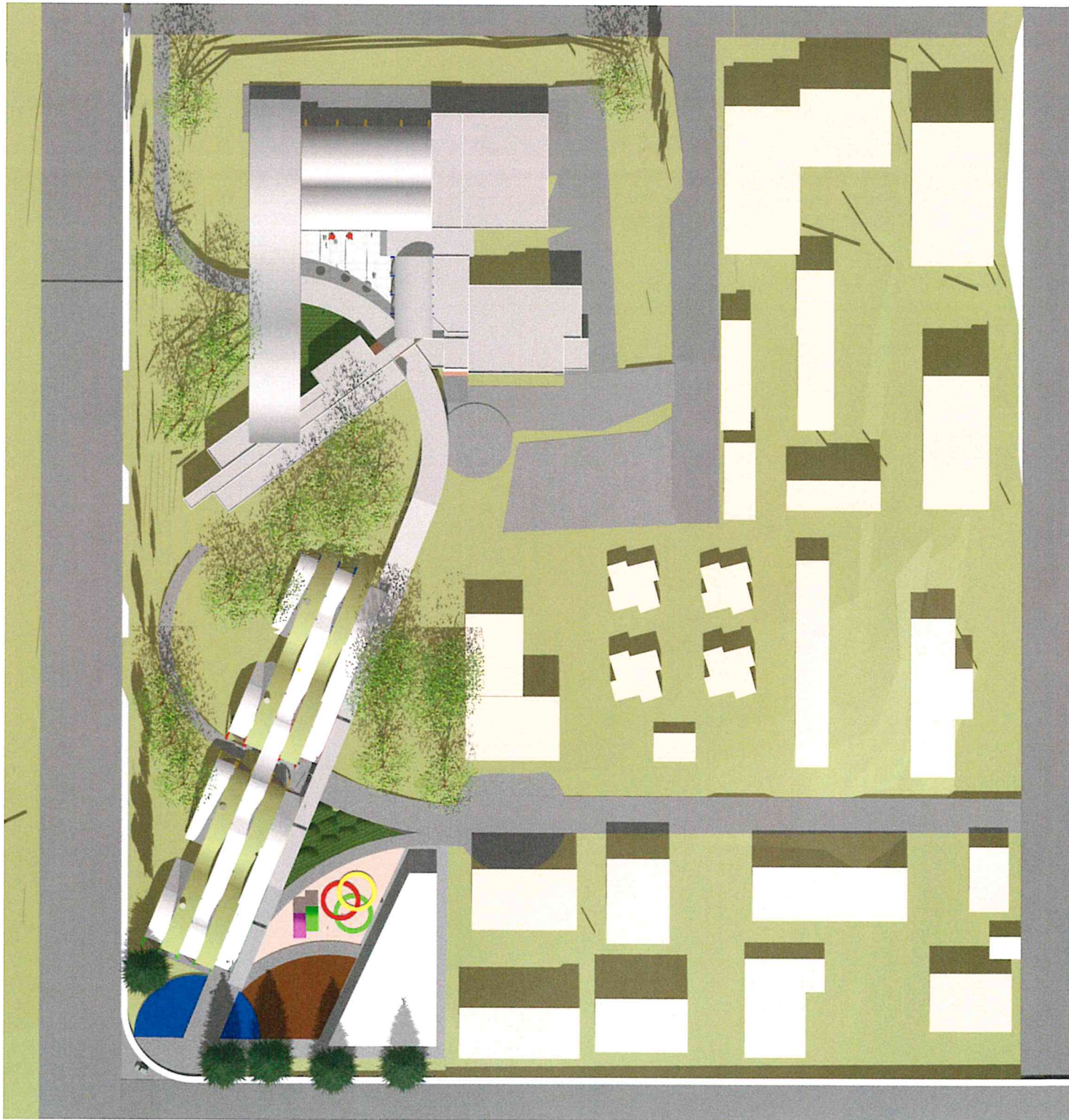
CHAPTER 4.0
HOME BASE

21st century classrooms are no longer rooms for classes to be taught. They are a home away from home for students. A Home Base

A Home Base for students to gather, work, discuss and debate with the help of mentors such as instructors and librarians.

A Home Base from which students explore the greater community and environment.

A Home Base where students can integrate with the community and families.

I took the approach of making the spaces flexible so that they could accommodate the ebb and flow of student populations as well as be used for a variety of uses by all people of the community.

Thus the people will adapt them to their best use at any given time.

UNDISTURBED WORK NICHE

Modern chalkboards

PRESENTATION & DISPLAY

TEACHER SPACE

WORK PROJECT TABLES

Flexible PC workstations

VS International School Furniture originally built furniture for Maria Montessori.

Testing shows students perform better with chairs that move and better still when both work surfaces and chairs are configurable.

All furniture is on castors and stackable for maximum flexibility

DYNAMIC SITTING

BREAK OUT SEATING

All images from VS Furniture Website

MOBILE STORAGE

HSS Steel Space Frames
Painted primary colors

Student outdoor
spaces

Varied street width
allows lay bys which
create viscosity

Steel space frames
support the street
roof and frame the
space for seating

Convex / concave seating
allows to rest facing both the
park and the street

Accessible roof with clearstorey win-
dows allows visibility to both interior
and exterior activities.

Criteria for Home Bases

Work space - Group Individual Work
Lounge space - Relax & Socialize
Common work space between home bases
Outdoor space
Flexible - Configurable
Transparent

Continuous covered walk

4.2 SPACE FRAMES
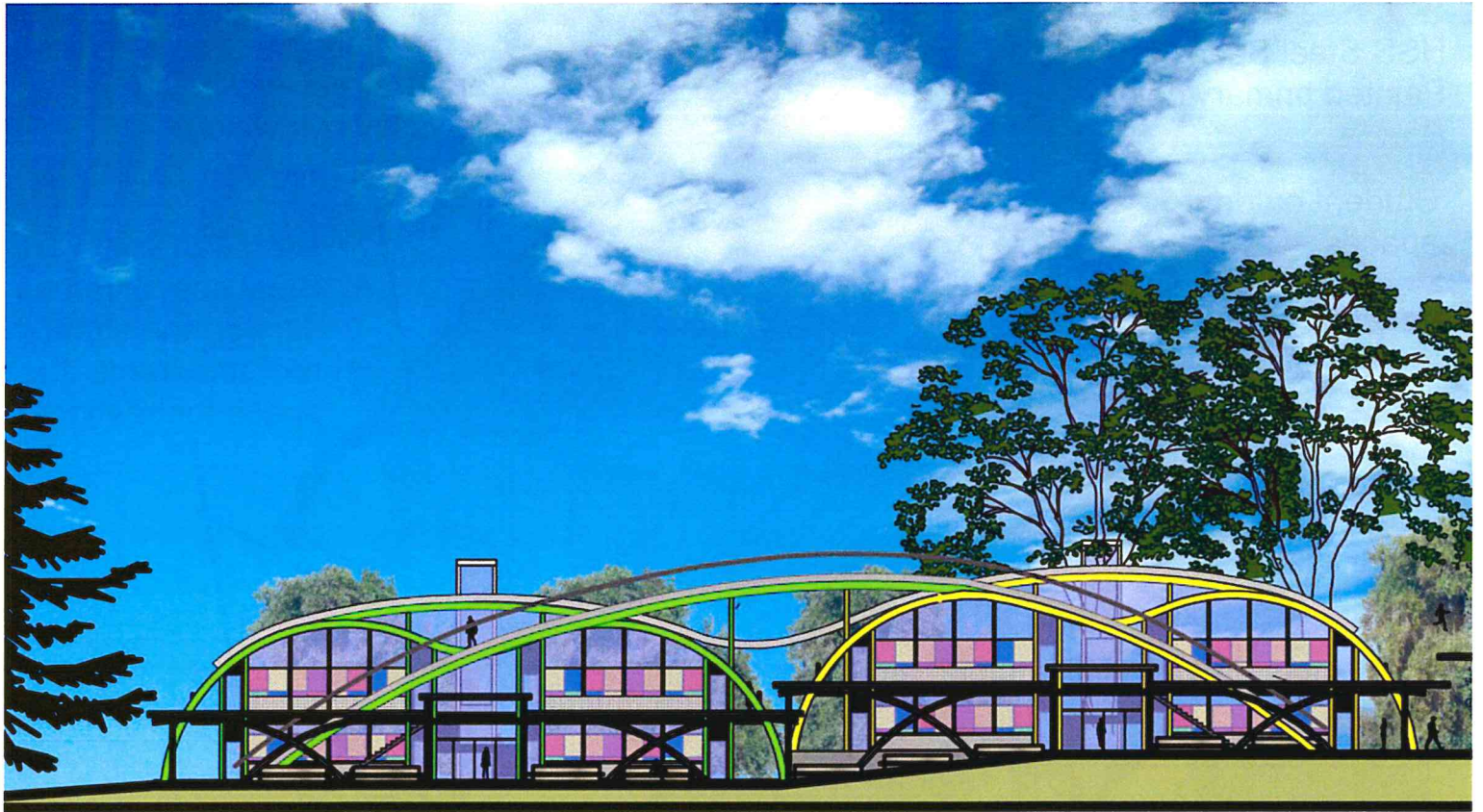
MOVABLE COLORED STORAGE
UNITS CREATE A CONSTANTLY
CHANGING MOSAIC

SITE ELEVATION

MAIN LEVEL PLAN

4.3 MAIN PLANS & ELEVATIONS
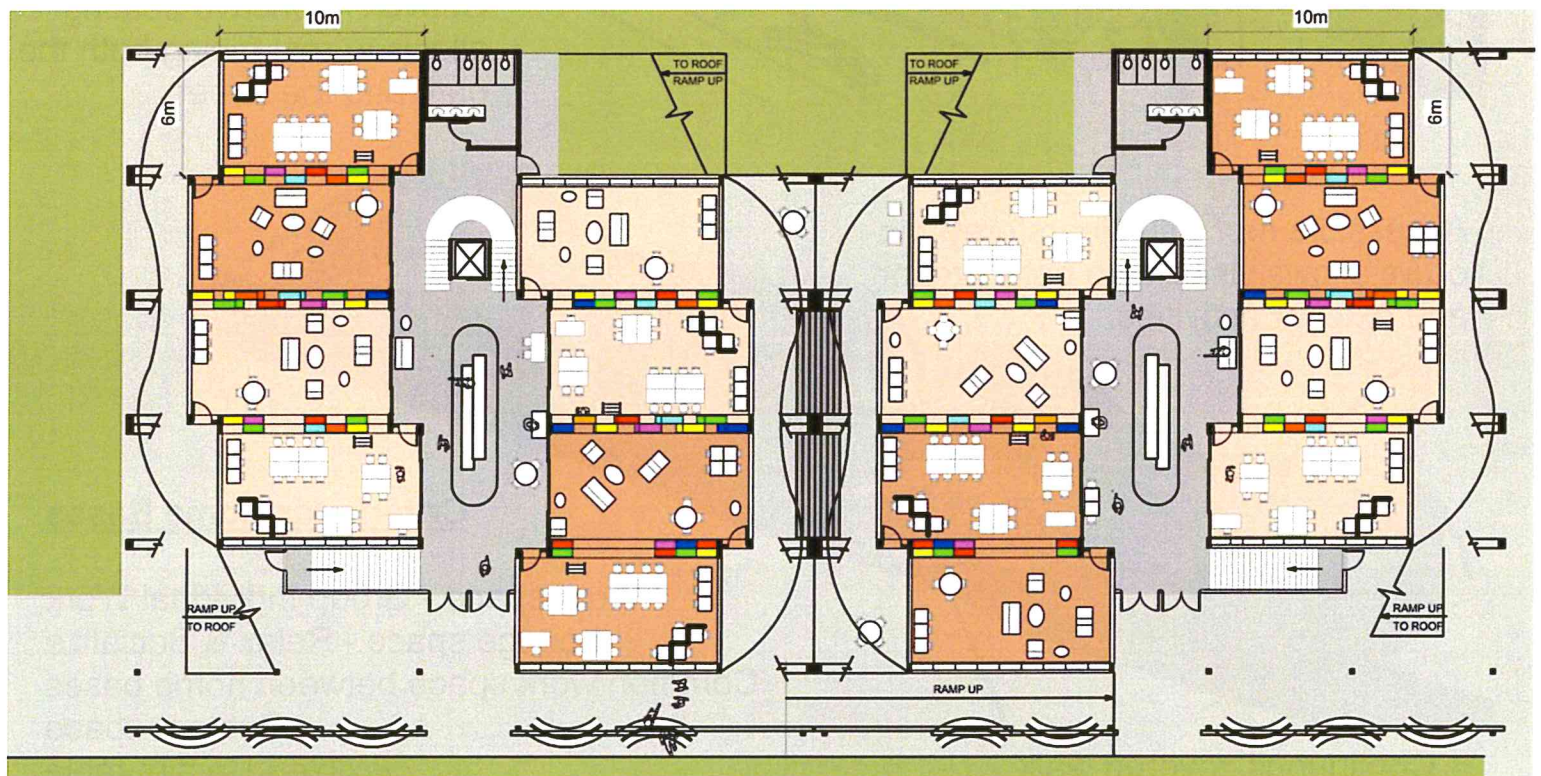
SITE ELEVATION

STREET RAMP &
BUILDINGS FOLLOW
NATURAL GRADE

EXISTING GARRY OAKS
25M HT.

MAIN LEVEL PLAN

4.3 MAIN PLANS & ELEVATIONS
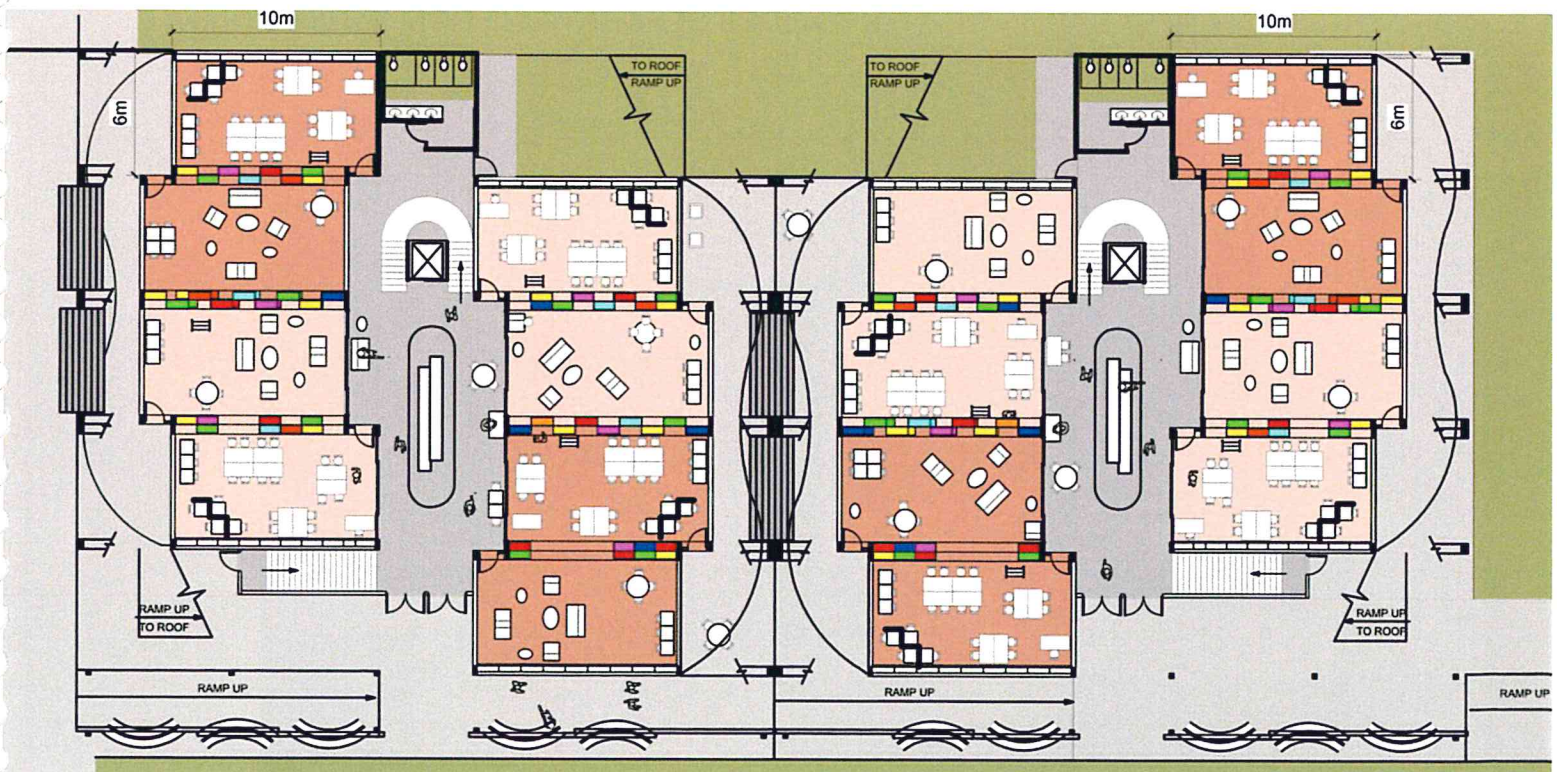
MAIN LEVEL COMMON AREA

PASTE UP ON GLASS FOR
DISPLAY TO CREATE DEGREE

GLASS SLIDERS

MILLWORK STORAGE AND COUNTER
PROVIDES SEPARATION FROM STREET
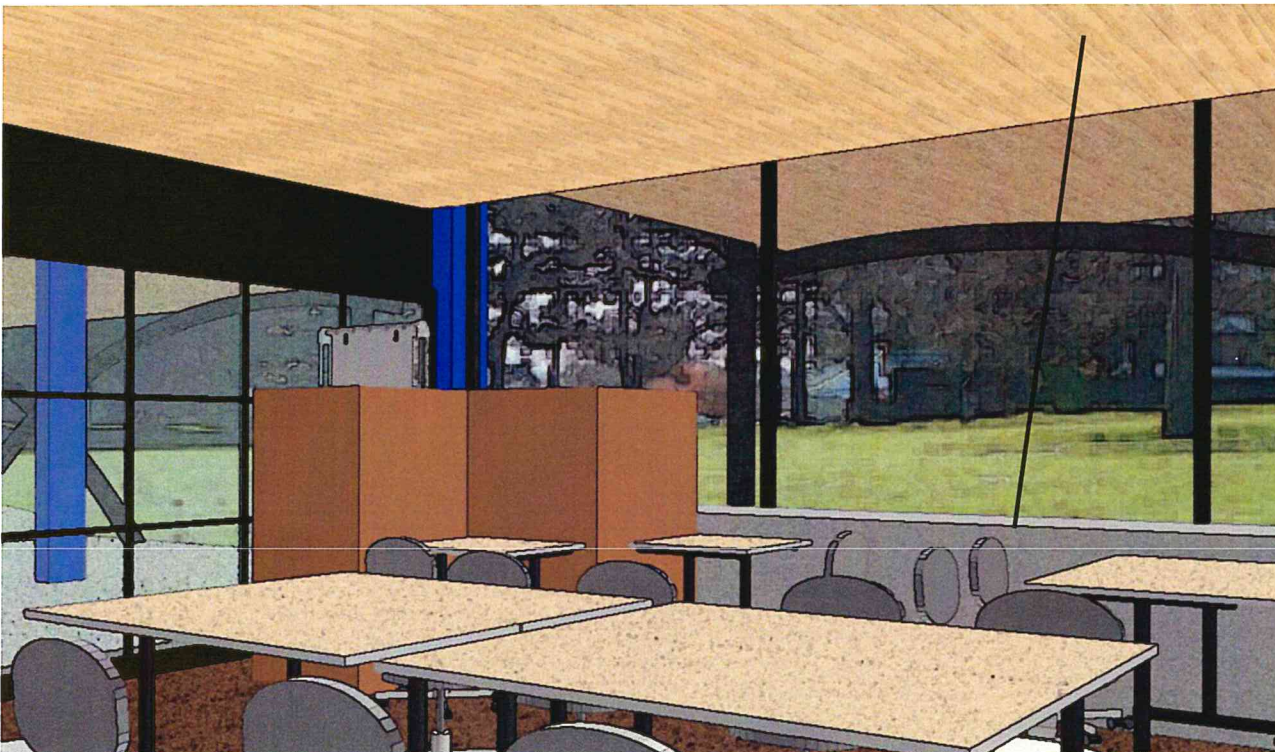
VIEW TO LEARNING
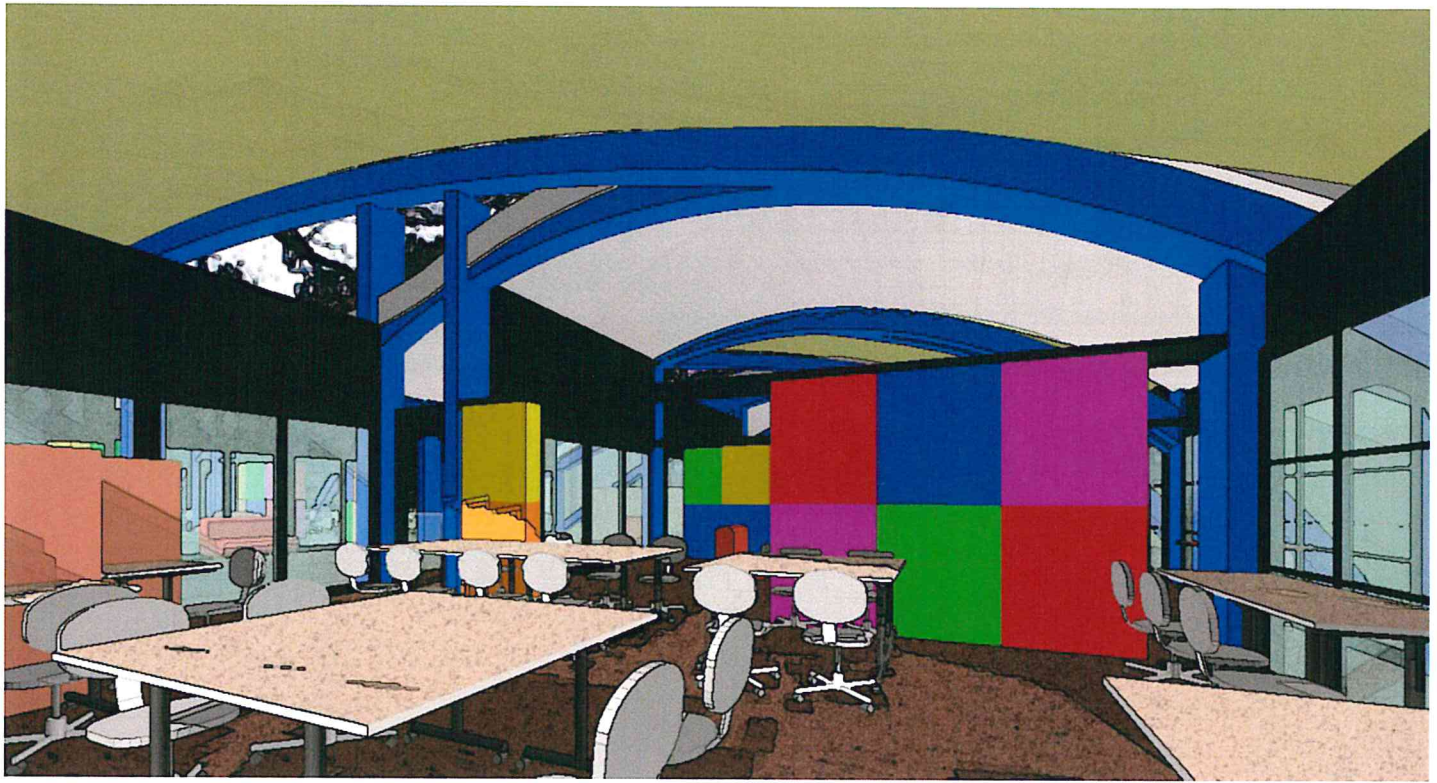
4.4 INTERIORS

UPPER LEVEL VIEW

INTERIOR PARTITIONS
CONFIGURABLE BY
USERS

STEEL BEAM
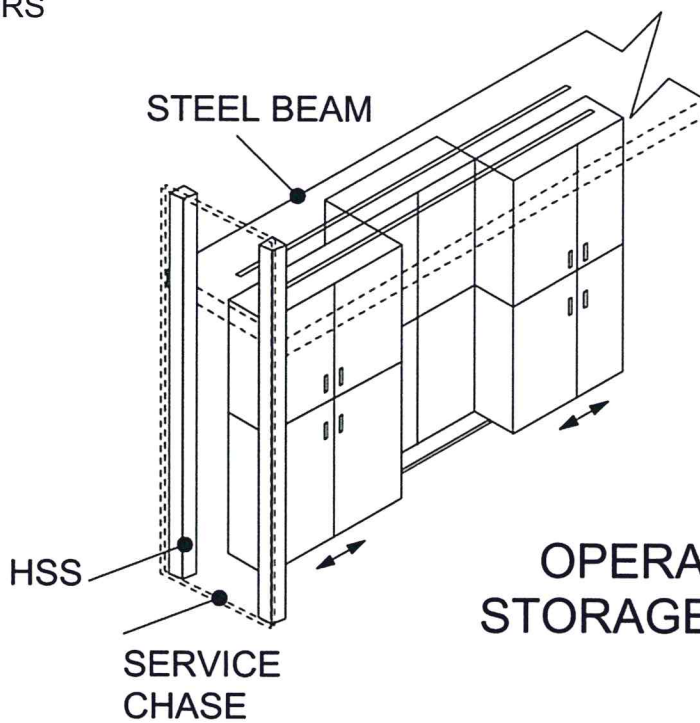
EXTERIOR WALLS
TRANSPARENT AND
OPERABLE FOR NATURAL
VENTILATION

HSS

**OPERABLE
STORAGE WALL**

SERVICE
CHASE
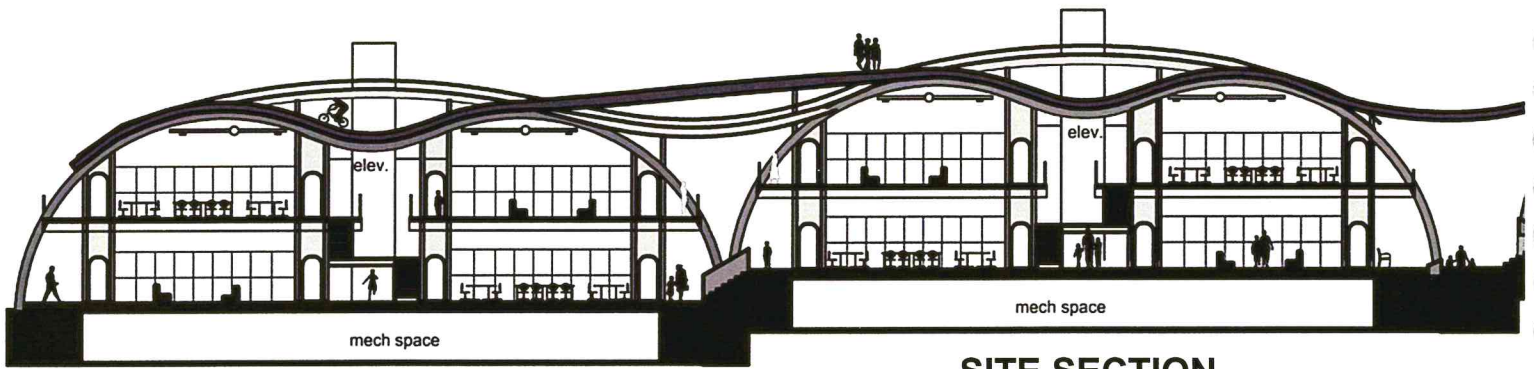
SITE SECTION

UPPER LEVEL PLAN

GREEN ROOF

ROOF PAVERS

EXISTING GARRY OAKS
24M HT.
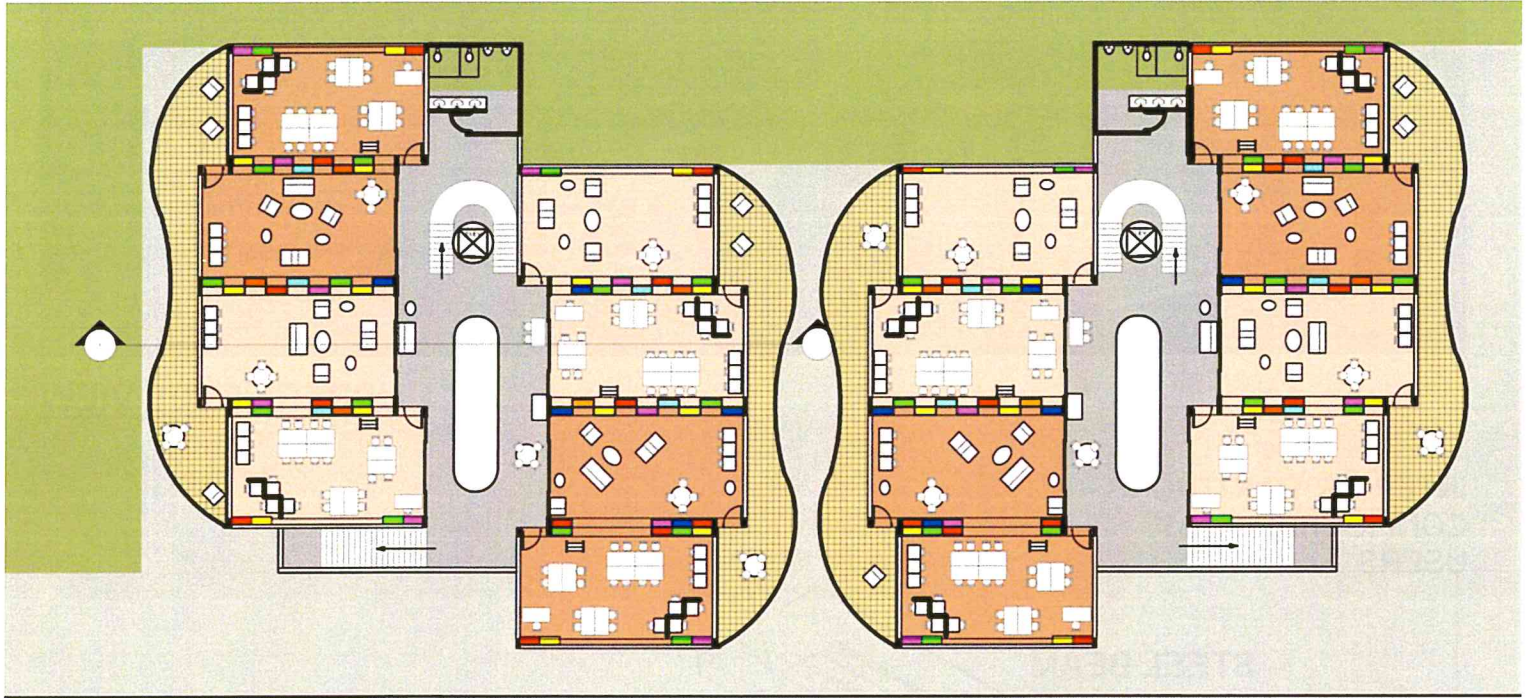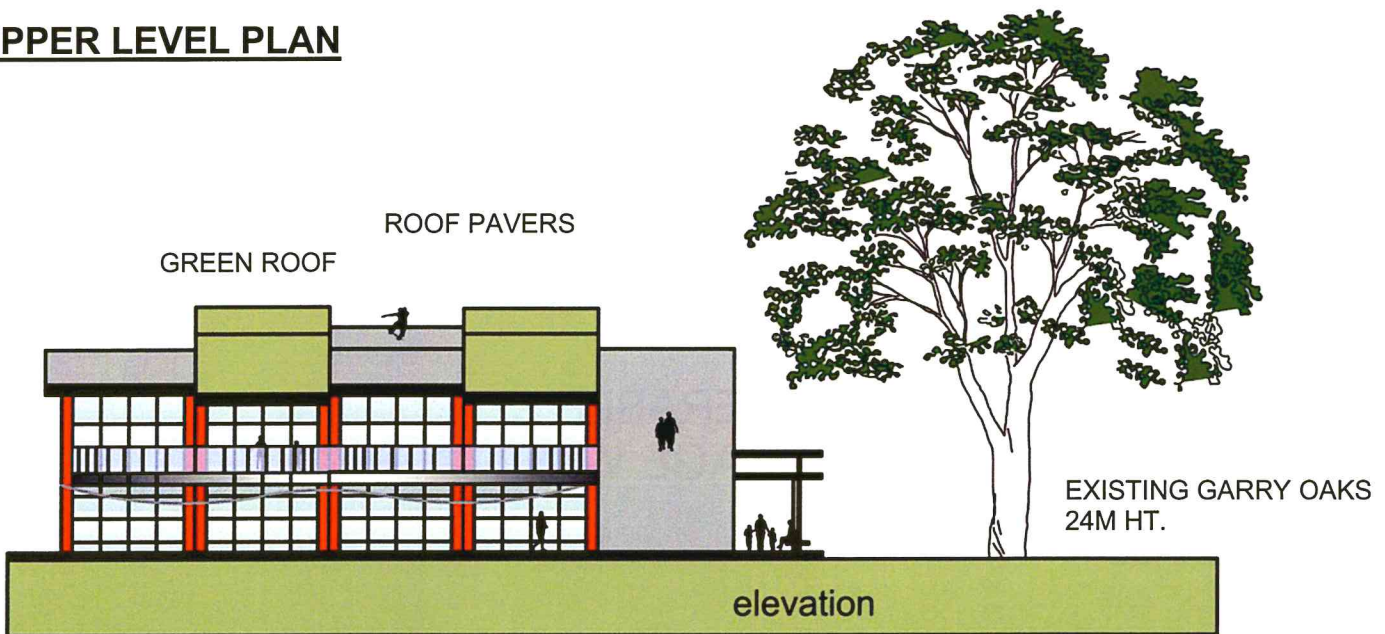
elevation

SOUTH ELEVATION TYP.

4.5 UPPER PLANS & SECTIONS
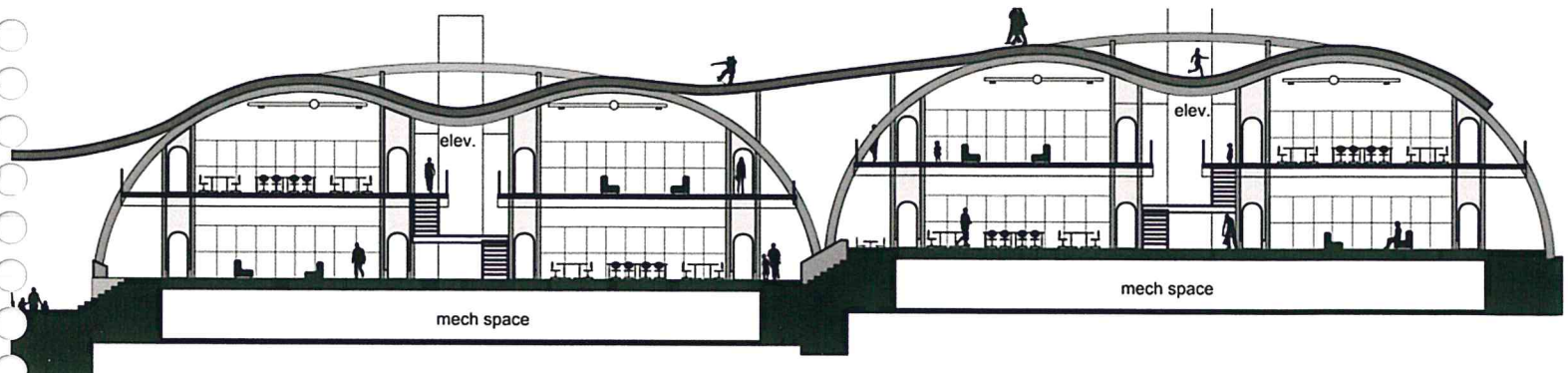
1.5 METER HEIGHT DIFFERENCE BETWEEN BUILDINGS
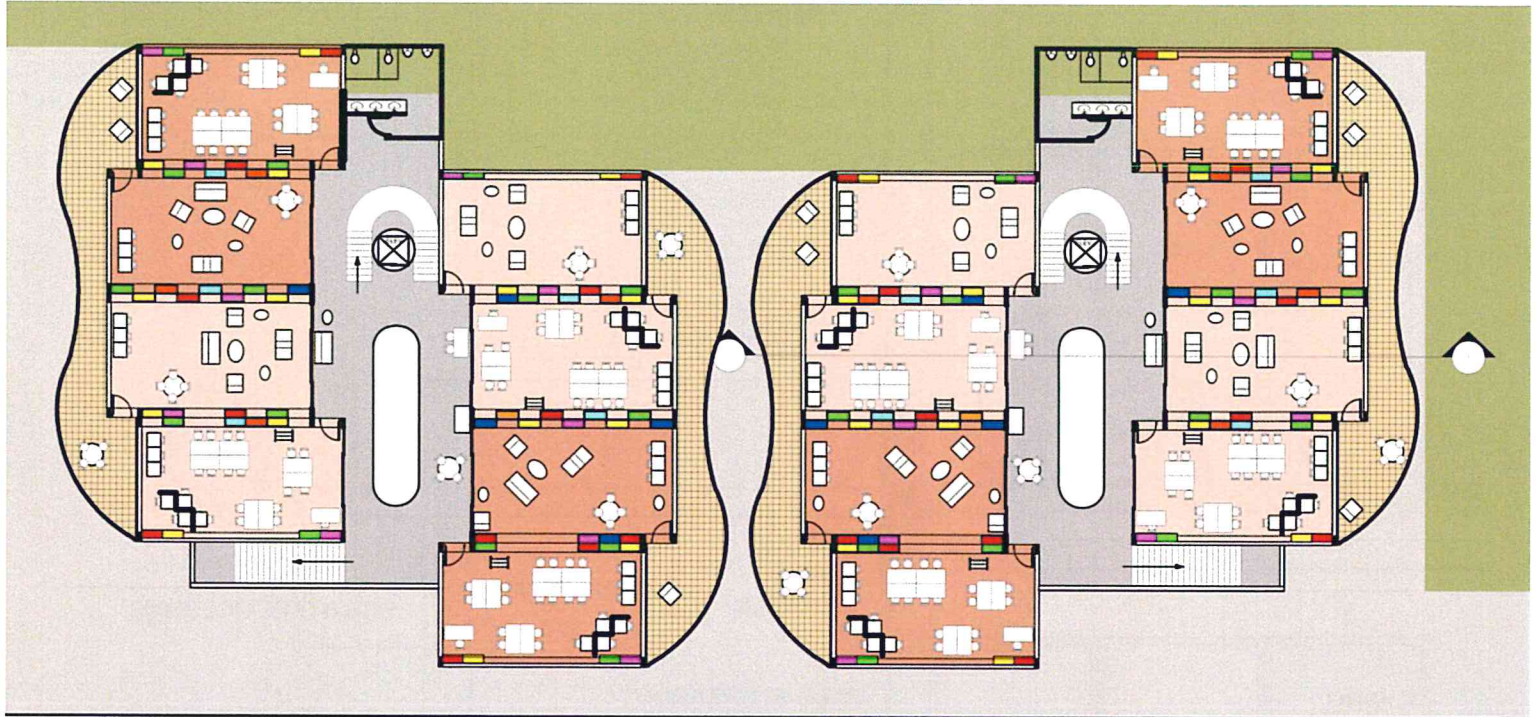
UPPER LEVEL PLAN

EXISTING GARRY OAKS

VIEW OF ROOFSCAPE

4.5 UPPER PLANS & SECTIONS

PAVERS ON
INVERTED ROOF

HSS FRAME
PAINTED

METAL ROOF ON
STEEL FRAME

METAL
WALL
PANELS

WOOD SOFFIT

HSS STEEL COLUMNS

SLIDING
STOREFRONT

FIXED STOREFRONT

PAVERS

4.5m

BASEMENT

SECTION AT COVERED WALK

Labels on the section drawing:
- GROWING MEDIUM
- MEMBRANES
- INSULATION
- CONCRETE
- METAL ROOF DECK
- HSS STEEL PURLIN
- OPERABLE STORAGE WALL
- GLASS
- GLASS
- ALUM RAILING
- HSS STEEL FRAME
- METAL WALL PANEL
- SUSP. CLG
- GLASS
- STOREFRONT
- GLASS
- WOOD SOFFIT
- BASEMENT

SECTION BETWEEN HOME BASES

Inverted Roof

This design positions the waterproofing layers directly above the structural deck and below the impervious high density extruded polystyrene thermal insulation layer. An inverted roof system can withstand very high loading and is the preferred option for trafficked and hard landscaped areas.

Design Considerations:

1. With an inverted Roof the design must allow for a loss of efficiency in the thermal insulation, as rainwater drains directly over and through the the insulation layer. Refer to table on page 22
2. Insulation Boards are loose laid and must be adequately restrained against wind uplift or rotation.

Typical Inverted Roof Build Up
- 80mm Paving Slabs
- Icopal Filter Fleece
- Icopal Paving Support Pad
- Icopal Thermazone PIR Board
- Icopal Primer
- Concrete Deck with Screed to Falls 1:80
- Icopal Roofbar Capsheet
- Icopal Roofbar Underlay
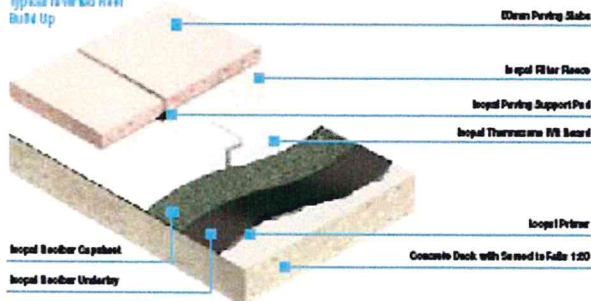
Warm Roof

The warm roof design encapsulates the thermal insulation within the waterproofing layers. This requires the use of a high quality vapour control layer and calculation of the dew point to ensure that there is no condensation risk within the roof build up.

In a warm roof system the waterproofing layers incorporating root inhibitors are positioned above the insulation layer. Care must therefore be taken during maintenance of the Green Roof to prevent damage.
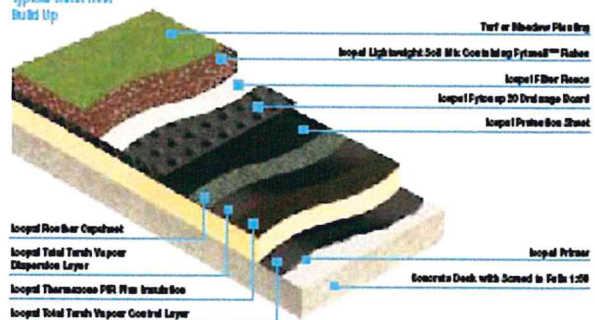

Typical Warm Roof Build Up
- Turf or Meadow Planting
- Icopal Lightweight Soil Mix Containing Fytocell™ Foam
- Icopal Filter Fleece
- Icopal Fytocup 20 Drainage Board
- Icopal Protee Box Sheet
- Icopal Roofbar Capsheet
- Icopal Total Torch Vapour Dispersion Layer
- Icopal Thermazone PIR Flex Insulation
- Icopal Total Torch Vapour Control Layer
- Icopal Primer
- Concrete Deck with Screed to Falls 1:80

IMAGE SOURCE: ICOPAL LTD.

4.6 DETAILS

HSS BUILDING FRAMES CREATE IMPLIED SPACE BELONGING TO STUDENTS
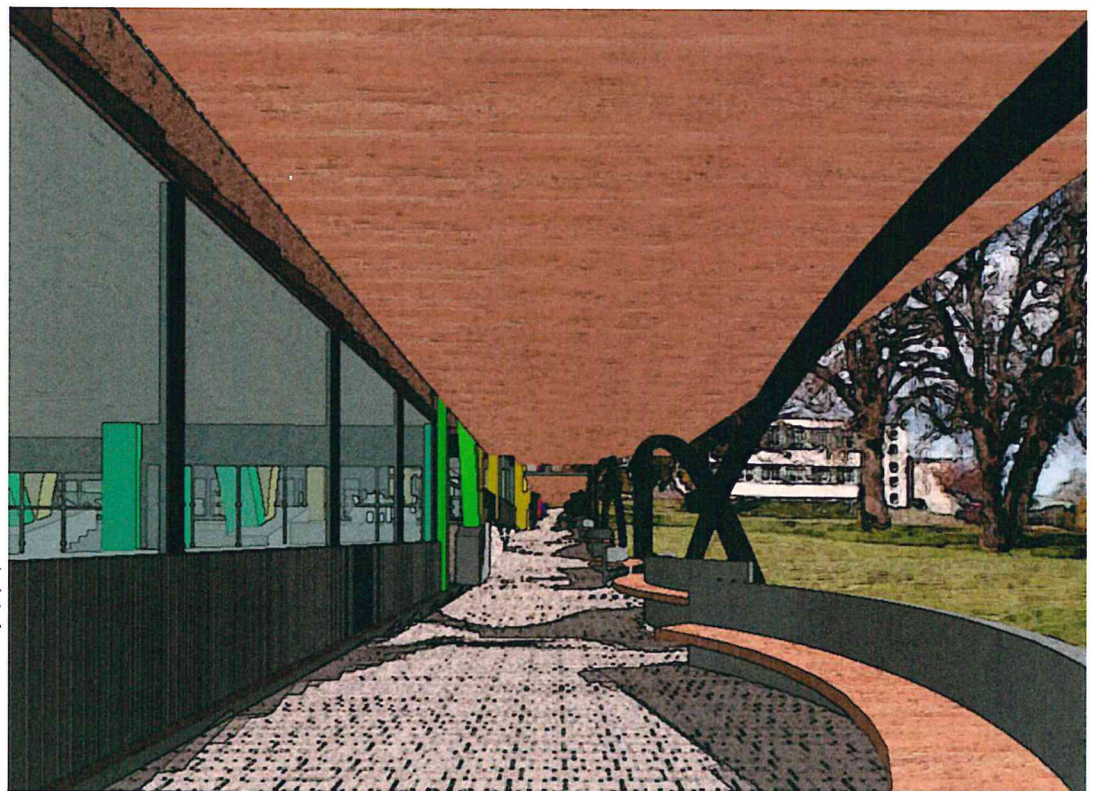
CONCRETE BASES CREATE SPACE FOR SEATING AND STAIRS

VARIED STREET WIDTH CREATES EDDIES AND LAYBYS FOR INFORMAL GATHERINGS
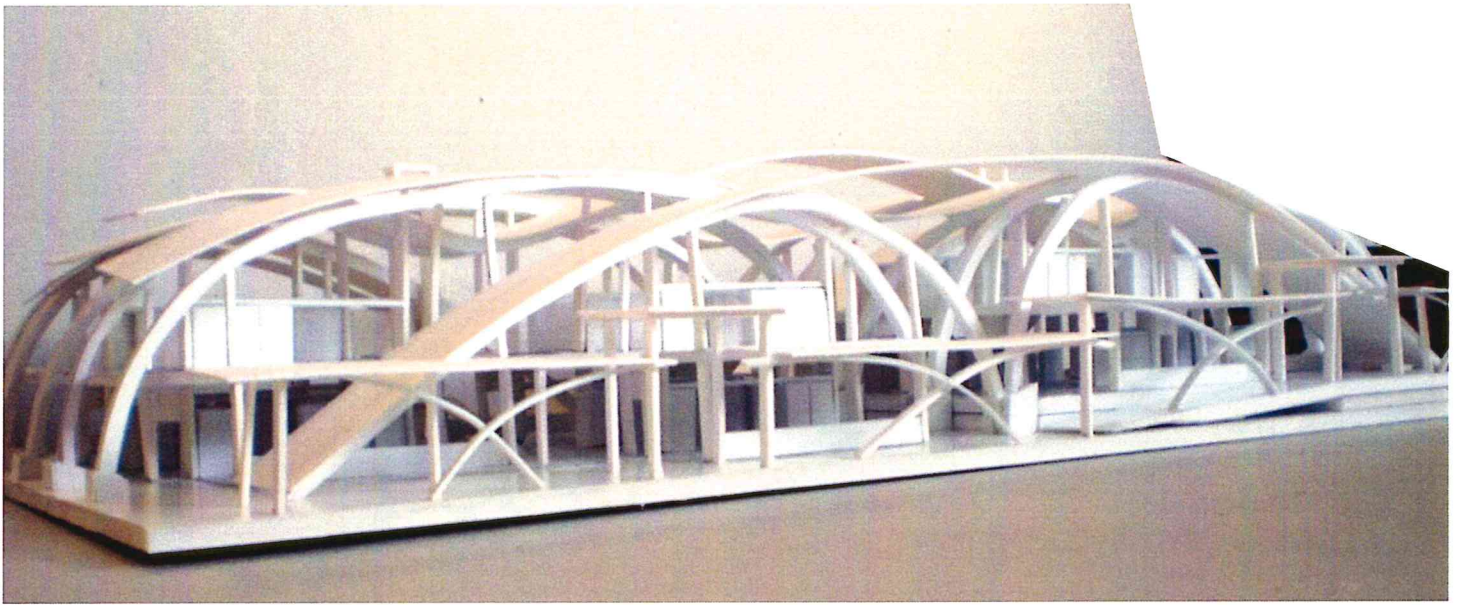
4.7 LEARNING STREET
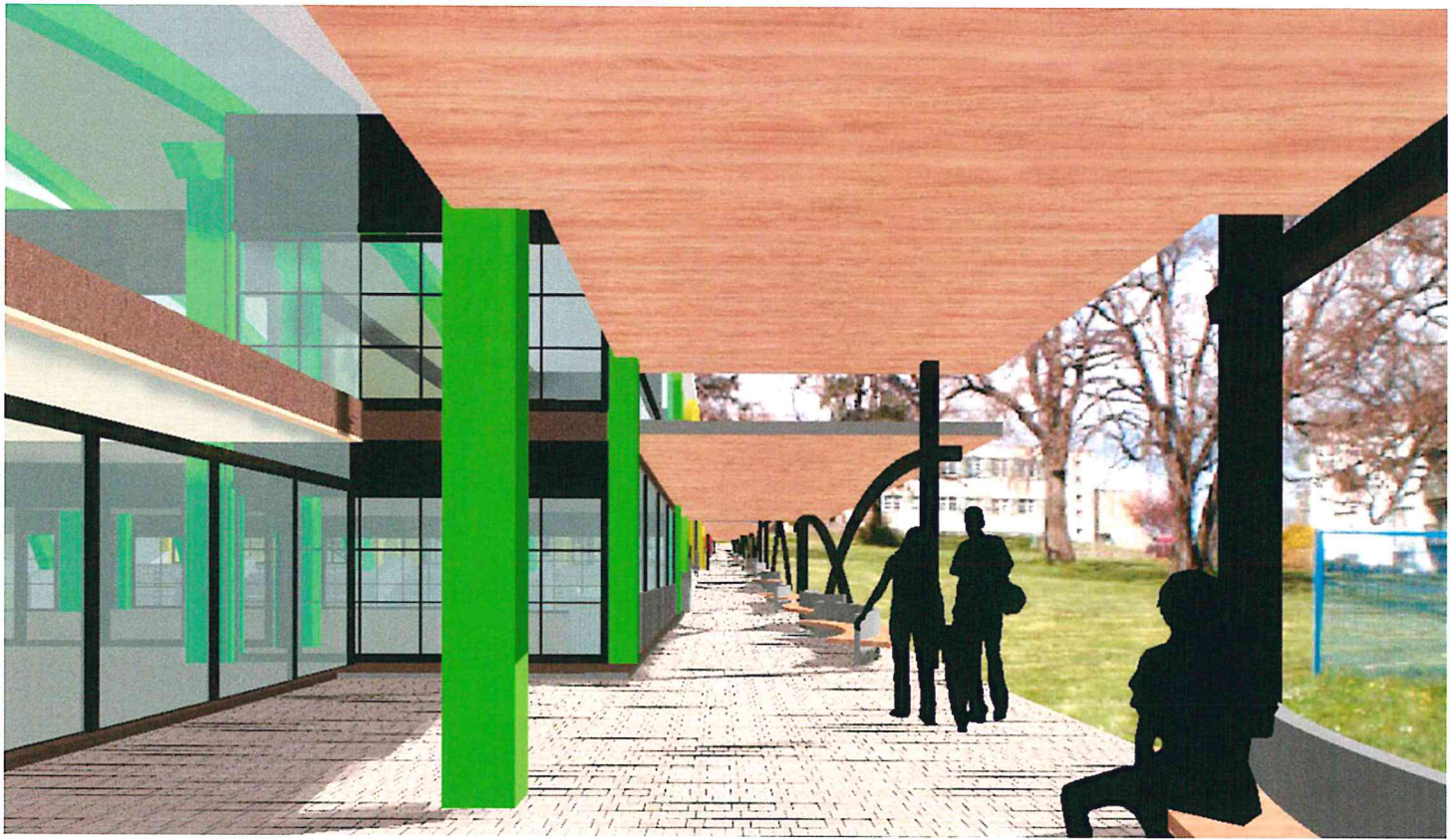
SEATING ALONG CIRCULATION ROUTES CREATES VISCOSITY
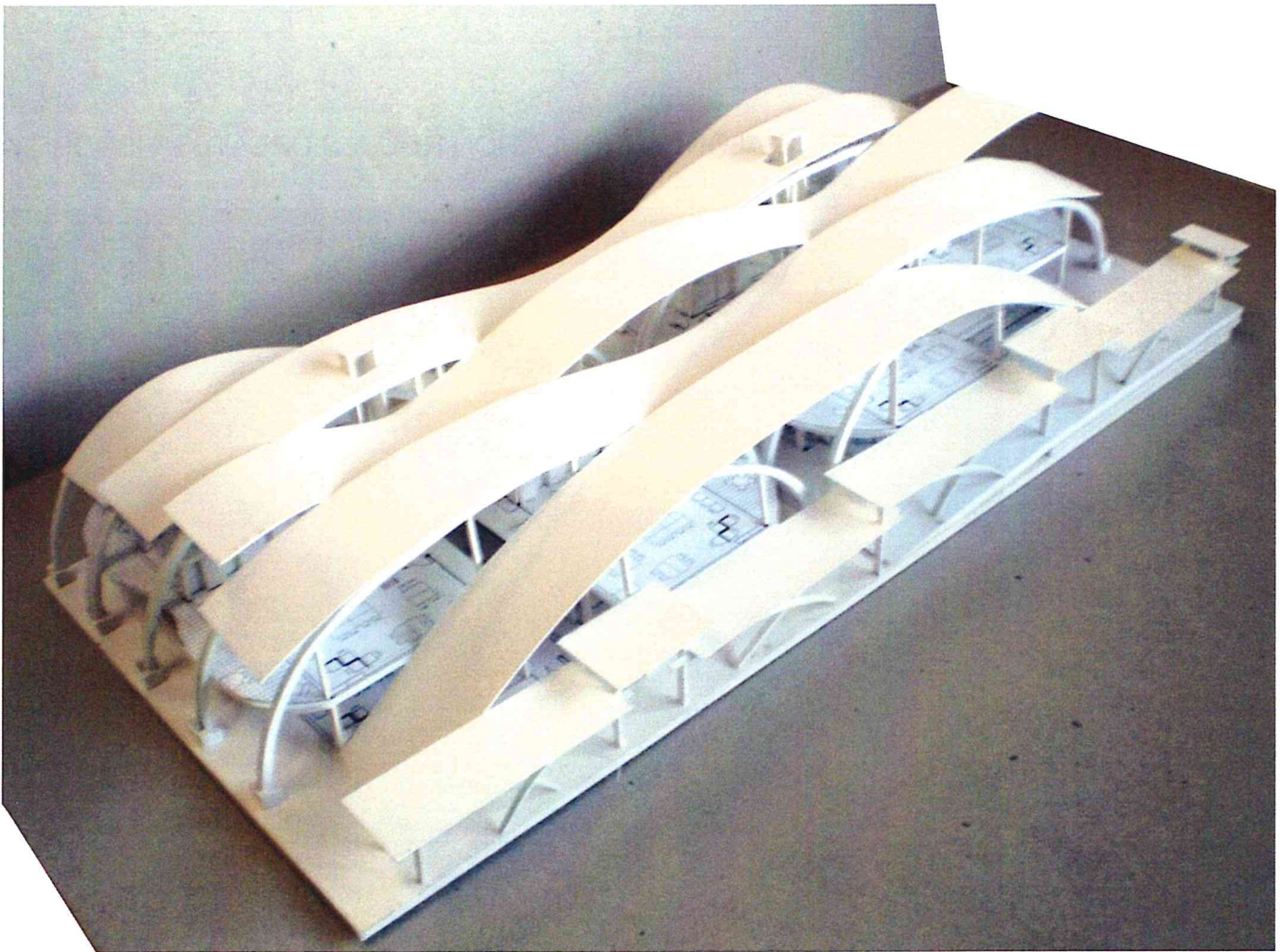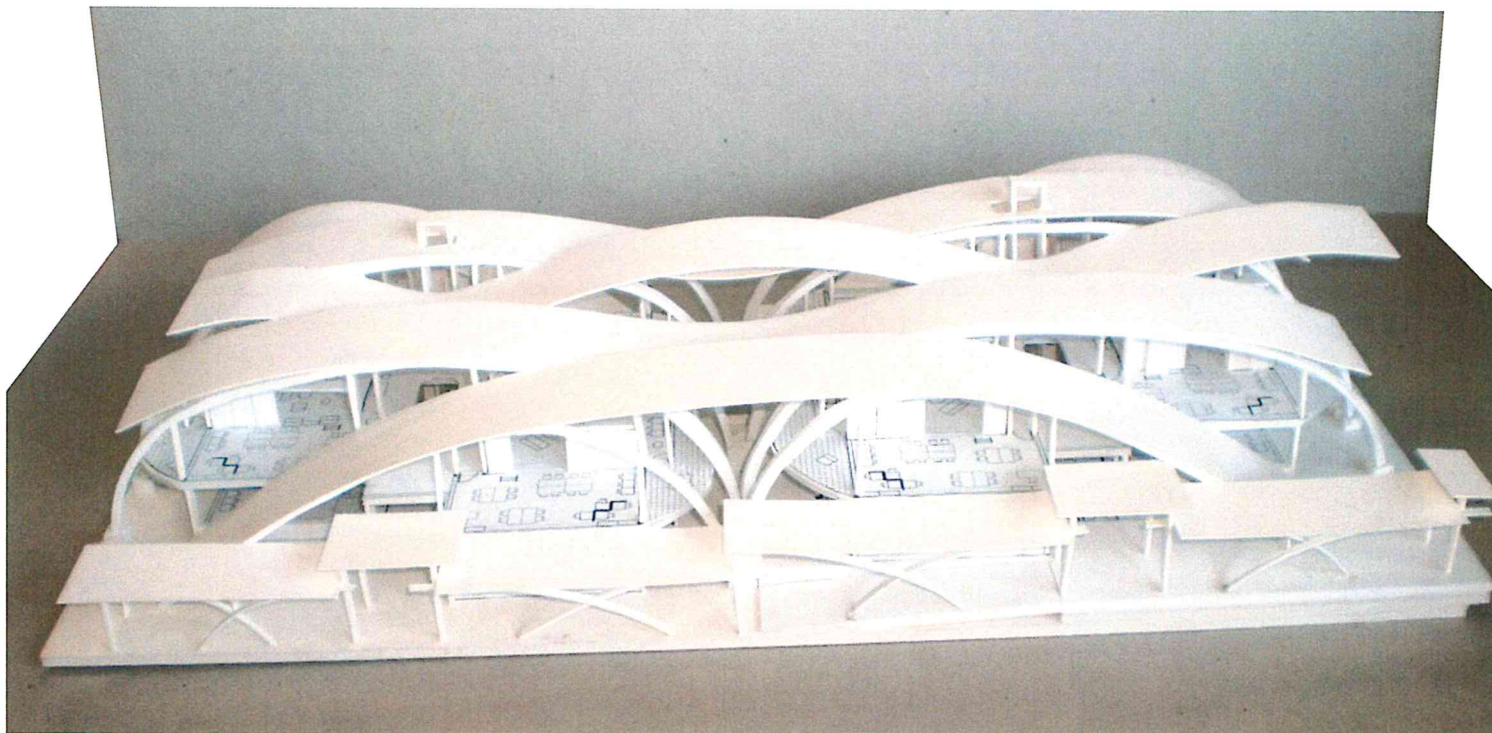
PAVERS CREATE
TEXTURE AND
INTEREST TO THE
STREET

LOW WALL WITH
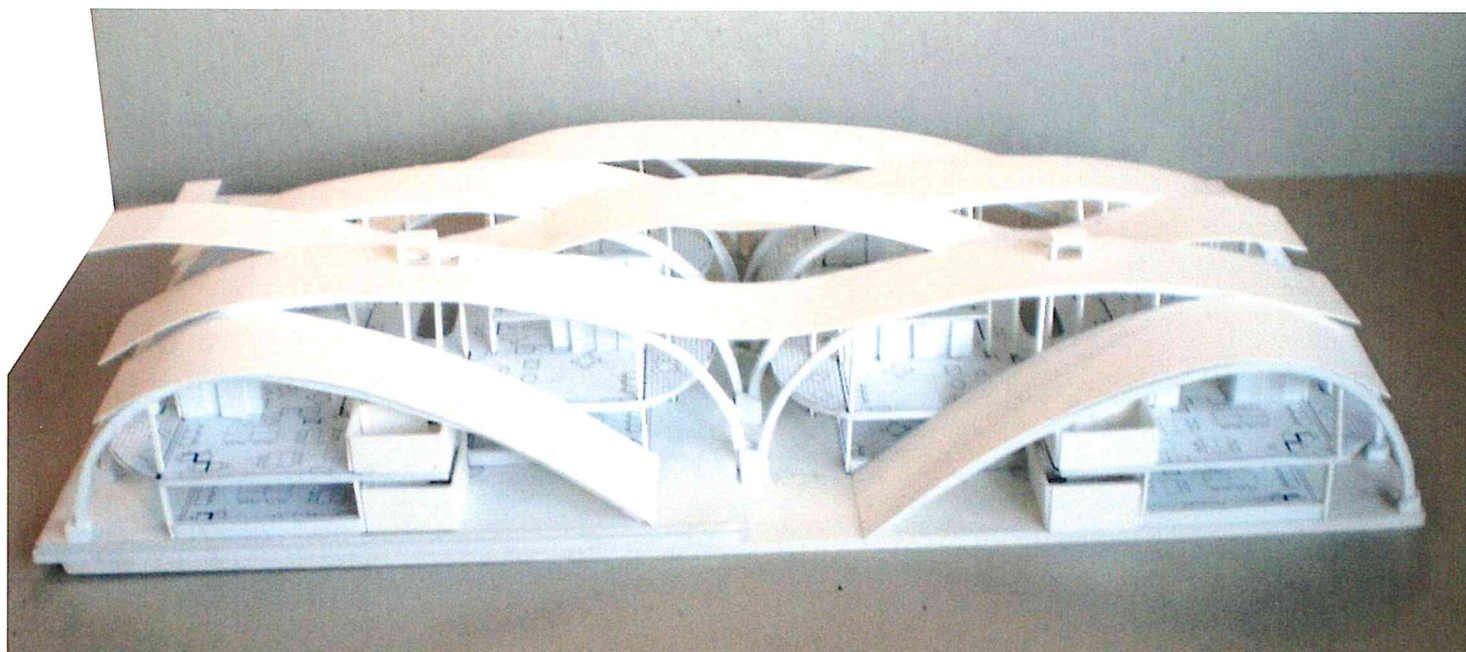STORAGE MILLWORK
CREATES ENCLOSURE
FROM THE STREET

4.7 LEARNING STREET

MODEL OF 2 HOME BASE UNITS 200 STUDENTS EACH

4.8 MODEL

VARIED ROOF HEIGHTS OVER STREET ALLOW LIGHT AND VIEW OF SKY

ELEVATION FACING BLANSHARD ST

4.8 MODEL

CHAPTER 5.0
SOUTH NODE
COMMUNITY SERVICE

The south west corner of the site at Hillside & Blanshard currently experiences high volume of pedestrian traffic. People travel across the site between the residential community to the east and the commercial retail areas on the west side of Blanshard.

Due to the high volume of vehicle traffic the intersection is not pedestrian friendly.

I took the approach of locating the community service spaces on either side of a play area and community garden which will benefit from the existing flat grade and southern exposure. The retail frontage along Hillside could be continued towards the corner with Neighbourhood of Learning uses.

REPLACE GRASS WITH GARRY OAK MEADOW
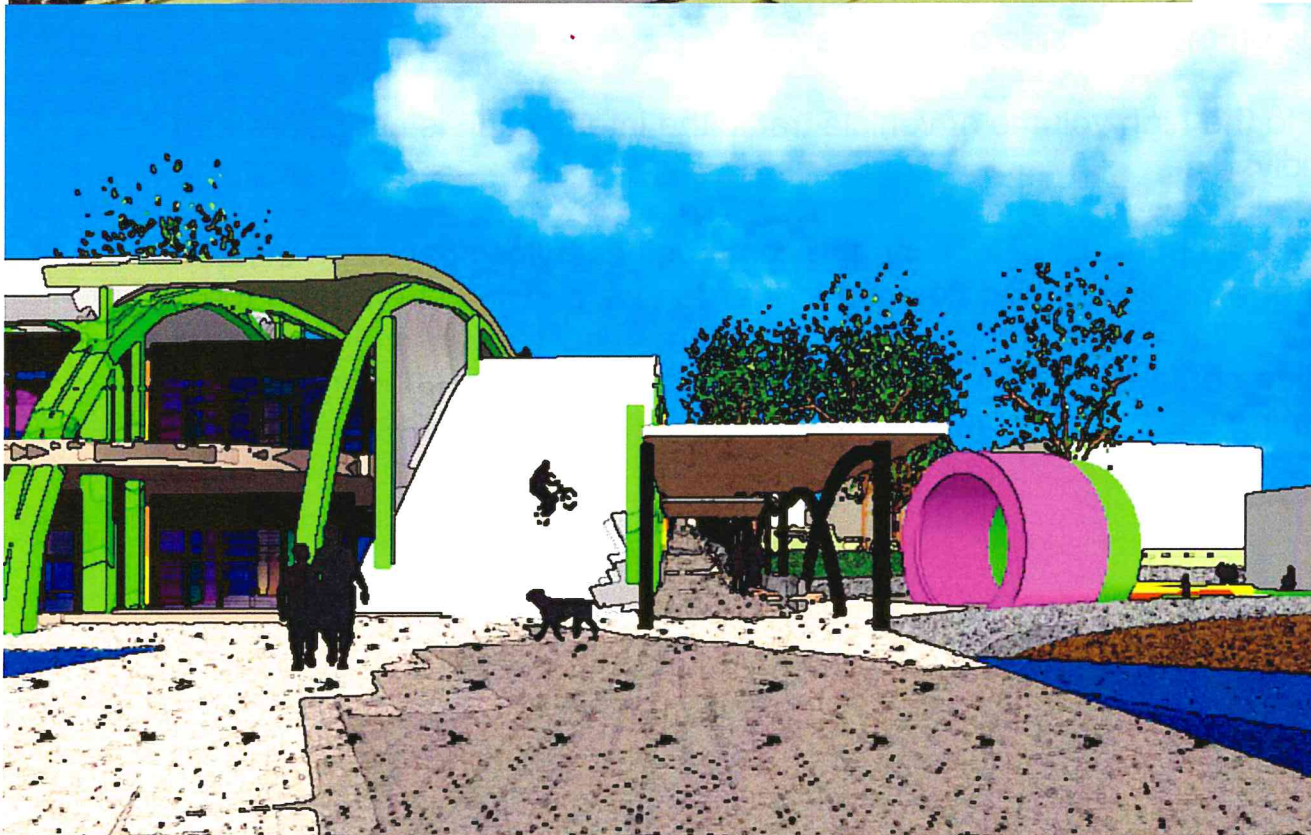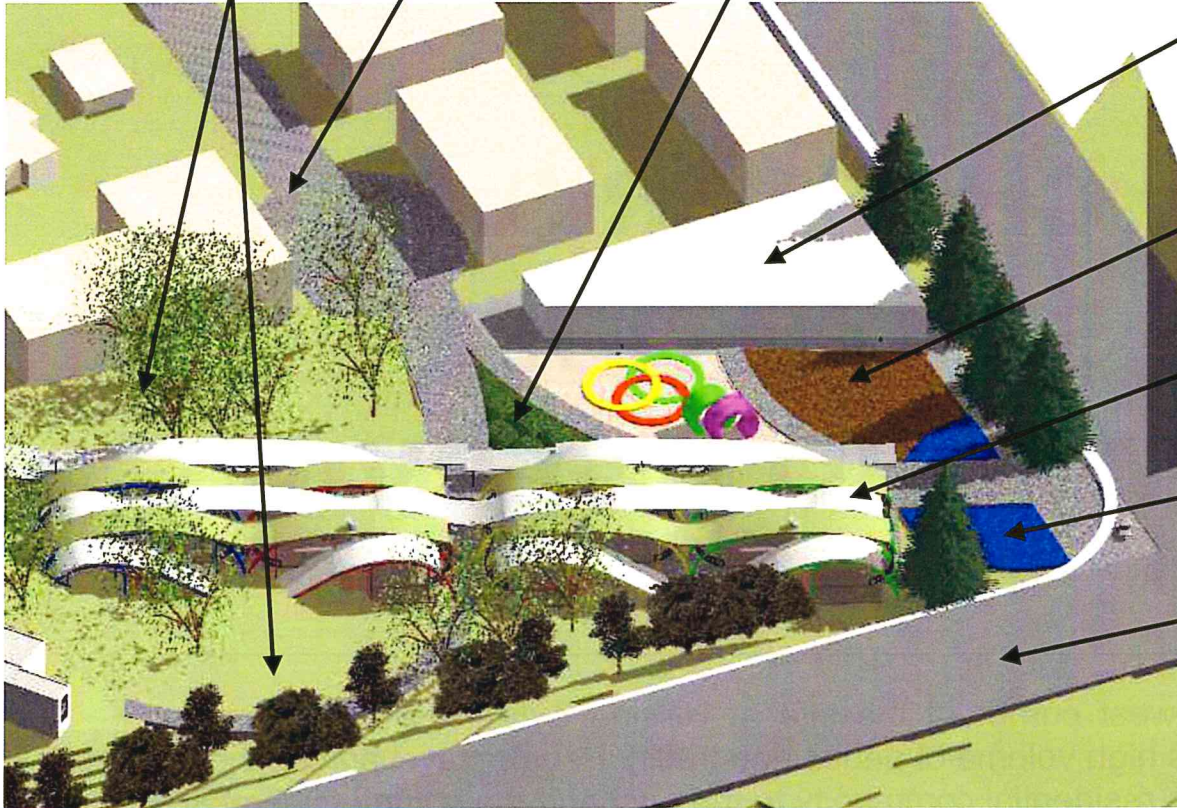
MARKET ST.

GRASS WAVE FIELD

CAFE, HEALTH CLINICS, OFFICE, SENIORS CENTER

COMMUNITY GARDEN

DAYCARE , PRESCHOOL

CALMING POND

BLANSHARD ST.

A BRIDGE SPANS A WATER FEATURE WHICH HELPS CALM THE SPACE AT THE BUSY INTERSECTION OF HILLSIDE AND BLANSHARD

5.1 ENTRY

VIEW FROM PLAY
GROUND

IMAGE SOURCE:
PLAY DIRECT UK

CONNECTING THE
LEARNING STREET &
MARKET STREET, A
PATH BISECTS THE
PLAY AREA AND
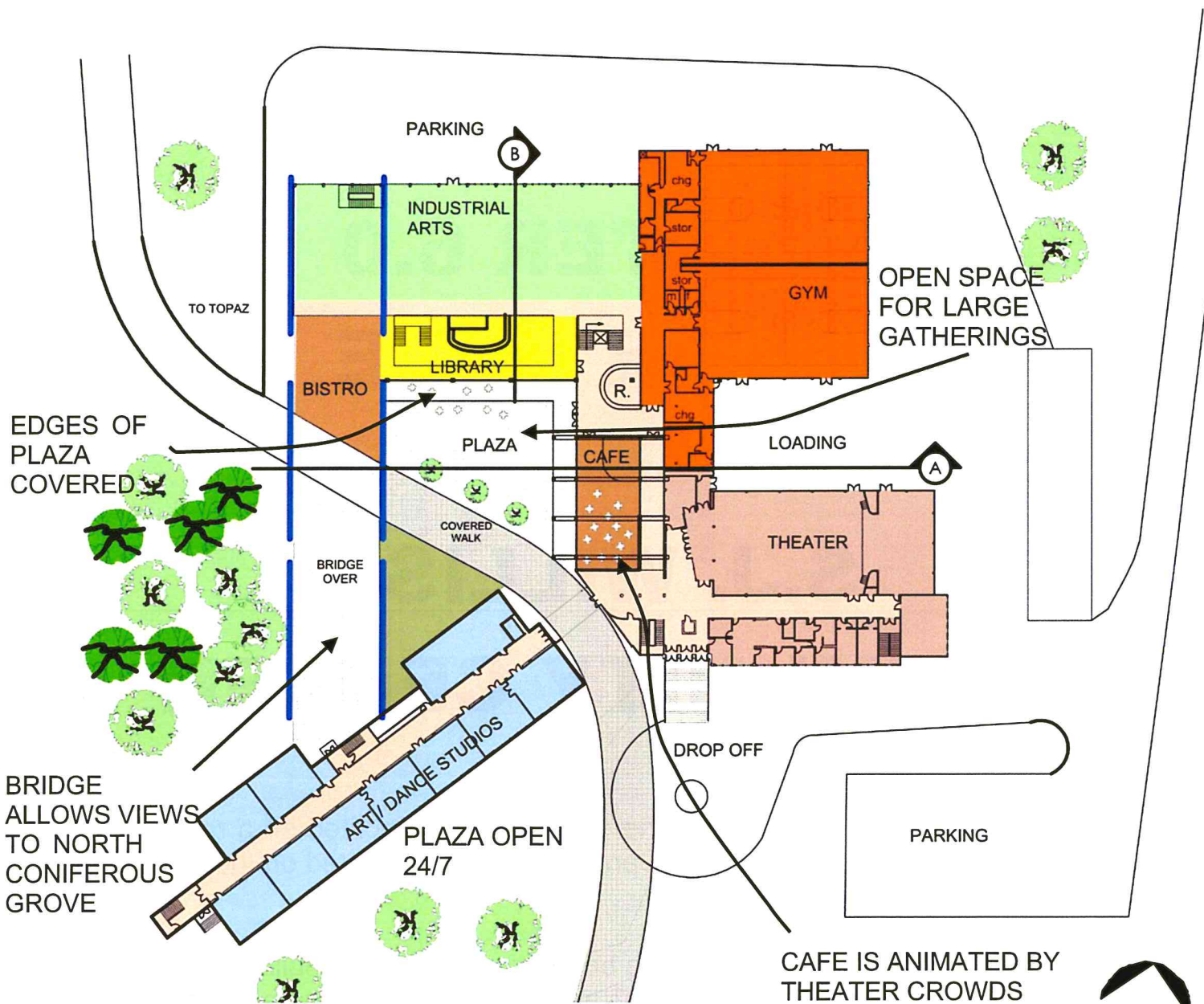GRASS WAVE FIELD

5.2 PUBLIC PLACES

CHAPTER 6.0
NORTH NODE

S.J. WILLIS
COMMUNITY CENTER

The North end of the site contains the existing school located on a rocky outcrop. A beautiful coniferous and Garry Oak grove is located on the west side.

A new outdoor plaza was created by a bridge connecting the buildings along the west side. The plaza is open 24 / 7 and promotes existing pedestrian traffic patterns through the site.
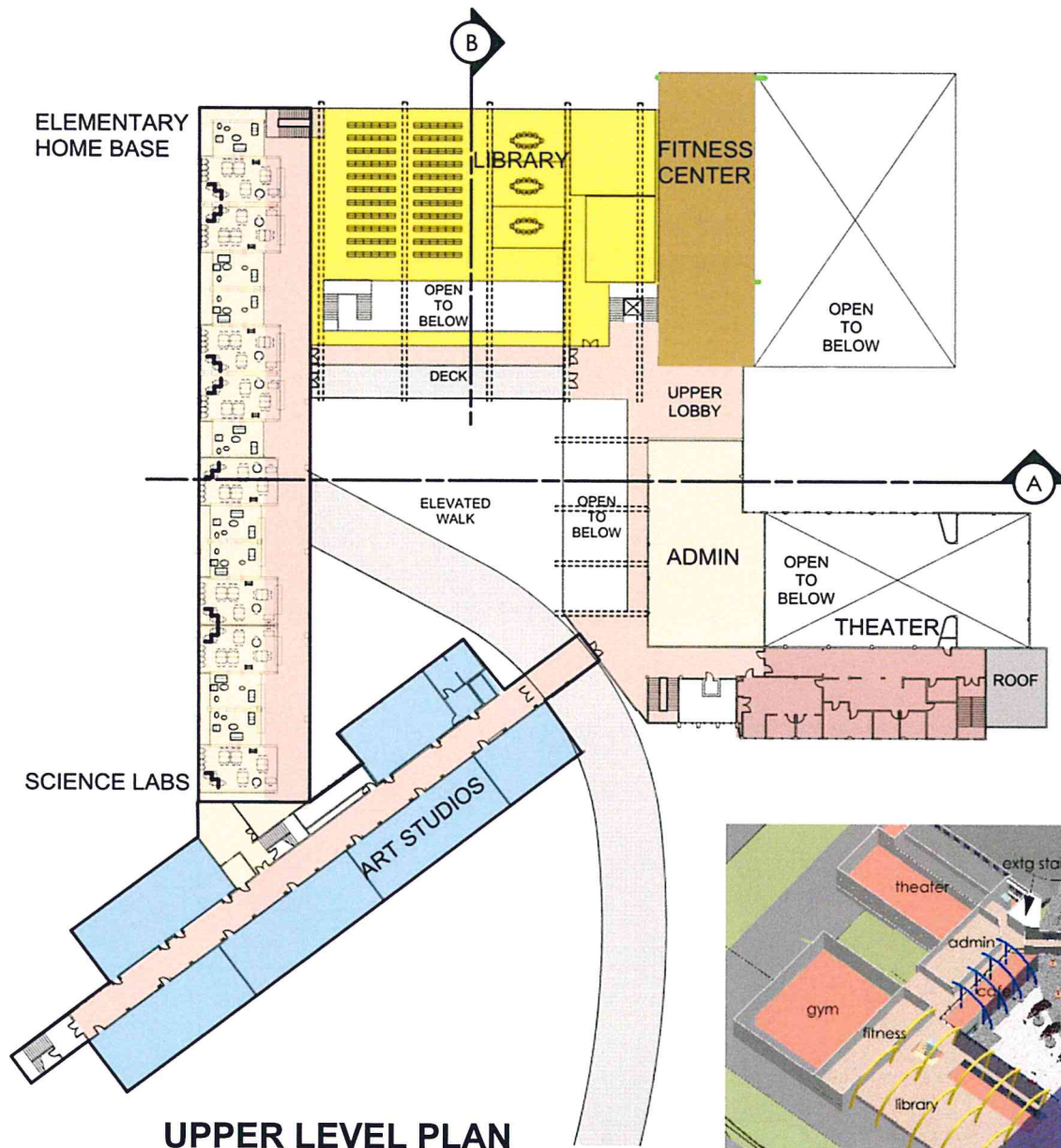
B

INDUSTRIAL
ARTS

chg

stor

GYM

OPEN SPACE
FOR LARGE
GATHERINGS

TO TOPAZ

stor

BISTRO

LIBRARY

R.

chg

EDGES OF
PLAZA
COVERED

PLAZA

CAFE

LOADING

A

COVERED
WALK

THEATER

BRIDGE
OVER

BRIDGE
ALLOWS VIEWS
TO NORTH
CONIFEROUS
GROVE

ART/ DANCE STUDIOS

PLAZA OPEN
24/7

DROP OFF

PARKING

CAFE IS ANIMATED BY
THEATER CROWDS

HT RON

MAIN LEVEL PLAN

HSS SPACE FRAMES
CREATE CAFE AND
CIRCULATION SPACE

SECTION A 1:125

SECTION A

6.1 MAIN PLAN - SECTION / ELEVATION

LIBRARY CREATES CONNECTOR BETWEEN LEARNING AND COMMUNITY

ELEMENTARY
HOME BASE

LIBRARY

FITNESS
CENTER

OPEN
TO
BELOW

OPEN
TO
BELOW

DECK

UPPER
LOBBY

ELEVATED
WALK

OPEN
TO
BELOW

ADMIN

OPEN
TO
BELOW

THEATER

ROOF

SCIENCE LABS

ART STUDIOS

HTRON

UPPER LEVEL PLAN

theater

extg stair

admin

art / dance studios

gym

café

fitness

labs &
home
bases

library

STEEL SPACE FRAME SUPPORTS CREATE
COVERED CIRCULATION AND SEATING
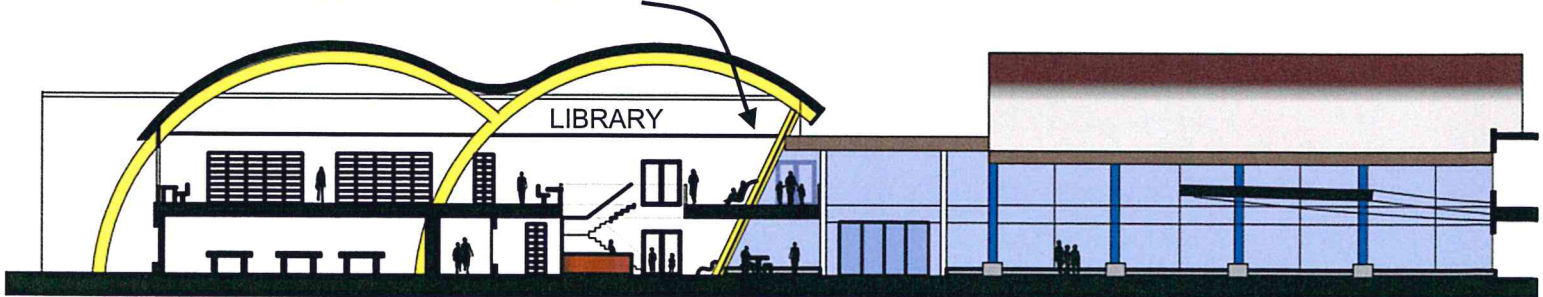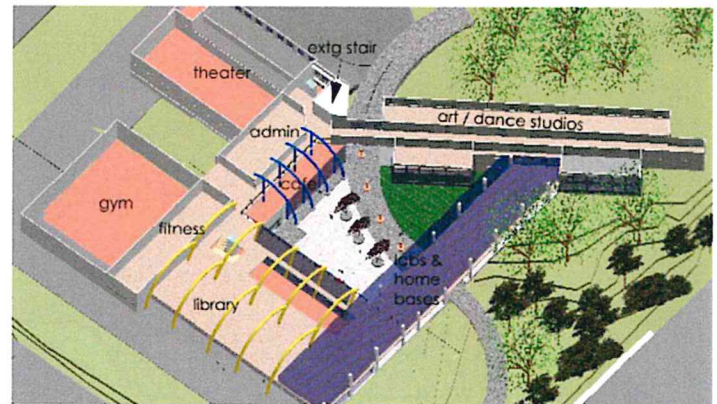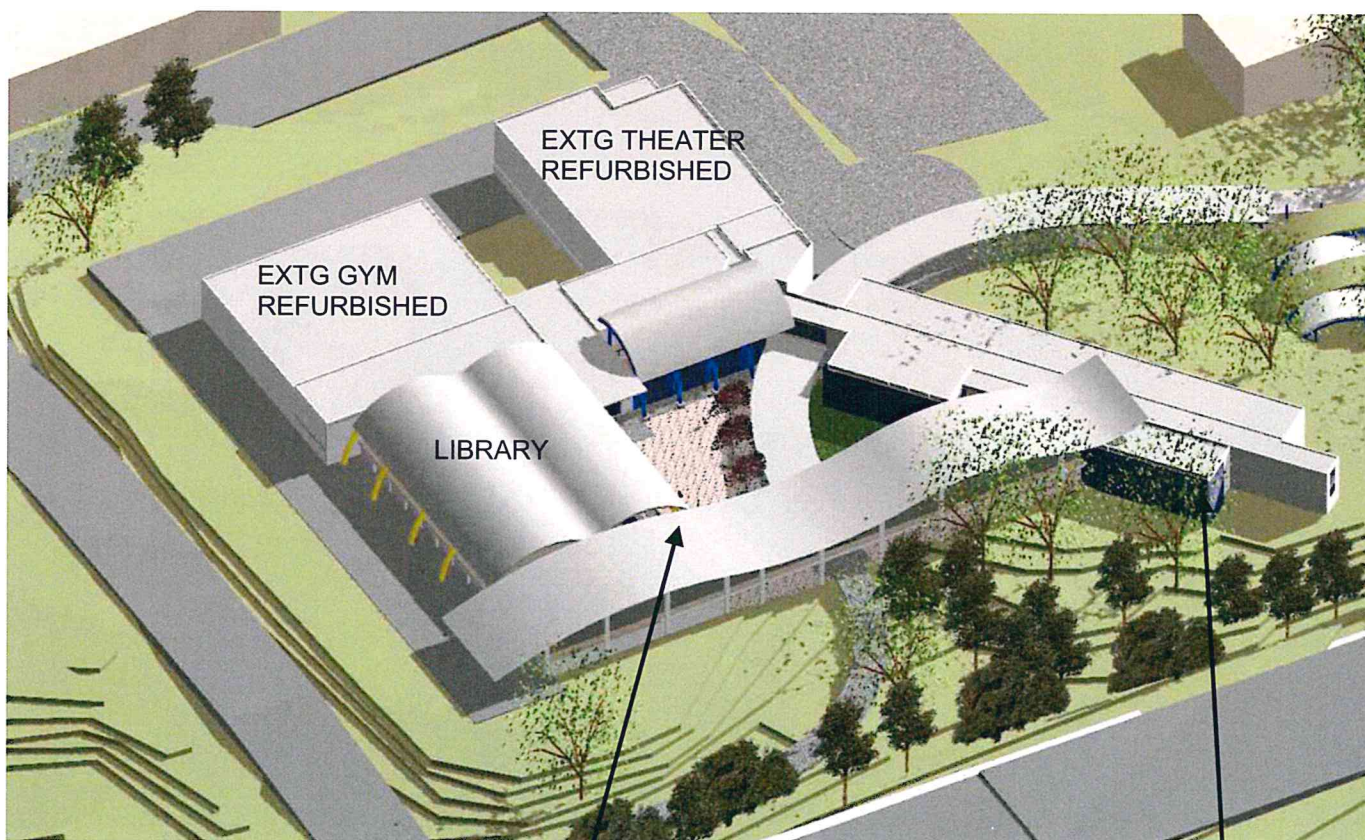
LIBRARY

SECTION B

VIEW FROM OUTSIDE LIBRARY
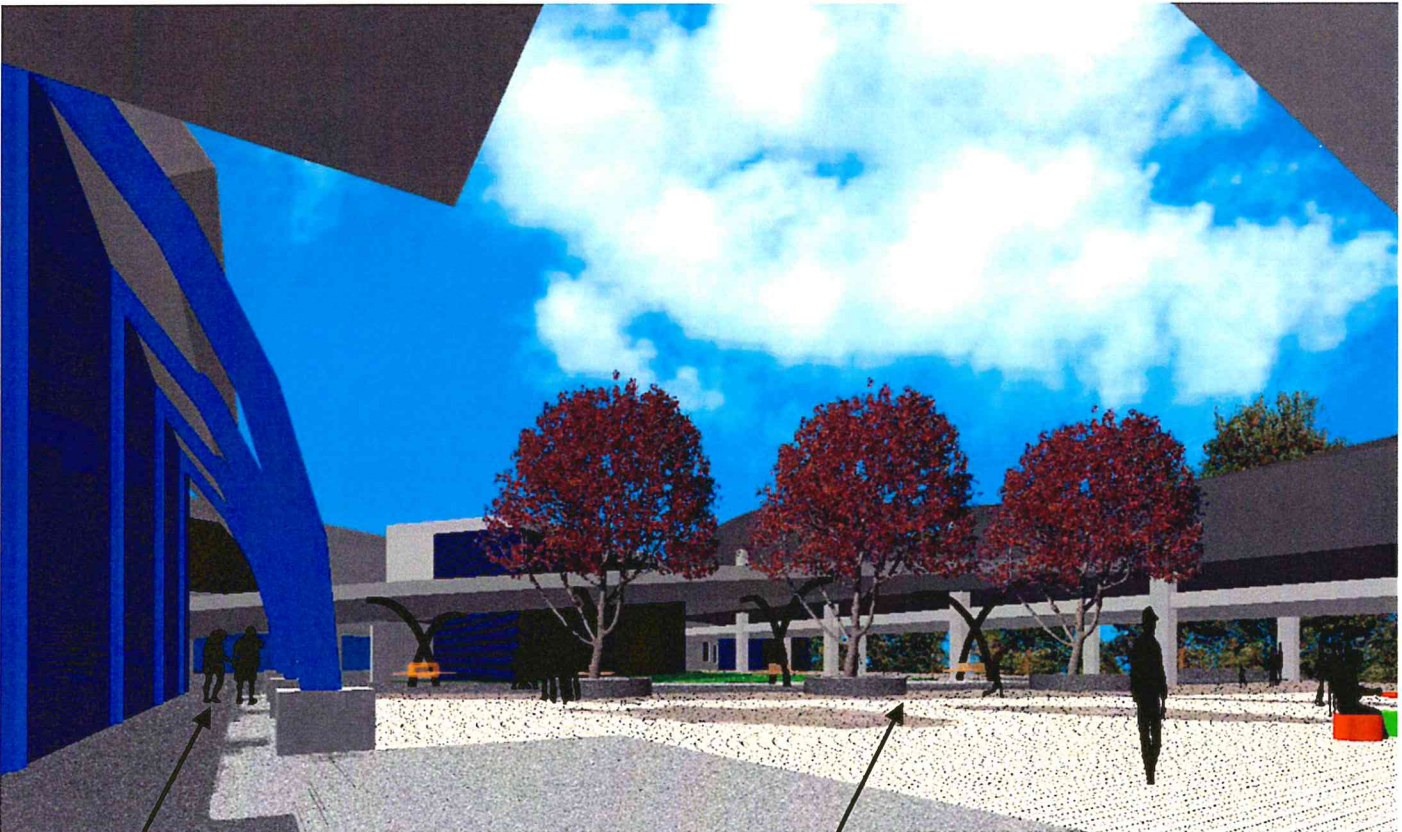
STEEL SPACE FRAMES CREATE
CIRCULATION SPACE
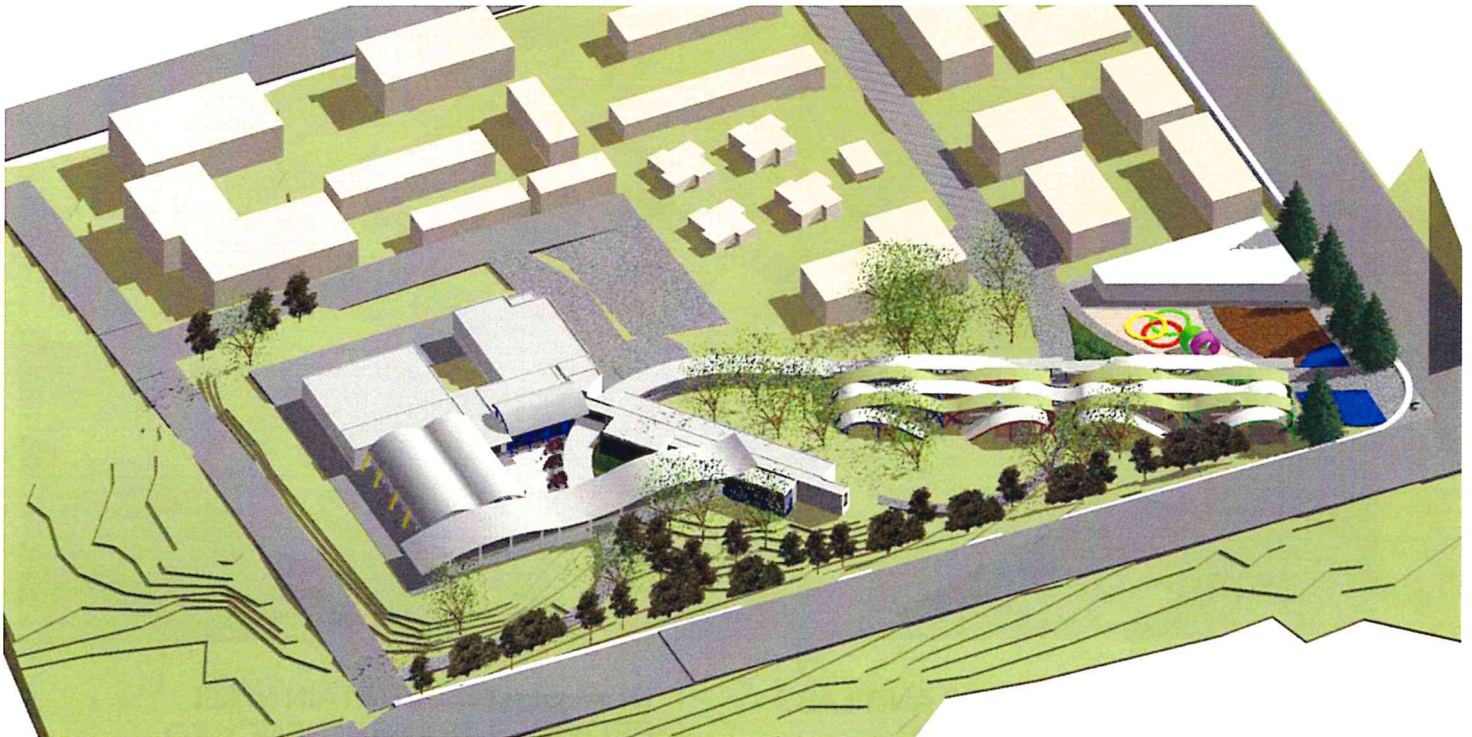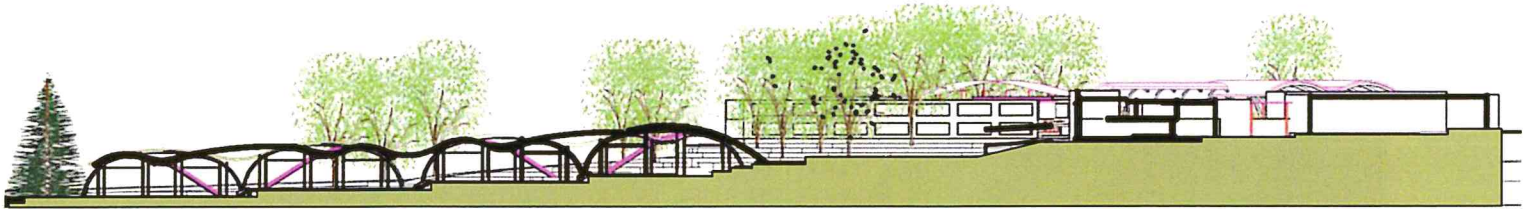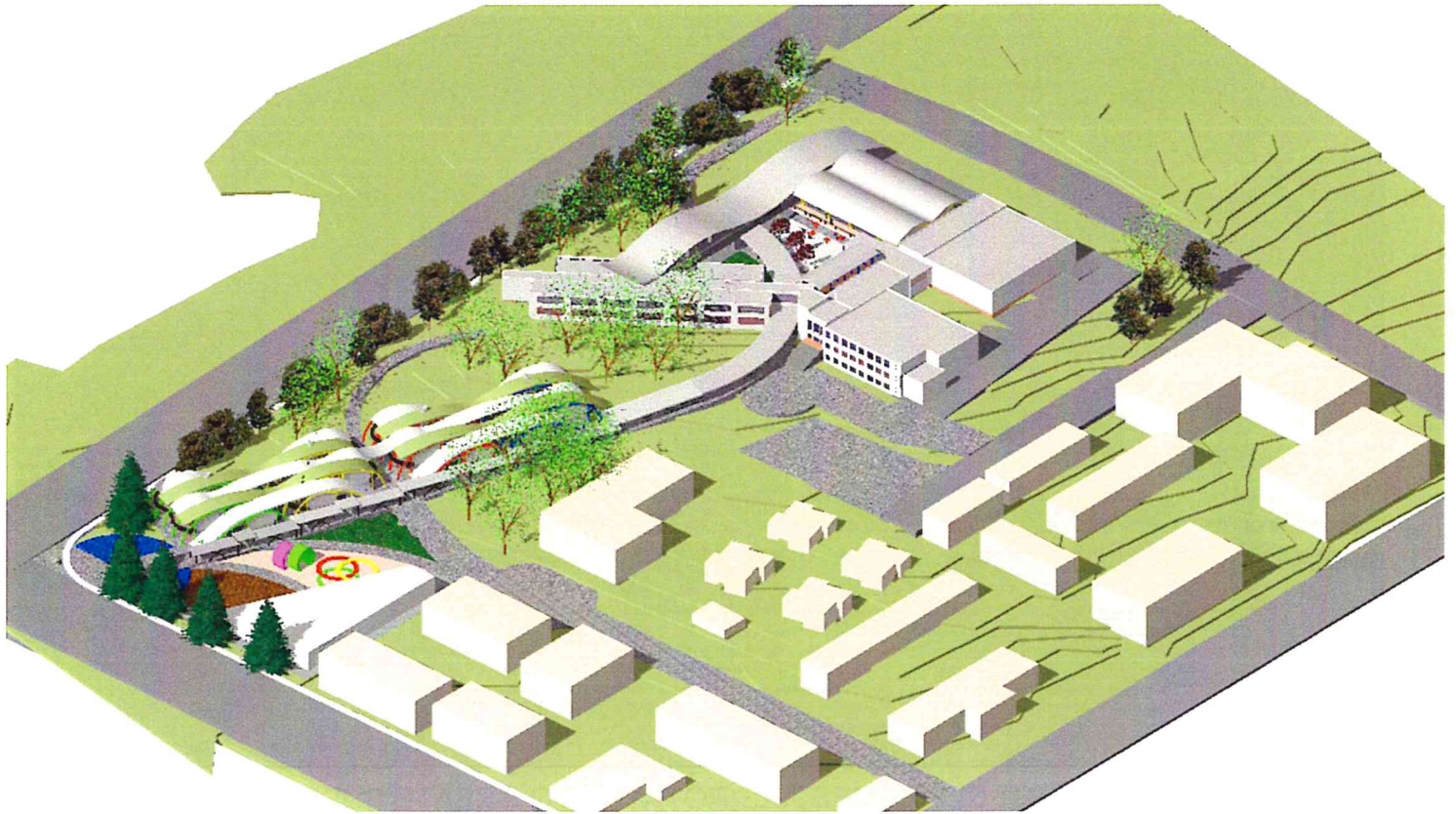
BRIDGE ALLOWS VIEWS TO
NORTH CONIFEROUS GROVE

6.3 PLAZA

STREET ROOF STEEL FRAMES ARE ROTATED TO CREATE SUPPORT FOR SEATING

EXTG THEATER
REFURBISHED

EXTG GYM
REFURBISHED

LIBRARY

BRIDGE WITH HOME BASES AND LABS

NEW GLAZED CURTAIN WALL
PROVIDES TRANSPARENCY TO
ART & MUSIC STUDIOS

6.3 PLAZA

7.0 SYNOPSES

A realization of just how opposite the current pedagogy is to the old was great inspiration in the quest for a new kind of architecture to accommodate it.

No longer is the school the concrete bunker isolated in a large grass field where students and community were discourage and even prevented from coming in contact. Students are now actively engaged in the wider community.

No longer are students prevented from leaving the school grounds but are provided opportunity to work, research and volunteer off site as part to their school day.

No longer are the hallways never to be occupied except between classes. The spaces between home bases are seen as opportunities for interaction and collaborative work environments.

The site

Re visioning an existing school site and building with gym and theater facilities as well as large well daylighted single loaded classroom wings allowed for continuity of the existing fabric of the surrounding communities which have evolved around this site.

The site now offers:

- A place that incites engagement by providing flexibility for users to configure the spaces

- A place that promotes community and family by providing amenities and facilities for their use at all times.

- A place that encourages movement by stretching the campus across the site and which encourages the public to be both in and on the building.

- A place that is transparent by allowing everyone to see everyone else both inside and outside the buildings

- A place that is both home and a city for the students to explore their passions

The building system

The use of steel space frames for the structural system allows the buildings to become, as Hertzberger put it "A framework capable of accepting change but doesn't change itself."
The structural steel frame system is used though out the site to create spaces for either occupancy or circulation.

Circulation

Wherever circulation pathways exist opportunity is taken to slow it down with seating at the edges. Alcoves and eddies for informal gatherings and quick conversations are located out of the main flow but still close enough to animate it.

Prakash Nair & Randall Fielding *The Language of School Design,(2007)* Designshare

Alan Ford and Paul Hutton, *A Sense of Entry - Designing The Welcoming School,* (2007) P Images Publishing

Victoria Bergsagel , *Architecture for Achievement - Building Patterns for Small School Learning,* (2007) Eagle Chatter Press

Daniel Neimeyer, *Hard Facts on Smart Classroom Design,* (2003) Scarecrow Press

Nancy Van Note Chism, *The Importance of Physical Space in Creating Supportive Learning Environments,* (2002) Jossey Bass

Mark Dudek, *Architecture of Schools The New Learning Environments,* (2007) Architectural Press

Koning Eizenburg, *Architecture For Educations New School Designs from the Chicago Competition,* (2002) Business and Professional People for the Public Interest

Sharon Haar *Schools for Cities: Urban Strategies: NEA Design Series* (Oct 1 2002), Princeton Architectural Press

Roger Yee *Educational Environments* (2002) Visual Reference Publications

Diana G Oblinger, *Learning Spaces (2006) Educause*

Maggi Savin-Baden, *Learning Spaces Creating Opportunities for Knowledge Creation in Academic Life,* Open University Press

Herman Hertzberger *Space and Learning,* **Lessons in Architecture 3** (2008)Cambridge: Cambridge University Press

Sharon Haar *Schools for Cities: Urban Strategies: NEA Design Series* (Oct 1 2002), Princeton Architectural Press

Ivan Illach **Deschooling Society** (1971) Marion Boyers

Matt Hern **Deschooling our Lives** (1996) New Society Publishers

Jack Petrash **Understanding Waldorf Education** (2002) Gryphon House Inc.

Angeline Stoll Lillard **Montessori The Science Behind the Genius** (2007) Oxford University Press

Joan Meyers-Levy, Rui (Juliet) Zhu **The Influence of Ceiling Height: The Effect of Priming on the Type of Processing People Use Journal of Consumer Research**

Judith H Heerwagen, Kevin Kampschroer, Kevin M Powel, Vivian Loftness, **Collaborative Knowledge Work Environments** (2004) Spon Press

Carol C. Kuhlthau, Leslie K. Maniotes, Ann K. Caaspari **Guided Inquiry Learning in the 21st Century** (2007) Libraries Unlimited

Maria Montessori **The Montessori Method (**1964) Schocken Books Inc

OWP/P Architects, VS Furniture, Bruce Mau Design **The Third Teacher - 76 ways you can use design to transform teaching & Learning** (2010) Abrams Books

Rhodri Windsor Liscombe **The New Sprit Modern Architecture in Vancouver 1938 - 1963** (1997) Douglas & Mcyintyre

Howard Gardner **5 Minds for the future** (2008) Harvard Business Press

Keri Smith **How to be an Explorer of the World** (2008) Penguin Group