THE LIGHT OF LEARNING:
DESIGN AND SITING OF
RAWLINS ELEMENTARY SCHOOL,
FRASER RIVERFRONT PARK
VANCOUVER, BC.

by

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ABSTRACT

"The Light of Learning—siting and designing a regionally appropriate elementary school."

Every place on earth is uniquely composed of various phenomena, such as climate, topography, qualities of light, latitude, ambient moisture levels, etc. We are each profoundly affected by the unique way these general qualities combine in our particular region, and Norberg-Schultz argues that this connection begins at a very young age. It allows us to know our place in the world, to orient ourselves, and to find our “home.”

Here on the West Coast, one of the most powerful characteristics of place is the quality of our regional light: which fluctuates from a warm August Yellow, to a low winter white. In summer our skies are broad, blue and bounded only by the mountains and sea. During the rainy season, ambient moisture turns the air solid, as white light ebbs and flows through the cedar boughs and around our buildings.

Through the design of an elementary school sited on the north bank of the Fraser River Estuary, I attempt to explore how one makes “place”—in this case a place of learning—which is both responsive to site and appropriate to the unique characteristics of region.

During my design process the qualities of Regional Light remain the principal generative tool, with the central circulation spine acting as an organizing light scoop/stack ventilation, and each classroom pod bringing natural light in on at least two sides to create a non-glare learning environment.

Other key considerations are the programmatic need for dual school/public access to the site, the reintroduction of natural habitat from the adjacent river-front park, and a respect for the layers of history which have shaped the site before its current zoning as an elementary school.
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RATIONAL FOR THE DESIGN SOLUTION

My DS began simply as an exploration into the qualities of regional light and the making of place. However, from Christian Norberg-Schultz (1979, Towards a Phenomenology of Architecture), I came to recognise that many factors combine to make a place unique. Our connection to these qualities begins at a very young age, and allows us to know our place in the world.

Some of the most potent “characteristics of place” impacting us here on the West Coast are physical: a climate of hot summers and cold, damp winters; a temperate lushness which lends our landscape a forgiving nature; a dramatic topography of mountains, coast, and river estuary. Since I was attempting to create a light driven place, the way that these regional qualities impacted the play of light clearly had an important influence on my design development.

Yet, in addition to the physical attributes of regional place, my design also had to respond to two other areas of influence on place making: social and cultural factors; and site driven considerations.

From the outset I chose to bound my design by very real parameters. I based the program for my elementary school on current Ministry of Education standards. My site is real, and was chosen after extensive interviews with the Planning Department at the Vancouver School Board, (VSB). It is one of three sites in Vancouver slated for a new elementary school in the near future. As a result of this choice, I was forced to deal with a VSB policy to piggy-back their new schools on to existing public parks.

The cause of this policy is insufficient Provincial funding for site acquisition. The result was that my design was forced to deal with a dual need for public access to and through the site, and a societal security requirement to keep our children safe from the “predatory unknown.”

One design response I employed was to accentuate an already existing plinth condition, thus creating a vertical break between the safe, courtyard sanctum of the primary children, and the public street five feet below. Another site response was to use the shared playing field (school/public) as a huge ha-ha. Any member of the public legitimately using the adjoining Riverfront Park would have to make a deliberate and obvious decision to cross a large open space before coming into contact with the children’s edge.

The Vancouver Parks Board’s definition of a “park user” includes a person who simply accesses a park visually. This need for visual as well as physical access is...
accentuated by the fact that my site borders on a pleasant Riverfront Park which winds along the Fraser. Consequently, the development of principle sight-lines became a central siting and design element. In the end I chose to position my school in the least desirable area of my site (thus leaving the best areas open for active occupation), to use entrance to frame the view beyond to the Fraser, to place the classroom pods on the south side so that the light and sight of the river would fill their spaces, and to use their mass to create an inner children’s courtyard protected from the biting south-easterly winds of the winter months.

Another fundamental design influence arose out of my precedent studies into Vancouver elementary schools built over the past century. One could argue that from the outset (eg. Laura Secord 1912) most Vancouver schools have provided a positive classroom environment with sufficient natural light, opening windows, and often with hot-water heat. However, with only one exception, they all treat corridors as a dingy (if efficient) method to moving about. Only in University Hill Elementary (1996) does hallway become place.

Consequently, the development of "hallway" as a light filled, enlivening place became a driving design consideration. Much of my exploration was sectional, as light became volume, as structure developed to give it form, and as neighbouring classroom spaces mutated to acquire borrowed light. It is in this area that I feel I was most successful in responding to my central thesis question of how the qualities of regional light can make appropriate place.

From the evolution of this central, light-filled volume, many of the other aspects of my design developed. For instance, the height and potential for solar gain (even in the winter) allowed the exploration of environmental design through radiant heat in the classroom floors naturally venting into the central hallway "stack." In plan, the hallway also acts as a wind-scoop: drawing in prevailing north-westerlies in the summer and south-easterlies in the winter.

In addition, a thick, grounding trom-wall (developed in section), evolved in plan to become the organising “spine” of the school. Its top marks the 100 year flood level, and its concrete solidity anchors the building on site. And yet, on a micro level this massive wall undulates and adapts to meet the need for doorways, fountains, display shelves, and child-sized niches.

As this central spine leaves the building envelope it first returns to pure structure (allowing us to see how building stands up), and finally it becomes part of the site, degrading down into a children’s play wall. In this way, site and light become solid, take concrete form, help create place, and then become site again.
TREES AT RIVER'S EDGE - ONLY REMNANTS OF INDUSTRIAL PAST
MARSH EDGE: REMNANT OF PRE-INDUSTRIAL SITE CONDITION
THE FRASER IS STILL A WORKING RIVER

NORTH OF SITE BOUNDED BY CPR TRACKS
Site Panorama: Looking North
Site Planning Field

An open area for outdoor activities and gatherings, creating a flow of space around the central building.

Public Flow Through Site

A central curved spine with library at head.

Central Classroom As Apparatus

Classroom pods arranged to catch the southern light.

Organic flow of site through a curved spine.

Massing of school activities to respond to.

Organic public access and major sight lines.

A requirement for public access and major sight lines across the freeway and beyond to mountain views.

To the south, the site opens up visually to the south.

Site Development
As required for the light
HEAVY SPINE ANCHORS SCHOOL

ALL LEARNING SPACES HAVE LIGHT ON AT LEAST TWO SIDES.
FROM THE CENTRAL VOLUME AND NATURALLY VENTILATE INTO IT.
VENTILATION TO EACH SIDE CLASSROOM FLOODS RIGHT
ACROSS AND BOTH THE ORGANISMS SPINE AND PROVIDE THE STACK.
A CENTRAL LIGHT FILLED VOLUME - HALLWAY AS PLACE.

LIGHT AS VOLUME.

INITIAL LIGHT CONCEPT - EVOLVED AS TR

LIGHT VOLUME PARIII

SHADOW STUDY
THROUGH CLASSROOM
SECTION C: TYPICAL
FINAL PARTI MODEL: SECTIONAL WITH STRONG SPINE WALL

FINAL PARTI MODEL: NORTH ROOF CREATES LIGHT SCOOP TO SOUTH
VIEW THROUGH TO RIVER FROM ENTRANCE FOYER
SOUTH ELEVATION FROM RIVERWALK