spring in january!

the bifocal nature of urban community habitats

by

Ryan Doone

Master of Landscape Architecture
Harvard University Graduate School of Design, 2008

Bachelor of Science in Architecture
University of Virginia, 2005

SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARCHITECTURE
AT THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

FEBRUARY 2011

Signature of Author: _____

Department of Architecture
January 14, 2011

Certified by:

Jan Wampler
Professor of Architecture
Thesis Supervisor

Accepted by: _____

Takehiko Nagakura
Associate Professor of Computation and Design
Chairman, Committee for Graduate Students

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Submitted to the Department of Architecture
on January 14, 2011 in Partial Fulfillment of the
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THESIS COMMITTEE:

ADVISOR:

Jan Wampler, MAUD
Professor of Architecture
Director, Undergraduate Design Program

READERS:

Takehiko Nagakura, MArch, PhD
Associate Professor of Design and Computation
Director, Computation Discipline Group

Leslie Keith Norford, PhD
Professor of Building Technology
Associate Department Head

s p r i n g i n j a n u a r y !

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ABSTRACT

This thesis aims to reconnect man to natural flows by designing spaces with overlapping thermal comfort regions between people and plants.

Cities encourage metaphysical awakenings and foster physical re-connections to analog roots for its citizenry in this digital age.

Architecture puts us in touch with nature on a daily basis by appropriating and applying technologies in concerted efforts to strengthen the conscious bond between **people and The Land**.

Technology allows architecture to feel like landscape in such a way that the memory of an inhabitant's experience comprises mostly of his interaction with the natural elements.

Built environments liberate our senses.

Thesis Supervisor: Jan Wampler
Title: Professor of Architecture

BIOGRAPHICAL NOTE

I first applied to MIT seven years ago. Our personal statement was to be written in a manner similar to a thesis abstract, identifying various interests and outlining a methodology indicating how they might be further developed in a *coherent* manner. Not much has changed ..

EXCERPT FROM 2004 MIT M.ARCH APPLICATION:

My name is Ryan Doone and my professional goal is to design and educate with natural and un-natural 'materials' in order to understand 'site' so that I may then make meaningful and experiential connections back to the 'inhabitant' and his/her 'environment.'

The ensuing dialogue [process] between matter, position, people, and ecologies evolves into an architectonic form [product] with its own nonpareil spatial vocabulary that is part architecture, part landscape; A state between architecture and landscape which contains both and is neither.

The goal of my M.ARCH studies at MIT is to conduct explorations and their analyses on how to manipulate the both/neither state in a concerted effort to create and nourish soulful and poetic designs that are as spatially compelling as they are ecologically impelling.

My aim is to create and build spatial experiences that are the physical manifestation of design intentions that are ecological and sustainable at heart and not the byproduct of politicking with point systems, producing buildings that are 'green' because they include established checklist items on an ad-hoc and piecemeal basis. Rather, the influential realm of a truly closed-loop system extends well beyond the envelope of the building, pervading relevant physical and mental territories around and related to it. The prime goal of my efforts as an academic and practitioner is to imbue spatially-rich ecological machines for habitation providing a sense of purpose, place, and identity.

I am Ryan Doone and I believe that design is perceived, used, and applied in every sense and on all scales towards one basic goal: A conceptual and physical response, fundamentally respectful, for the land (its opportunities, both known and unknown; its capacity, both ideal and real; its connection, both mental and spiritual). We build environments with an unquestionable sense of belonging and place that are the energetic and thoughtful reaction towards fulfilling the needs of both the inhabitant and earth-at-large.

spring in january!

the bifocal nature of urban community habitats

ACKNOWLEDGEMENTS

For M+D

TO MY THESIS COMMITTEE:

I got the best of MIT!
JW: Thank you for casting me out
TN: Thank you for reeling me in
LN: The exemplar of mens et manus

Jan - Here's to all the memories!
Thank you for reminding me
of why I love architecture
.. and for believing in me

FOR ALL THE ADVICE:

Shun Kanda, Julian Beinart, Prataap Patrose, Peter del Tredici,
Andrew Scott, Mark Jarzombek, Andres Sevtsuk, Juhong Park,
Scott Anderson, Gediminas Urbonas, Peter Houk, & Nondita Correa-Mehrotra

AND MOSTLY FOR ALL THE FRIENDSHIPS:

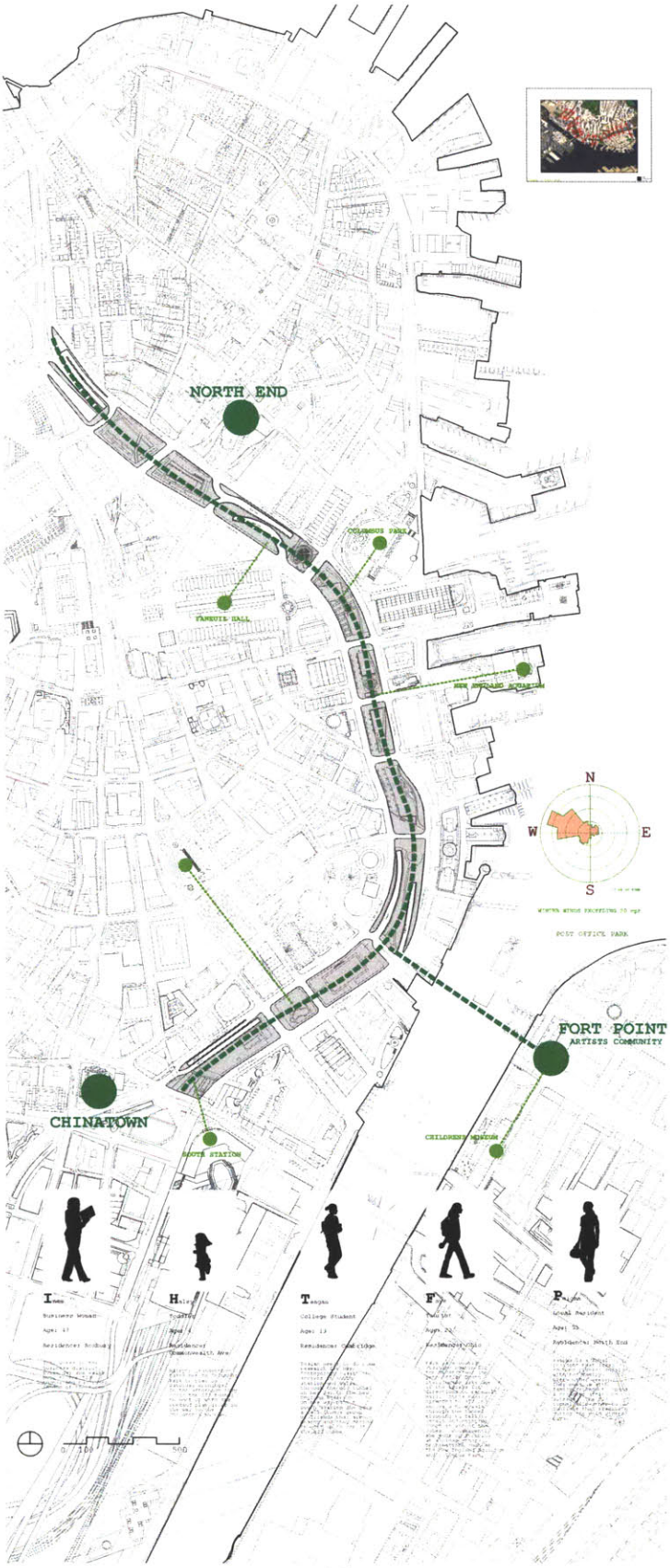
Thank you to Reemo Abuzeid and Juless Bentcheva

and Leonie Badger, Aldarsaikhan Tuvshinbat, Zack Conway,
Aissata Nutzel, Lauren McClellan, Sarah Southerland, Joan Chen,
Duong Huynh, Emily Darling, Jen O'Brien, Danny Meeusen, Monte Brown

B and everyone else who helped me become who I am .. you know who you are.

TABLE OF CONTENTS

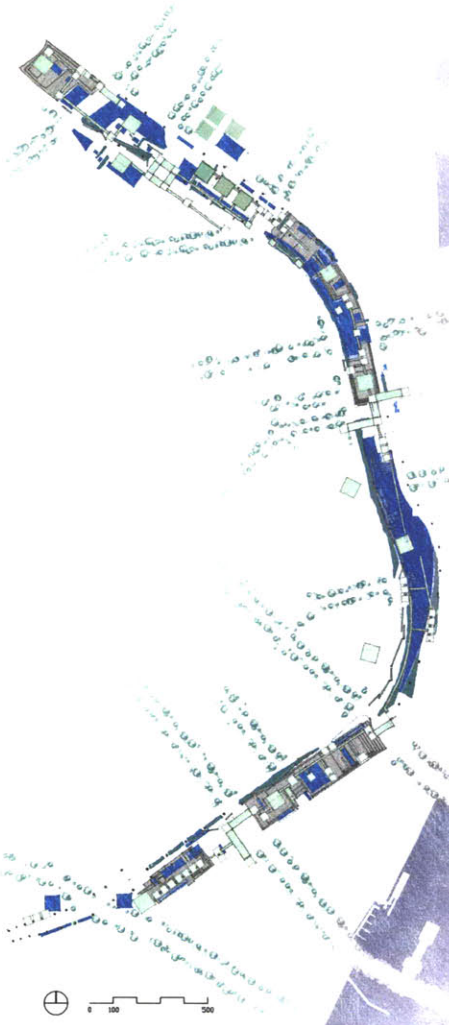
OVERVIEW


NORTH END
COLUMBUS PARK
FANEUIL HALL
N
W
E
S
POST OFFICE PARK
FORT POINT
ARTISTS COMMUNITY
CHINATOWN
CHILDREN'S MUSEUM

O V E R V I E W

1. What was the fundamental intention of the Big Dig?

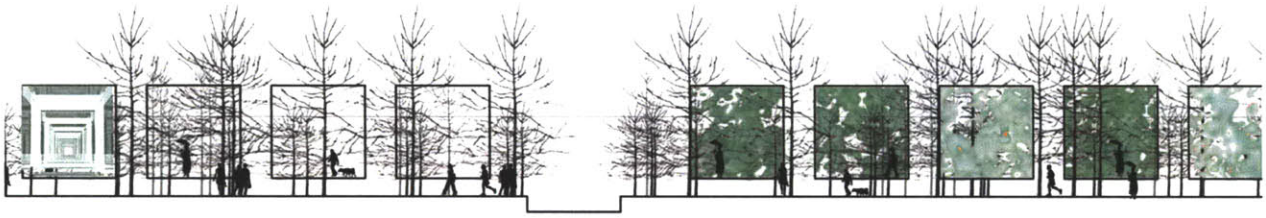
To re-connect the city by promoting pedestrian thoroughfare.



OVERVIEW

2. To what degree did it succeed / fail?

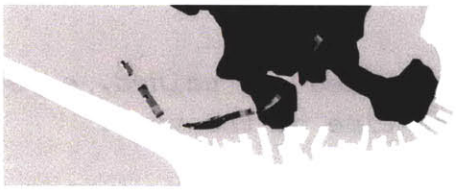
This thesis proposes to pick up where it left off: to connect and unify the city for the pedestrians of Boston. The Rose Kennedy Greenway is seen as a continuous melody through the city as opposed to its old counterpart, the Central Artery as a dissonant chord interrupting the harmony of the city.



OVERVIEW

3. How can the city be connected and unified, especially during the harshest and unfriendliest time of the year?

By bringing life to this place via one mile of 'Spring in January' ('life' meaning people and plants). This thesis focuses on the creation of a sheltered and **continuous** pedestrian experience, connecting and unifying various Boston neighborhoods.



OVERVIEW

4. **Continuity** is achieved through the orchestration of a series of overlapping urban-scale strategies addressing:

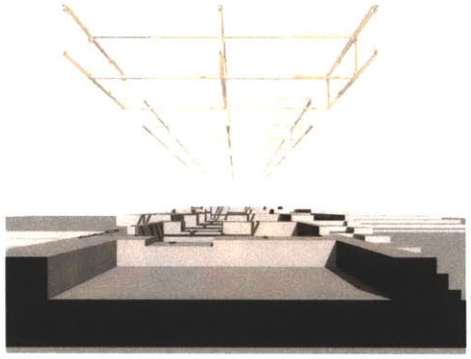
- topography

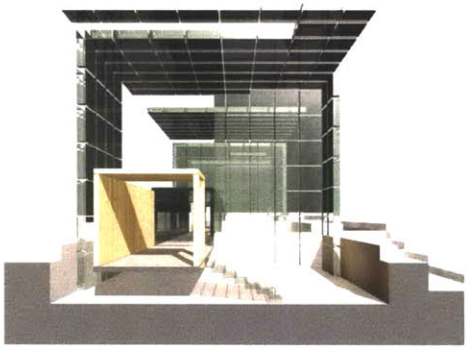
- paths

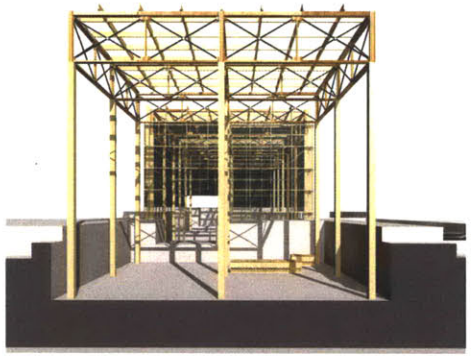
- places

- fabric

- water management systems







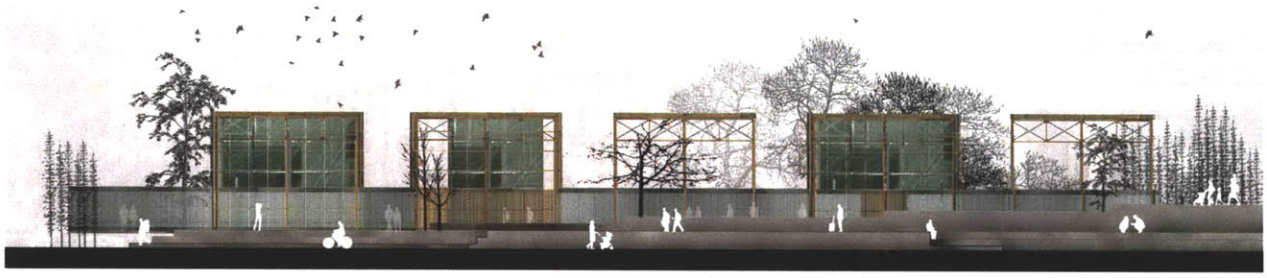
O V E R V I E W

5. The built form manifests as a series of simple structures/shelters governed by three architectural devices:

- Terraces / level changes

- Layered enclosures

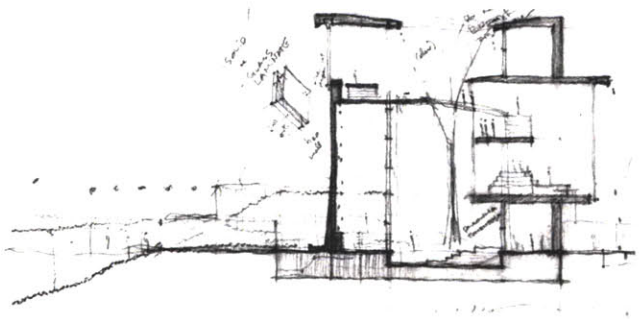
- Solid / void relationships

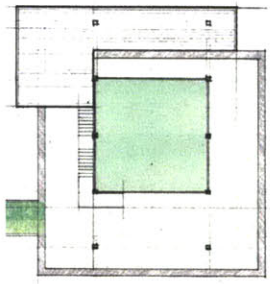


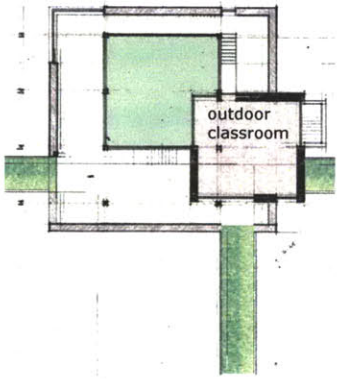
O V E R V I E W

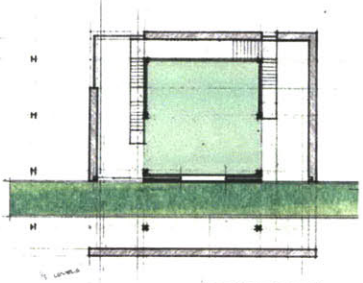
6. So at the end of the day, what exactly is 'Spring in January'? ..

.. it is a framework of paths and places; another thread of urban fabric holding the spirit of the city together. It is this century's answer to the question of how to sustain a pedestrian-based city. *(Olmsted weatherproofed)*







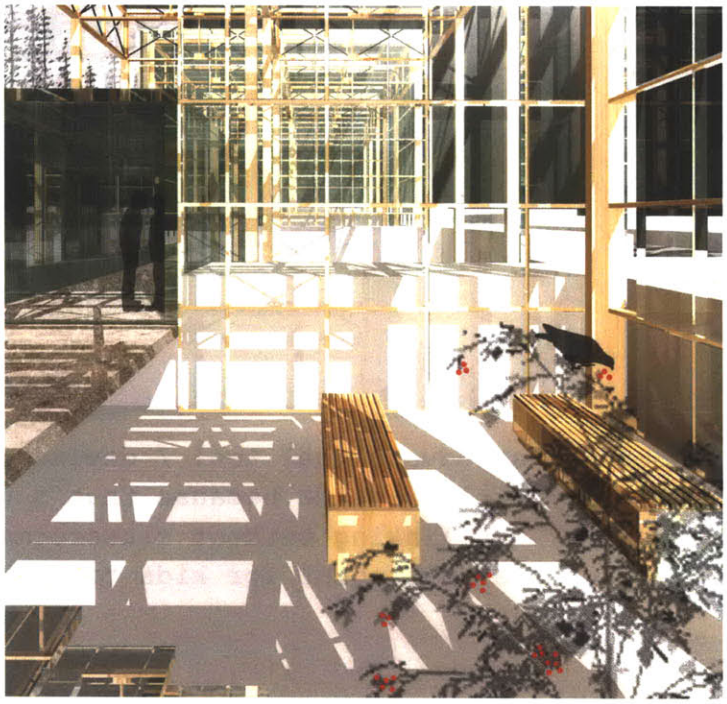


FLOOR PLANS + SECTION

O V E R V I E W

7. So at the end of the day, what exactly is 'Spring in January'? ..

.. it is the city seen as an educational tool / device in an age when kids pronounce that 'I play inside because that's where all the electrical outlets are' .. by linking outdoor classrooms to schools around the city, providing a base point for kids to 'grow outside.'



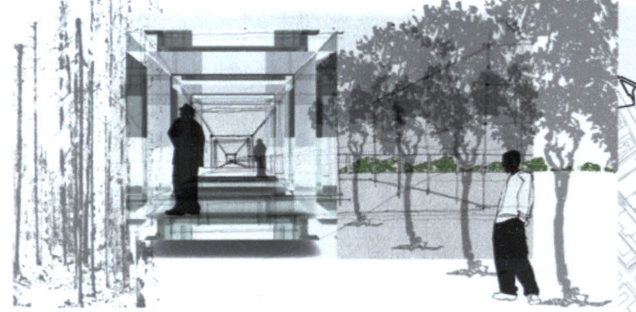
O V E R V I E W

8. So at the end of the day, what exactly is 'Spring in January'? ..

.. most simply, it is the city envisioned as an ideal way of life where man and nature coexist in peace.

spring in january! the bifocal nature of urban community environments

this project aims to reconnect man to his analog roots in a digital age by designing environments with overlapping thermal comfort regions between people and plants



MANIFESTO

Cities encourage metaphysical awakenings and foster physical re-connections to analog roots for its citizenry in our digital age.

Architecture puts us in touch with nature on a daily basis by appropriating and applying technologies in concerted efforts to strengthen the conscious bond between people and The Land.

Technology allows architecture to feel like landscape in such a way that the memory of an inhabitant's experience comprises mostly of his interaction with the natural elements.

Built environments liberate our senses.

1. what was the fundamental intention of the big dig? *To re-connect the city by promoting pedestrian thoroughfare.*
2. to what degree did it succeed/fail? *this thesis proposes to pick up where it left off: to connect and unify the city for the pedestrians of boston. the RKG is seen as a continuous melody through the city as opposed to its old counterpart, the central artery as a dissonant chord interrupting the city's harmony.*
3. how can the city be connected and unified, especially during the harshest and unfriendliest time of the year? *by bringing life to this place via one mile of SiJ ('life' meaning people and plants). this project focuses on the creation of a continuous pedestrian experience that connects and unifies various boston neighborhoods.*
4. *continuity is achieved through the orchestration of a series of overlapping urban-scale strategies.*
5. *the built form manifests as a series of simple structures/shelters governed by three architectural devices.*

.. so at the end of the day, what exactly is **spring in january**?

6. *.. it is a framework of paths and places: another thread of urban fabric holding the spirit of the city together. it is this century's answer to the question of how to sustain a pedestrian-based city. (weatherproof olmsted)*
7. *.. it is the city seen as an educational tool / device in an age when kids pronounce that 'i play inside because that's where all the electrical outlets are' .. by linking outdoor classrooms to schools around the city, providing a base point for kids to 'grow outside.'*
8. *.. but most simply, it is the city envisioned as an ideal way of life where man and nature coexist in peace.*

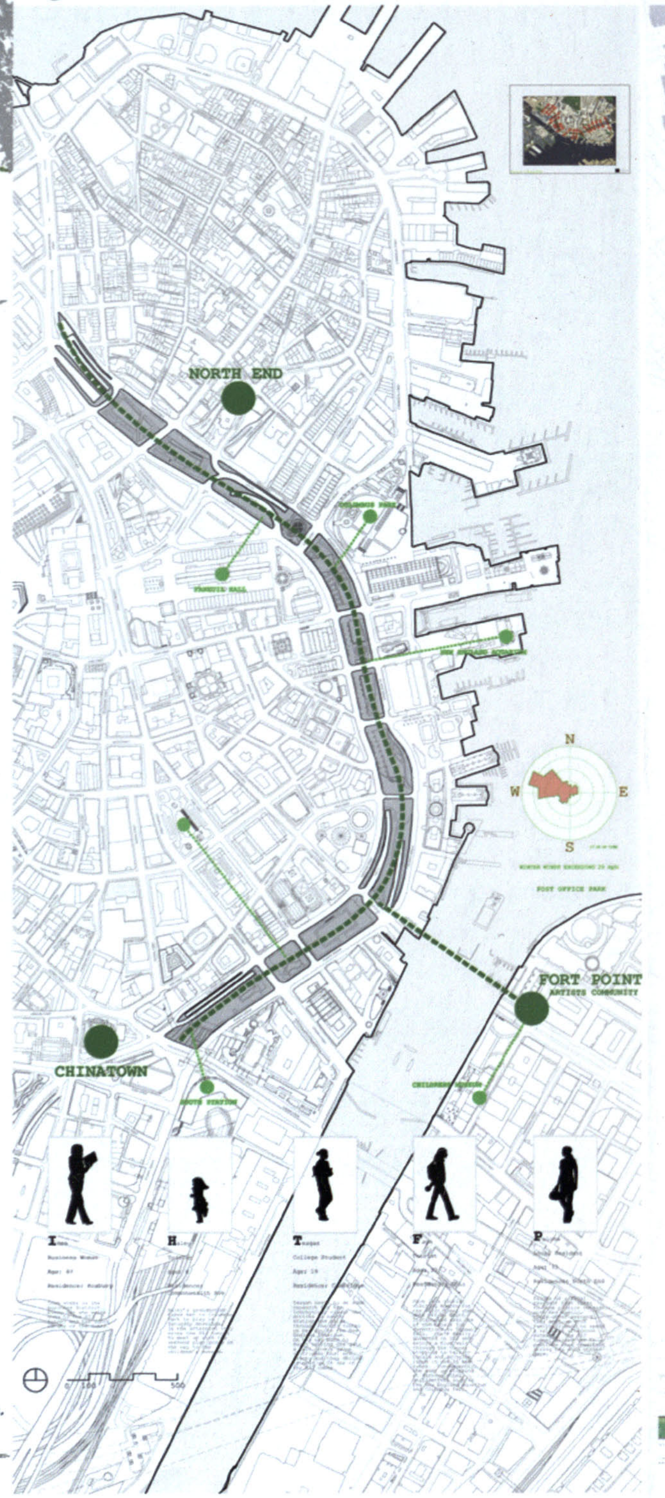
ryan doone 2010

ADVISOR: JAN WAMPLER
READERS: TAKEHIKO NAGAKURA AND LES NORFORD

IN CONVERSATION WITH: SHUN KANDA, JULIAN BEINART, PRATAAP PATROSE, PETER DEL TREDICI, ANDREW SCOTT, MARK JARZOMBEK, ANDRES SEVTSUK, JUHONG PARK, SCOTT ANDERSON, AND NONDITA CORREA-MEHROTRA

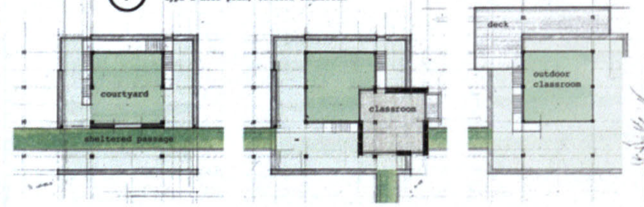
P E A C E

(1) existing site plan



(2) proposed site plan

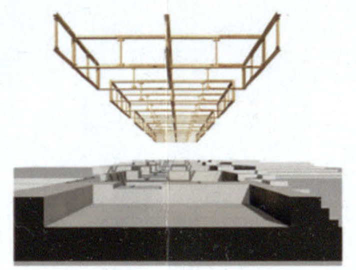
(7) type E floor plan; outdoor classroom



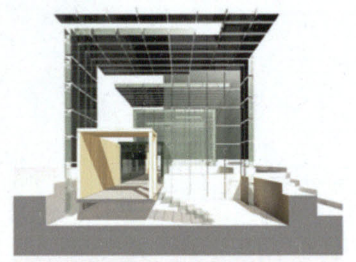
(5) three architectural devices

I. terraces / level changes
II. layered enclosures
III. positive / negative

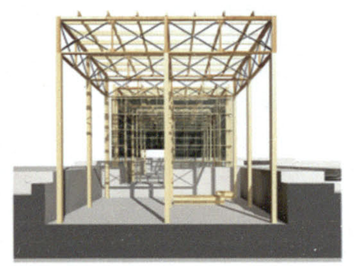
terrain	journey	memory
filter	territory	experience
ecotone	threshold	connection



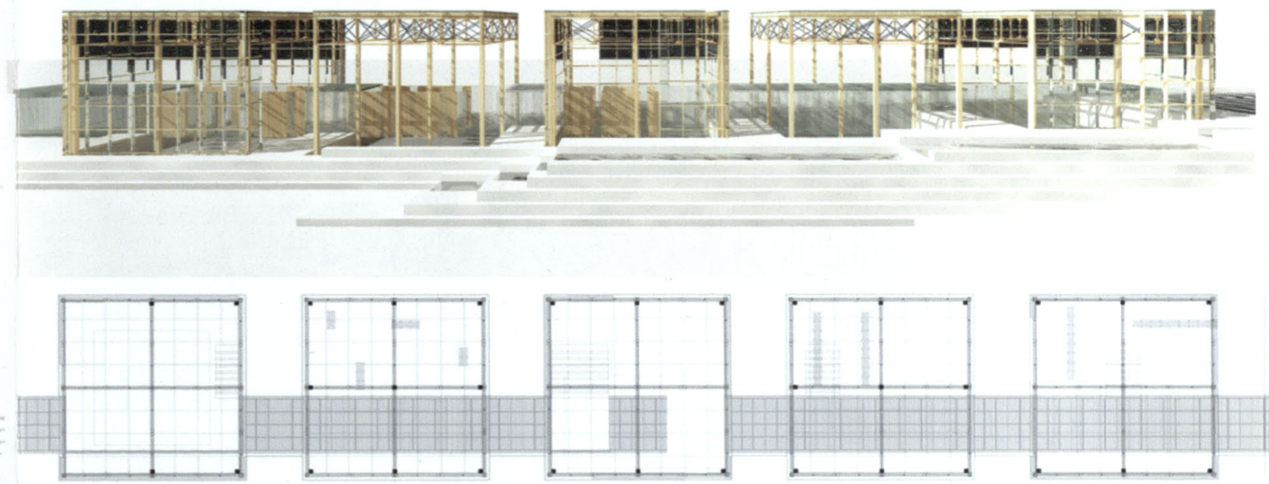
architectural device #1: terraces + level changes



architectural device #2: layered enclosures



architectural device #3: positive/negative spaces



(4) urban-scale site strategies

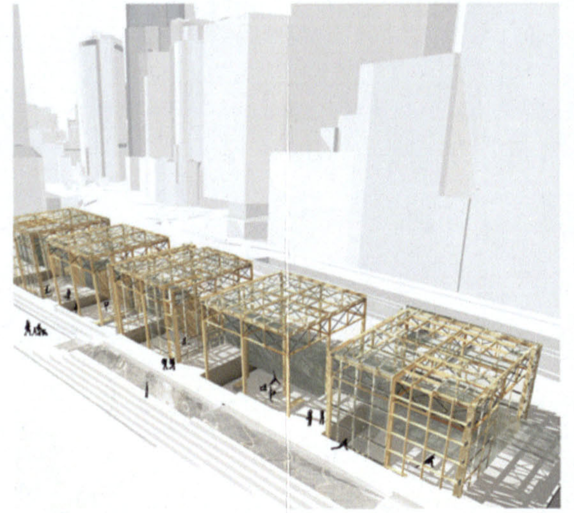
topography: boston's culture of 'building ground'

promenades: providing multiple options for moving through site

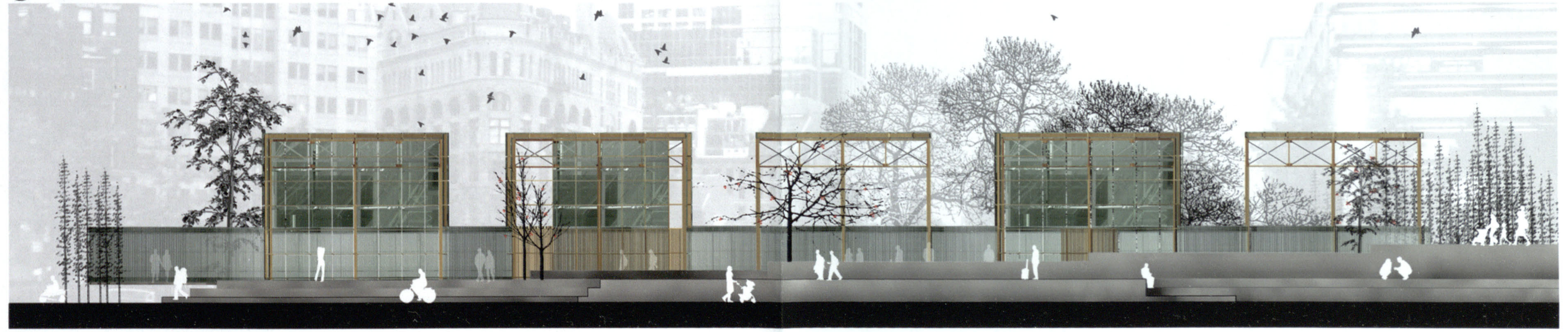
promenades: providing multiple options for moving through site

blocks: eliminating dead-end streets from cutting into landscape (Central Park); creating continuous N-S experience

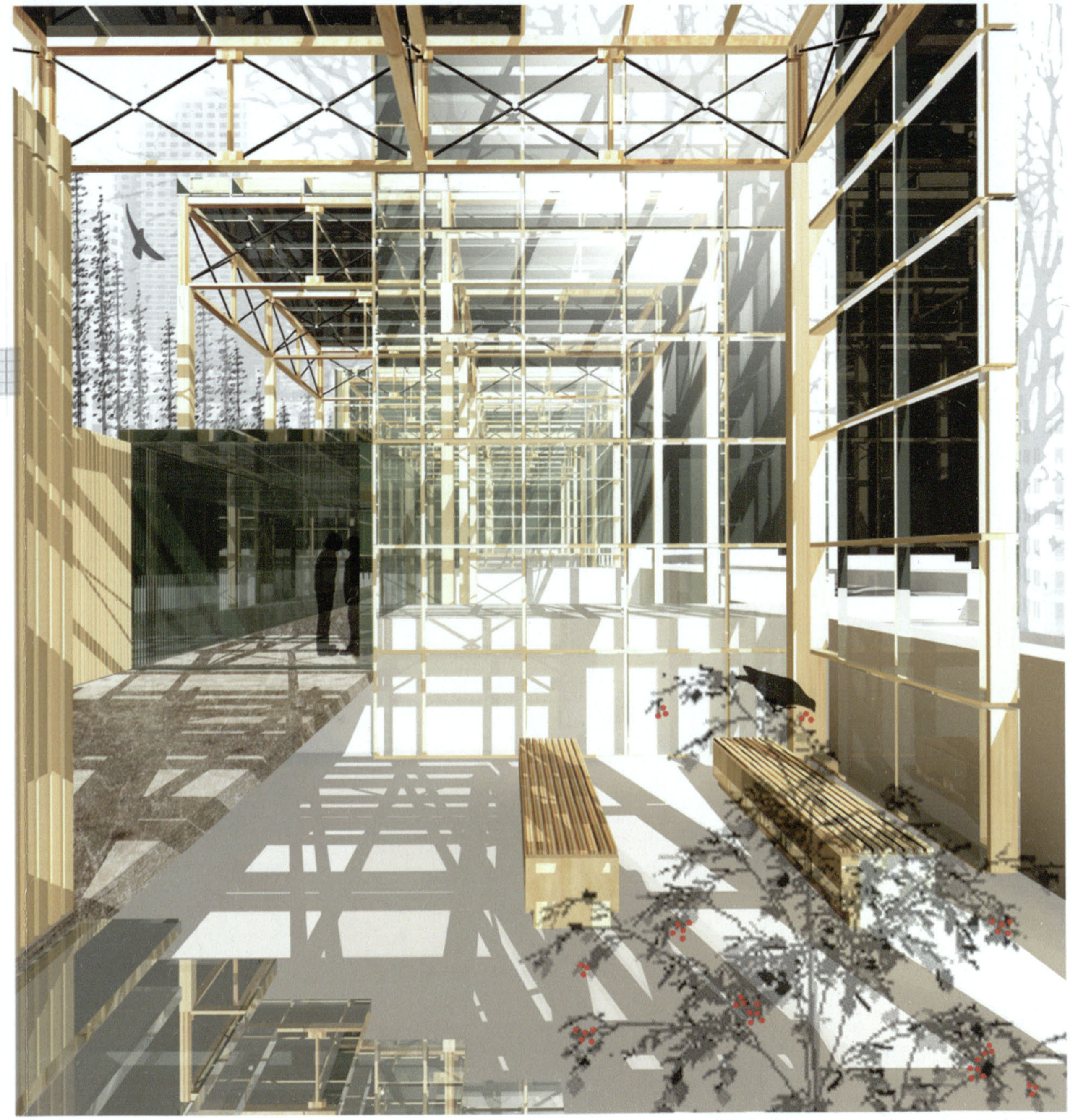
water: new residential towers filter greywater; pump to local XP before draining down to local LP



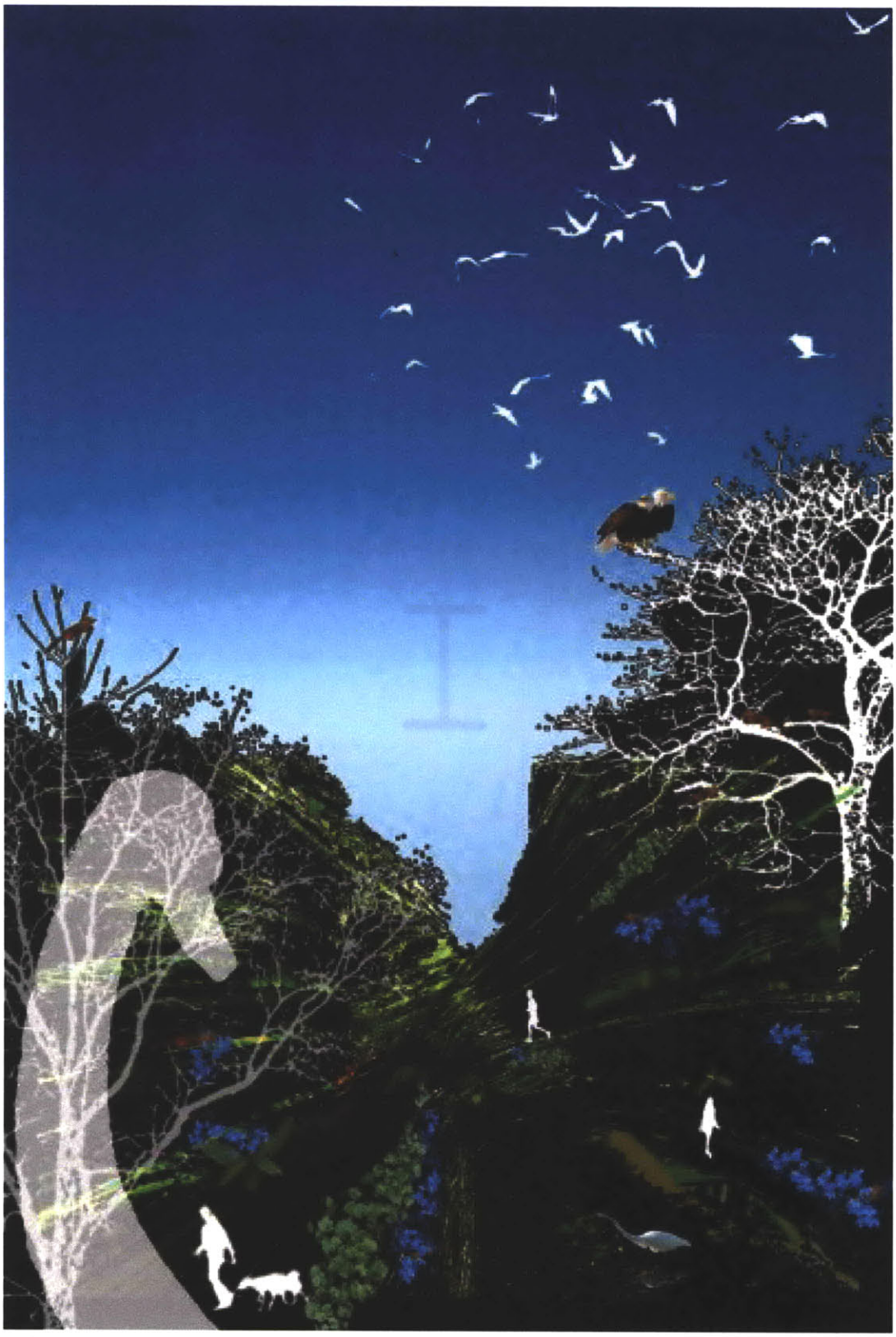
(6) framework of paths and places



(8) peaceful co-existence



(3) conceptual section: one mile of spring in january



PART ONE

THE PERCEIVED PROBLEM

1.1: 2010

Ecological awareness is not an environmental problem, but a psychological problem. Given current trends of responsible development fueled by applied research in building technology and regional planning, people will soon have the technological prowess and knowledge to reform many of today's environmental mishaps. The future importance of architecture as an active backdrop to everyday life will be to promote ecological consciousness, reminding its inhabitants of how and why they are intimately connected with a much larger and non-anthropocentric world.

'Making an impression may be architecture's most important function. The aim now is to generate excitement or, maybe, to heighten awareness. Architecture at its best forces the user to notice or rethink conventional behavior; it insists that you enter a contemplative state.' (Lubow, Arthur. "How Architecture Rediscovered The Future." New York Times Magazine, May 18, 2003.)

Architecturally, our buildings and cities acknowledge their primal role of mediating the relationship between man, his surroundings, and the natural elements, accomplishing this through the vigorous and strategic use of both traditional and modern technologies.

The difficult task of future architecture and urban design will be to provide physical habitable conditions that are based on a strong and fundamental understanding of the cycles in which things live and grow, achieving these forms through the use of current technologies in ways that reinforce man's connection to his roots rather than alienate him from them.

PART ONE

THE PERCEIVED PROBLEM

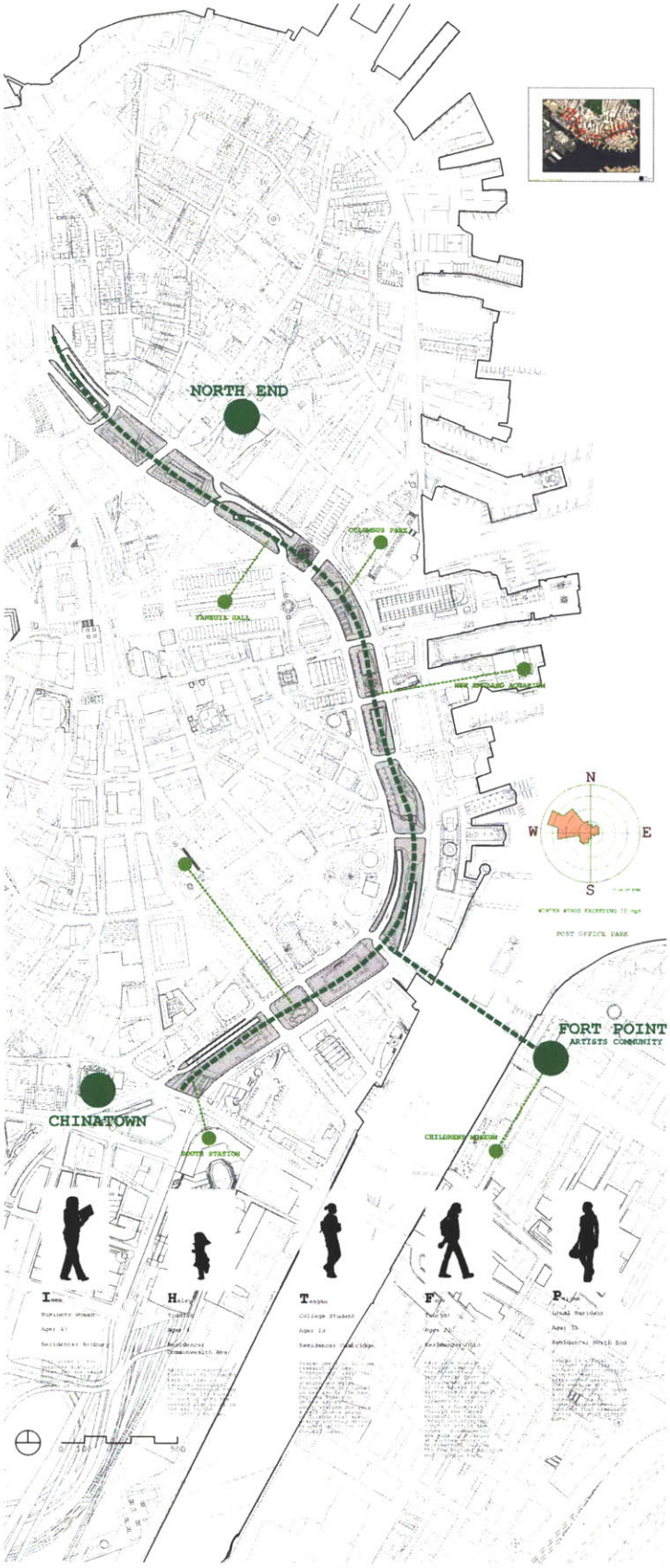
1.2: Site Context

Downtown Boston serves as an ideal place to test these ideas, as it is the site of the Big Dig (also known as the Rose Kennedy Greenway), a recently completed $14,000,000,000 urban-design project with the intention of creating a more pedestrian-friendly environment reconnecting various parts of the city by relocating the elevated Central Artery highway underground.

The main section of the Rose Kennedy Greenway comprises of 11 blocks stretching one mile between Chinatown and the North End. Of these, two blocks are rendered nearly-useless because of highway on/off ramps slicing through the middle of the blocks.

The greenway provides numerous East-West cross-connections especially as compared to the Central Artery that it replaced, but it did not quite become the vibrant and active urban connector as was hoped, resulting in a string of under-used urban places that do not add up to a whole larger than the sum of its pieces.

Various blocks were designed by different designers; too many people were involved, each only capturing bits and pieces. In the process, the overall vision of the park's identity was lost.


NORTH END
COLUMBUS PARK
FANEUIL HALL
N
W
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POST OFFICE PARK
FORT POINT
ARTISTS COMMUNITY
CHINATOWN
CHILDREN'S MUSEUM
T
College Student
Age: 19
Residence: Cambridge
F
Age: 20
P
Local Resident
Age: 35

PART ONE

THE PERCEIVED PROBLEM

1.2: Site Context.

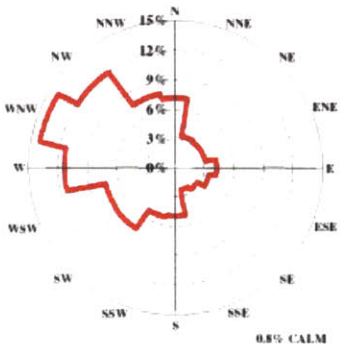
In contrast, Olmsted's plans for the Emerald Necklace in the late 1800's comprised of one simple and consistent vision: A place for urbanites to enjoy nature throughout their city.

'Spring in January' takes the idea of intgrating man and nature in the city a step further, addresses the one thing he left out: Inclement weather.

- Monthly Statistics for Dry Bulb temperatures °C

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum	13.9	8.3	17.8	27.8	30.0	32.2	33.3	30.6	31.1	22.2	21.7	18.3	
Day:Hour		12:01	11:24	27:17	18:13	29:14	11:16	20:12	22:13	14:14	3:11	9:13	1:09
Minimum	-11.1	-12.8	-8.9	-3.3	3.1	11.1	14.4	12.2	7.8	3.3	-7.2	-15.0	
Day:Hour		31:08	17:06	17:07	5:05	1:06	7:02	5:02	5:05	29:06	27:06	14:06	24:06
Daily Avg		-1.5	-0.5	2.5	7.4	14.9	19.3	22.6	21.5	18.1	12.3	5.7	1.2

- Maximum Dry Bulb temperature of 33.3°C on Jul 20
- Minimum Dry Bulb temperature of -15.0°C on Dec 24



ALL WINTER WINDS

Directional Distribution of Wind

Environmental Character

Greenway District Planning Study | Public Meeting 2 | 18 March 2009

var. early-blooming species

Statistics for USA_MA_Boston-Logan_TMY2
Location -- BOSTON MA USA
(N 42° 22') (W 71° 1') (GMT -5.0 Hours)
Elevation -- 5m above sea level
Standard Pressure at Elevation -- 101265Pa
Data Source -- TMY2-14739

WMO Station 725090

- Using Design Conditions from "Climate Design Data 2005 ASHRAE Handbook"

- If the design condition source is ASHRAE, the design conditions are carefully generated
- from a period of record (typically 30 years) to be representative of that location and
- be suitable for use in heating/cooling load calculations. If the source is not ASHRAE,
- please consult the referenced source for the reasoning behind the data.

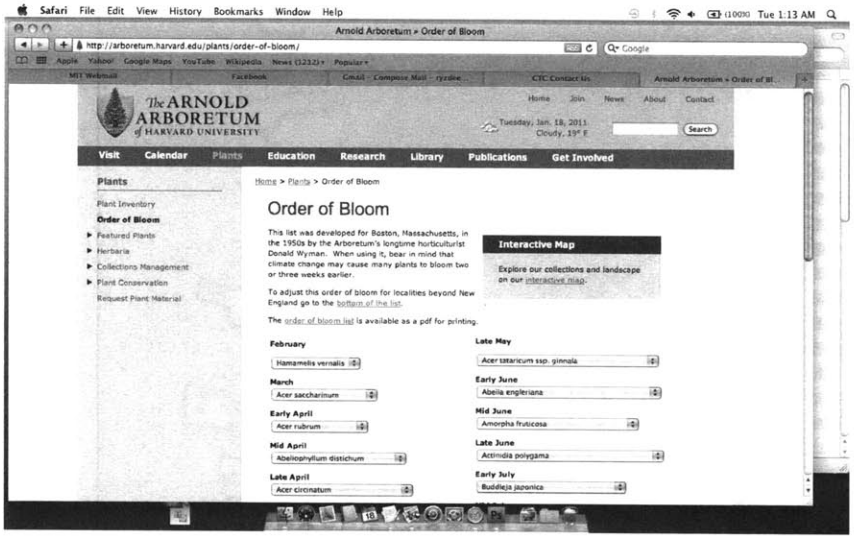
- Monthly Statistics for Solar Radiation (Direct Normal, Diffuse, Global Horizontal) Wh/m²

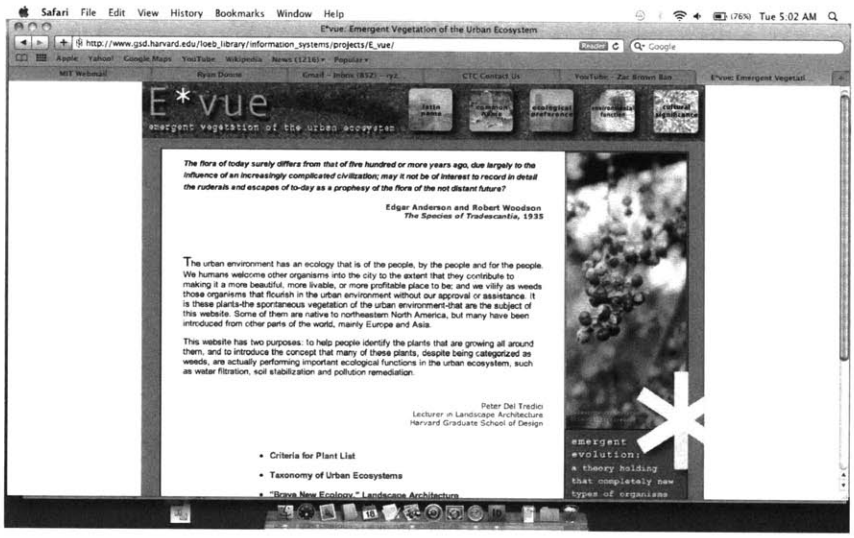
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Direct Avg	2862	3307	4054	3831	4513	4623	4772	4674	4188	3910	2382	2425
Direct Max	6675	6931	9618	9929	10617	9229	10334	9275	8669	7787	5889	6457
Day	26	16	26	5	22	13	5	20	9	26	30	29
Diffuse Avg	871	1373	1578	2227	2463	2813	2700	2403	1849	1317	1007	821
Global Avg	1853	2776	3791	4594	5572	6029	6031	5438	4258	3170	1897	1582

PART ONE

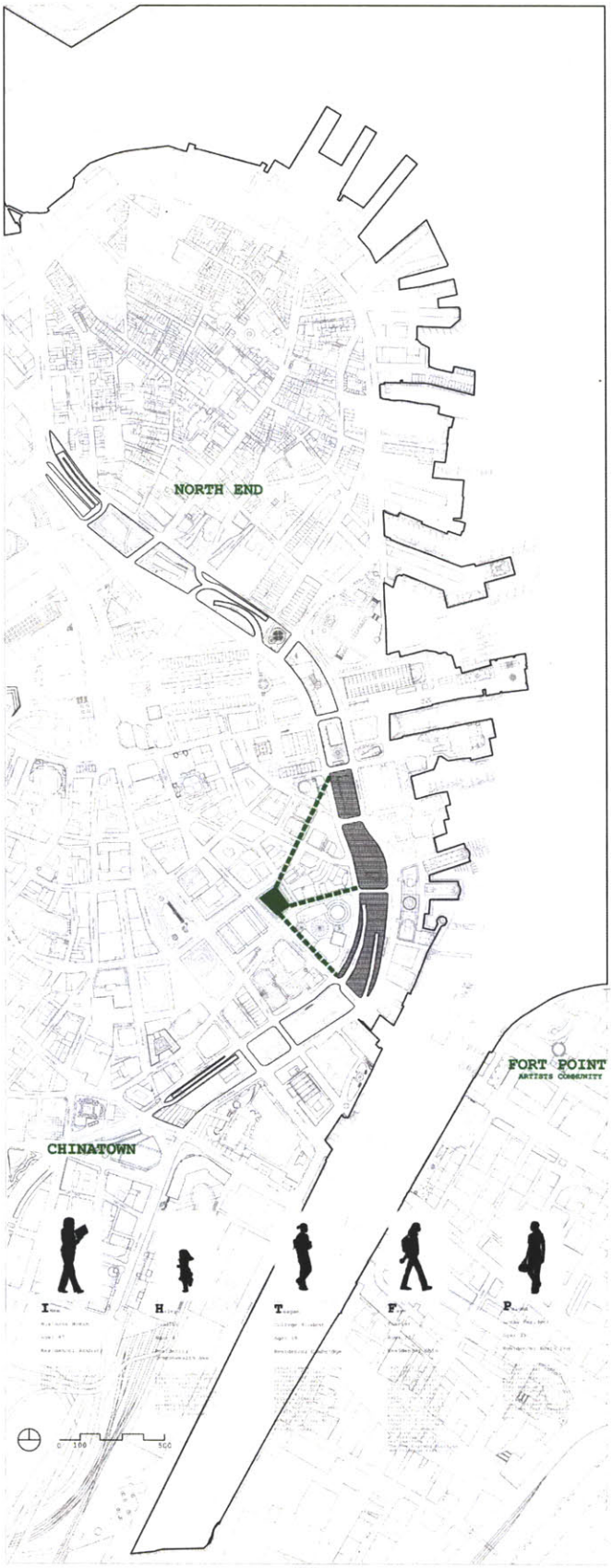
THE PERCEIVED PROBLEM

1.3: Site Ecology





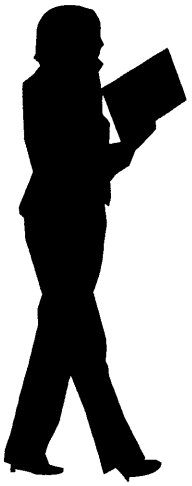
* see 2.4 (p.83) for synthesis of regional building technology calculations


NORTH END
FORT POINT
ARTISTS COMMUNITY
CHINATOWN
I
H
T
F
P
0
100
500

PART ONE

THE PERCEIVED PROBLEM

1.4: Site Analysis:
Archetypical Users

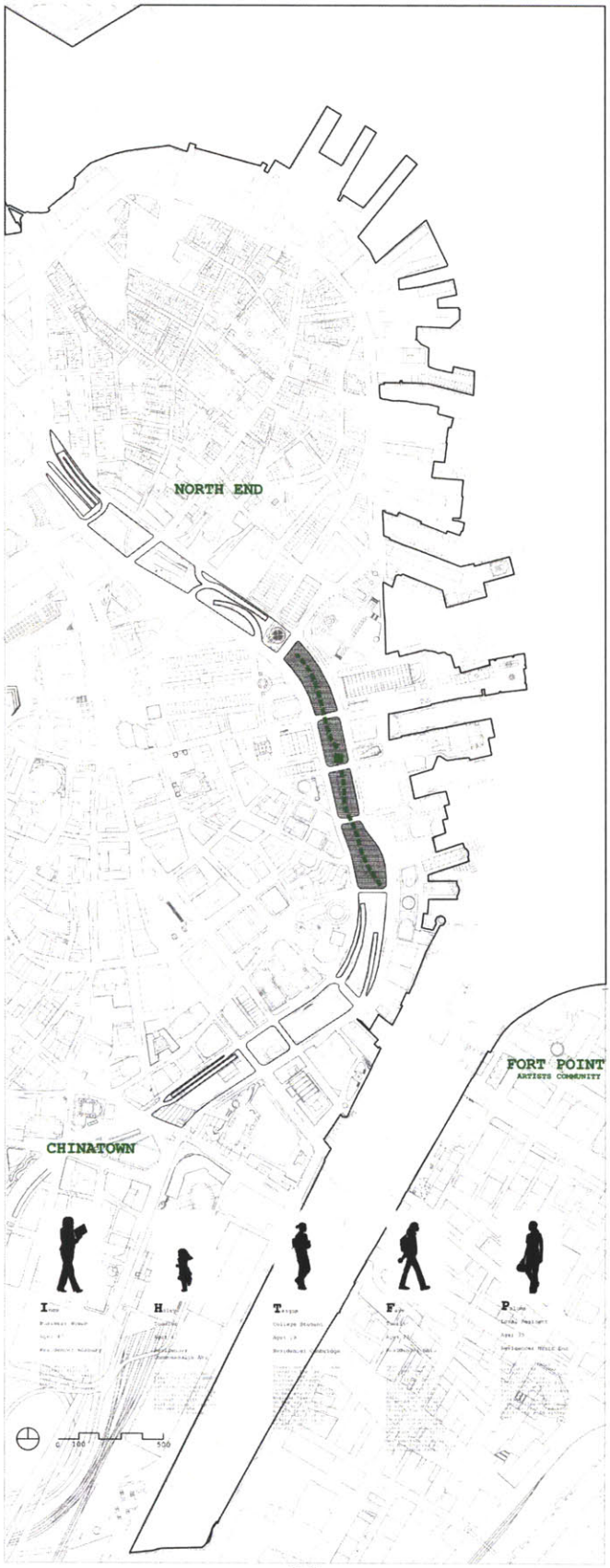


Name: Ines
Occupation: Business Woman
Age: 54
Residence: Roxbury

Ines works in the Central Business District. She sits at a nondescript desk in a nondescript highrise doing nondescript things all day; she has been thoroughly numbed by the city.

Her favorite part of each day is lunch, when she can go outside and walk along different portions of 'Spring in January.' There, she takes deep breaths of fresh air hinted with jasmine, finds a nice peaceful cube that protects her from the elements while offering her a view of the water, and eats lunch while reading a book.

She cherishes her time with 'Spring in January' because it offers her both mental and physical refuge from her daily grind. She sits on a rough stone bench under the dapple light filtering through the foliage of a flowering Paulownia, gradually taking slower, deeper breaths, relaxing, .. closing her eyes, pretending to be on-board one of those yachts in the harbor, sailing far far away from that damn cubicle ..


NORTH END
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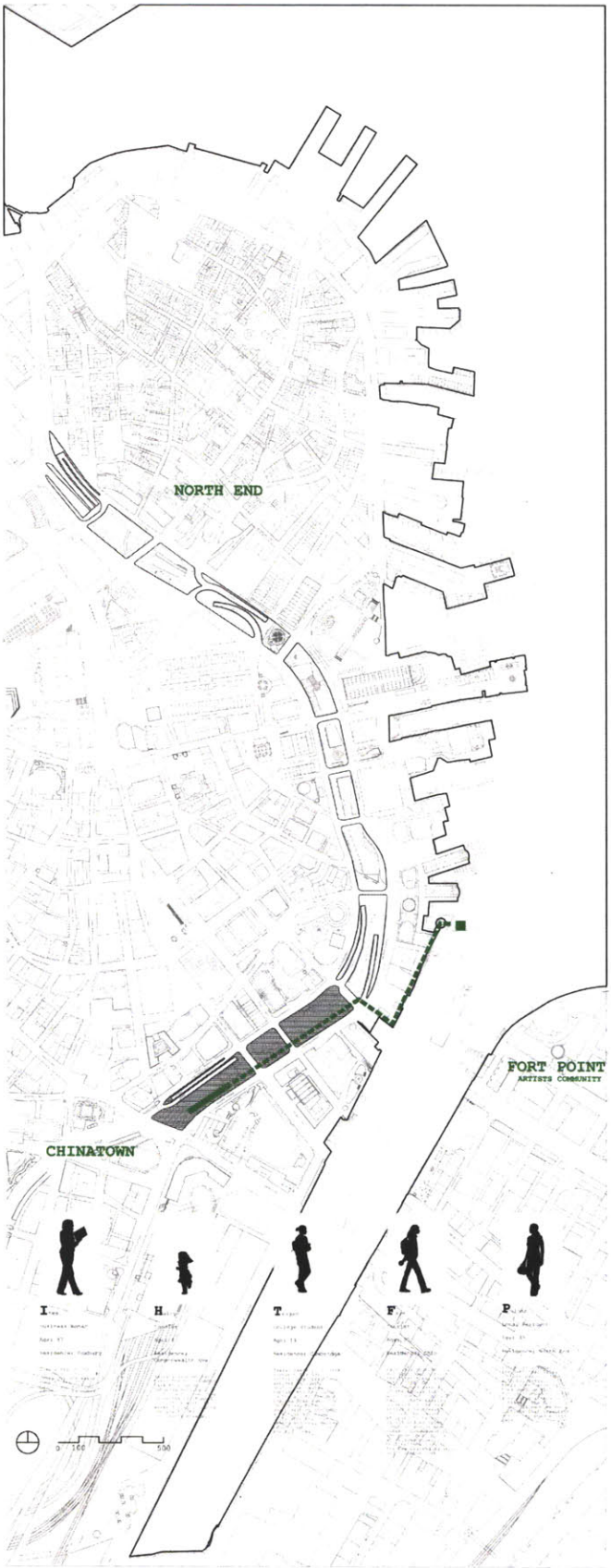
CHINATOWN

1.4: Site Analysis:
Archetypical Users

Name: Haley
Occupation: Toddler
Age: 4
Residence: Commonwealth Ave

Haley is a pre-schooler and so far, she loves the academic life - mainly because of all the sweet field trips. She attends the John Winthrop School which has partnered with the Rose Kennedy Greenway's Outdoor Education Program, providing outdoor classrooms to local schools within the 'Spring in January' experience. Every tuesday morning, the class learns first-hand about urban flora and fauna in the outdoor classroom, typically from third-party groups such as the Massachusetts Audubon Society.

Through these lessons, urban children have the opportunity to reconnect with natural flows, learning that Nature and the City are not mutually exclusive.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PART ONE

THE PERCEIVED PROBLEM

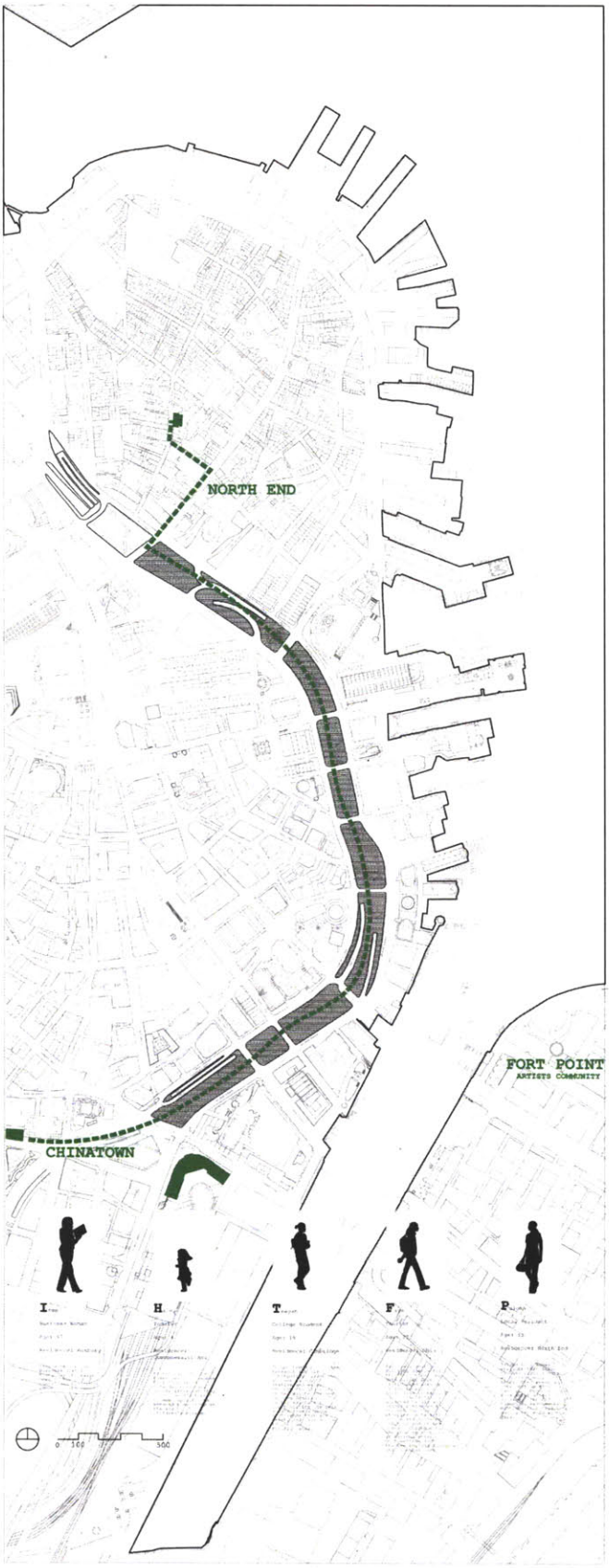
1.4: Site Analysis:
Archetypical Users

Name: Teagan
Occupation: College Student
Age: 19
Residence: Cambridge

Teagan attends a very inconspicuous university in Cambridge that nobody's ever heard of. She studies marine biology, and regularly goes out on department-funded whale research vessels between the months of april and november.

On the day of an outing, Teagan likes to begin by exercising her mental muscles, doing yoga in the park *(p. 148) and recollecting herself. It is always better to start the day calm - year round.

After her session she walks to the docks a block away, has a David Attenborough afternoon and returns to shore just after sunset, exhilarated and ready for celebration. She meets her BU friends for dinner (hugs!!) and everybody goes out for dirty martinis afterwards. Not a bad day at all. Is berry nahss, this Harvard life. i like.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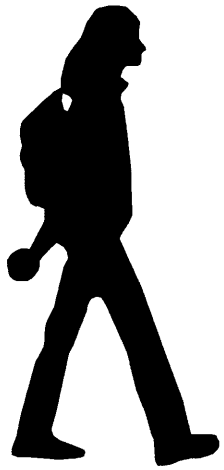
1.4: Site Analysis:
Archetypical Users



Name: Faye
Occupation: Tourist
Age: 34
Residence: Ohio

Faye is a tourist visiting Boston for the first time and is from the very respectable state of Ohio (YO!). Ah, Cleveland .. so much nothing to do.

She has come to beantown to reunite with her long-lost friend from her college days, an ass with a natural reflex to make fun of her state for absolutely no reason .. although deep down he loves it there.

She arrives at South Station at 2pm and the two reminisce as they walk through 'spring in january.' The plan was to eventually walk to the North End for dinner outside under a heat lamp and cannolis in a cafe for dessert afterwards, but first they would have a late lunch with lots of dumplings in Chinatown, just a few blocks south.

She didn't see or do that much by the time she left Boston, but all it took was a little bit of time in a few nice places to form lasting memories.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PART ONE

THE PERCEIVED PROBLEM

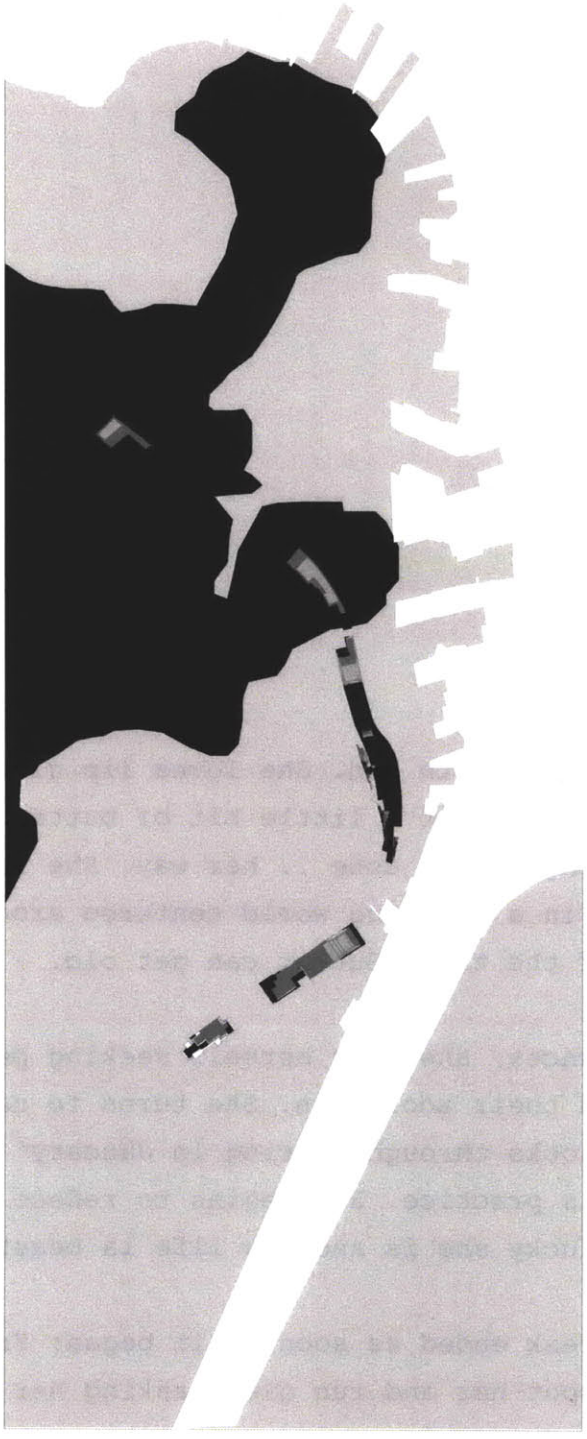
1.4: Site Analyisis:
Archetypical Users

Name: Paloma
Occupation: Prima Donna
Age: 15
Residence: North End

Paloma is local to the North End. She loves lip gloss, coconut water, and toasted bagels with just a little bit of butter. She is a sassy high-schooler getting things done .. her way. She is accustomed to constant attention in a thriving world centered around her and she loves it .. most of the time. But it can get old.

In these rare instances, she finds herself seeking peace and solitude from the masses and their adoration. She turns to nature for a **break**, meandering a few blocks through 'Spring in January' as she makes her way home from tennis practice. She begins to reflect on other aspects of life, like how lucky she is and how life is beautiful ..

but her peaceful break ended as soon as it began: Friends from her rival high school spot her and run over, asking her about the *three* proms she was invited to this year!! Just like that, her break is over and she's enveloped once again by her reality .. but that's how she rolls. Keep it movin' baby. And **take your breaks seriously.**



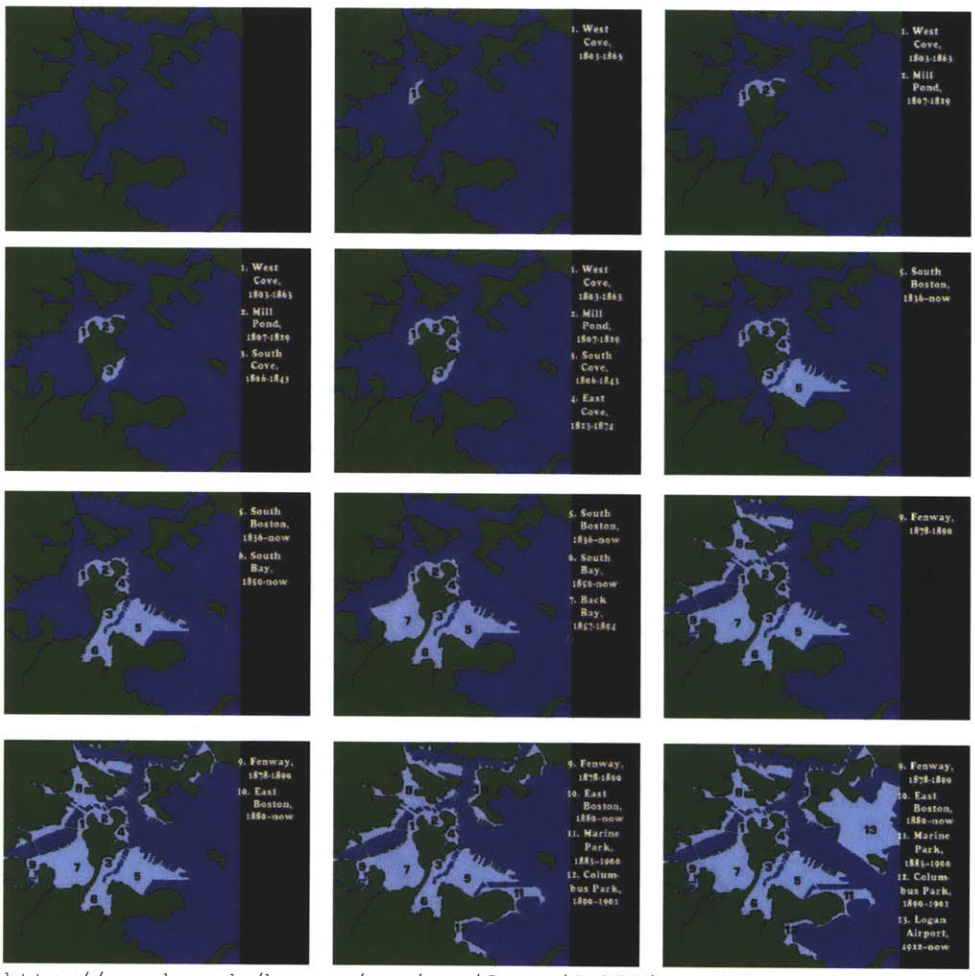
PART ONE

THE PERCEIVED PROBLEM

1.4: Site Analysis:

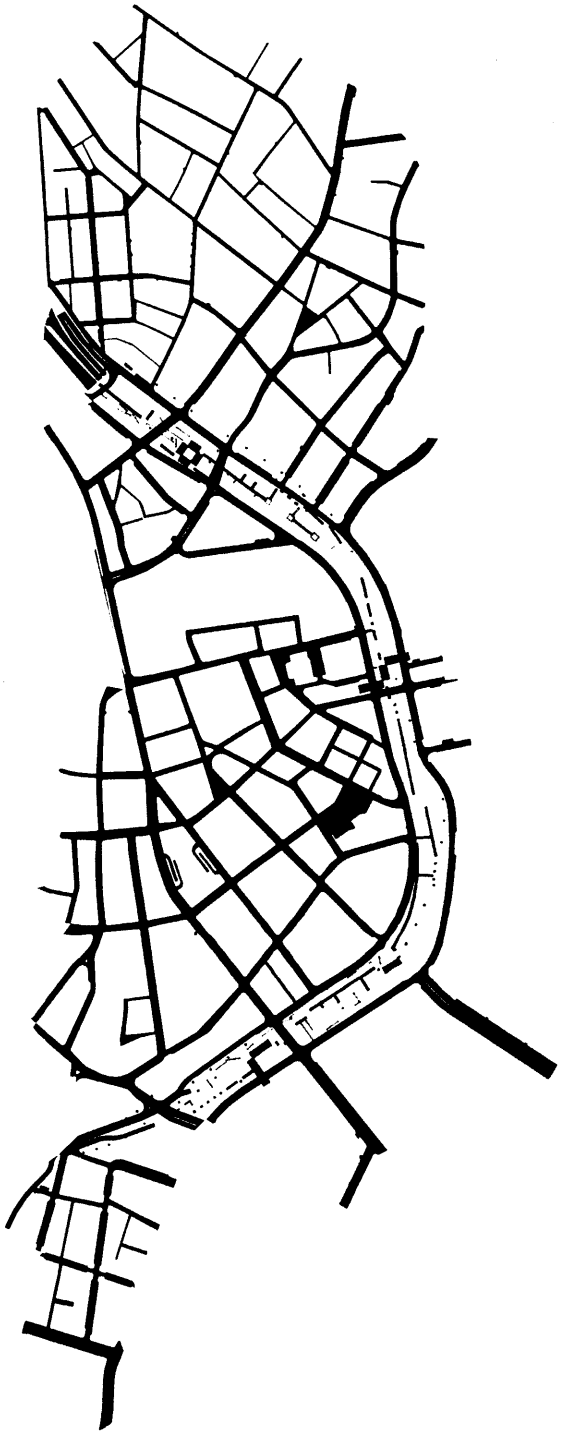
Topography

Boston has a long history of building ground:



http://www.bc.edu/bc_org/avp/cas/fnart/fa267/bos_fill.html

'Spring in January' follows this tradition by strategically creating local high- and low-points throughout the mile-long site that establish water management systems on the block-scale as well as provide vistas to the harbor and surrounding neighborhoods.



PART ONE

THE PERCEIVED PROBLEM

1.4: Site Analysis:
Circulation (paths)

An urban-scale framework of paths and places reconnect the city and provide distinctly-boounded areas that offer rich varieties of sheltered pedestrian-friendly experiences.

Public spaces make connections through the city.

It is not about the buildings. This is why the connective framework holding the buildings - in whatever form they are, comprised of paths and places - are so important in holding together the spirit of the city.

PART ONE

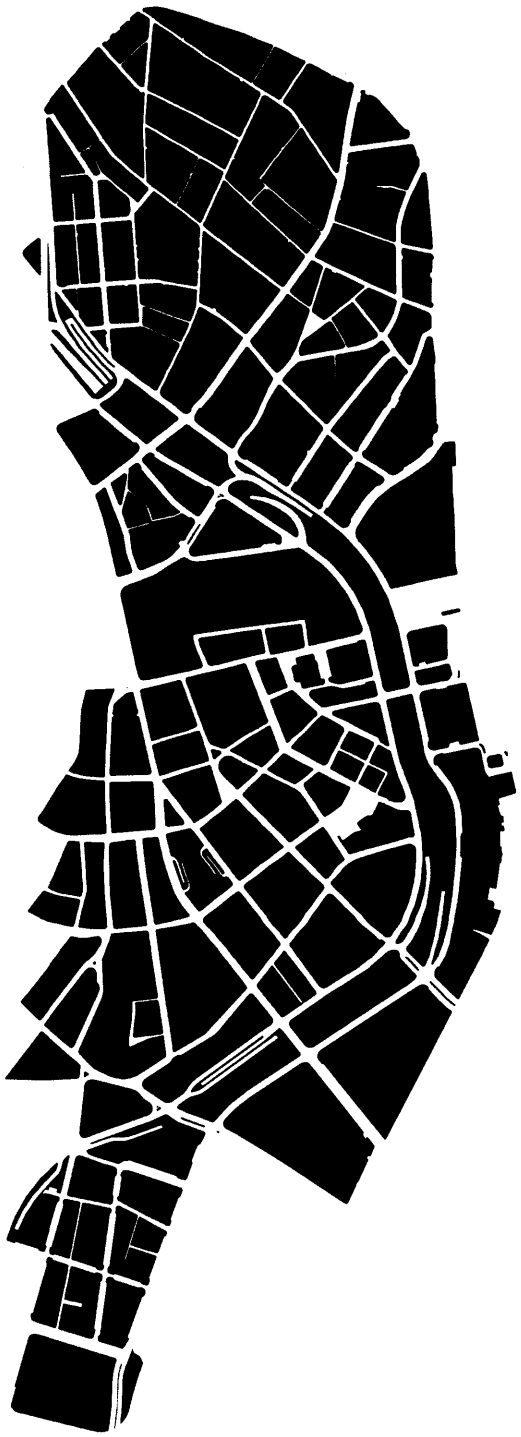
THE PERCEIVED PROBLEM

1.4: Site Analysis:
Buildings (places)

There are two sizes of pavilions within 'Spring in January' - large 64' square cubes, and small 32' square cubes.

Together, they are sprinkled along the 1-mile stretch, connected by paths and creating a continuous melody through the city.

Typically, one experiences the city primarily through buildings. 'Spring in January' takes over the valley cutting through the concrete jungle, forming space and making place primarily through the spaces between the cubes, creating a continuous, seamless flow from one part of the city to another.



PART ONE
THE PERCEIVED PROBLEM

1.4: Site Analysis:
Blocks (places)

11 existing blocks reduced to 6 longer blocks in an effort to give the park ('spring in january' pedestrian experience) to breathe and to give it a stronger and more unified sense of identity and presence.

Why were there originally 11 blcoks?
Because it maximized the number of street intersections (10).

Why was that desirable?
Because we lived in a car-centric city.

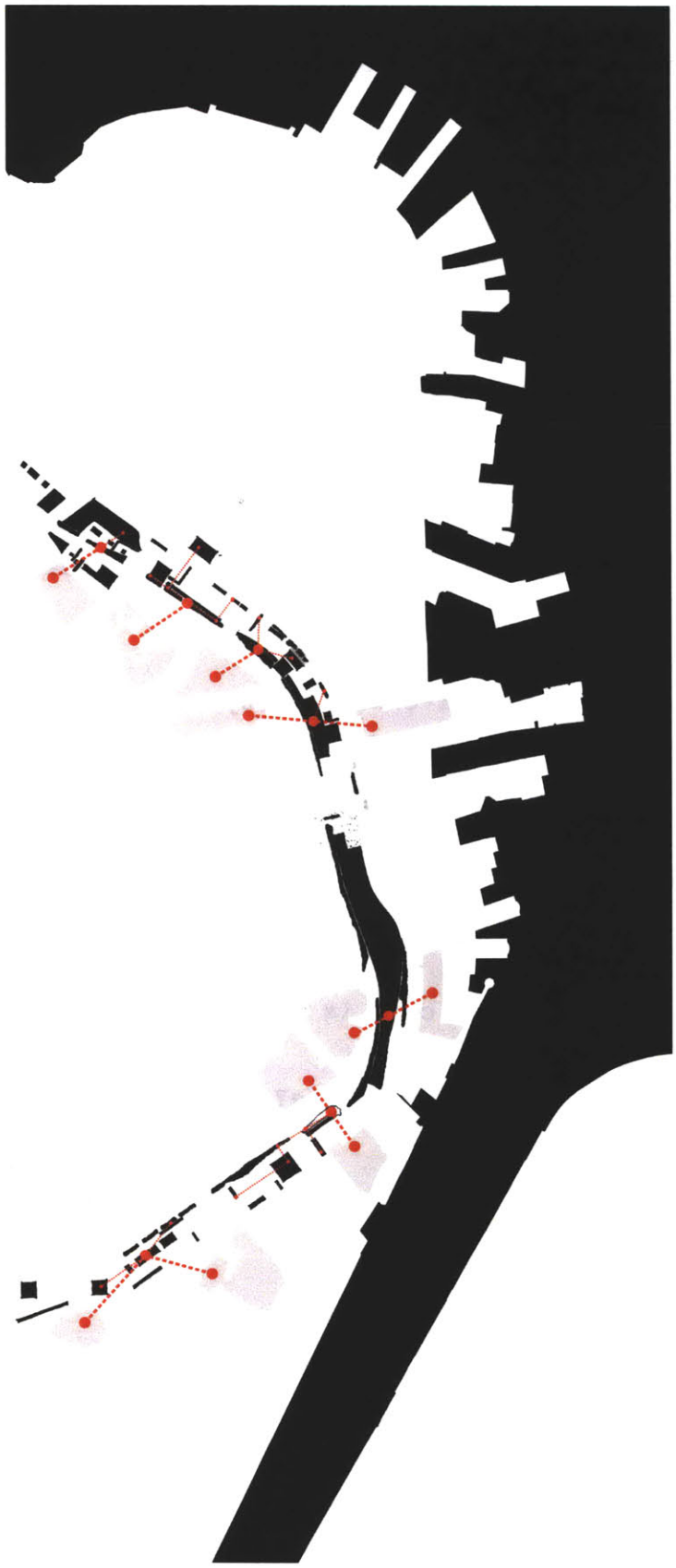
The aim now is to inspire a pedestrian-centric city:
This means that solving urban problems and providing urban experiences is dealt with from the pedestrian's point of view, not from that of an automobile.

So we make a stance: The city is less about cars, more about people.

What should 'Spring in January' be?

- walkable
- pleasant sheltered experience
- relaxed pace
- continuous
- safe

It provides a different attitude regarding city / nature experience.



PART ONE

THE PERCEIVED PROBLEM

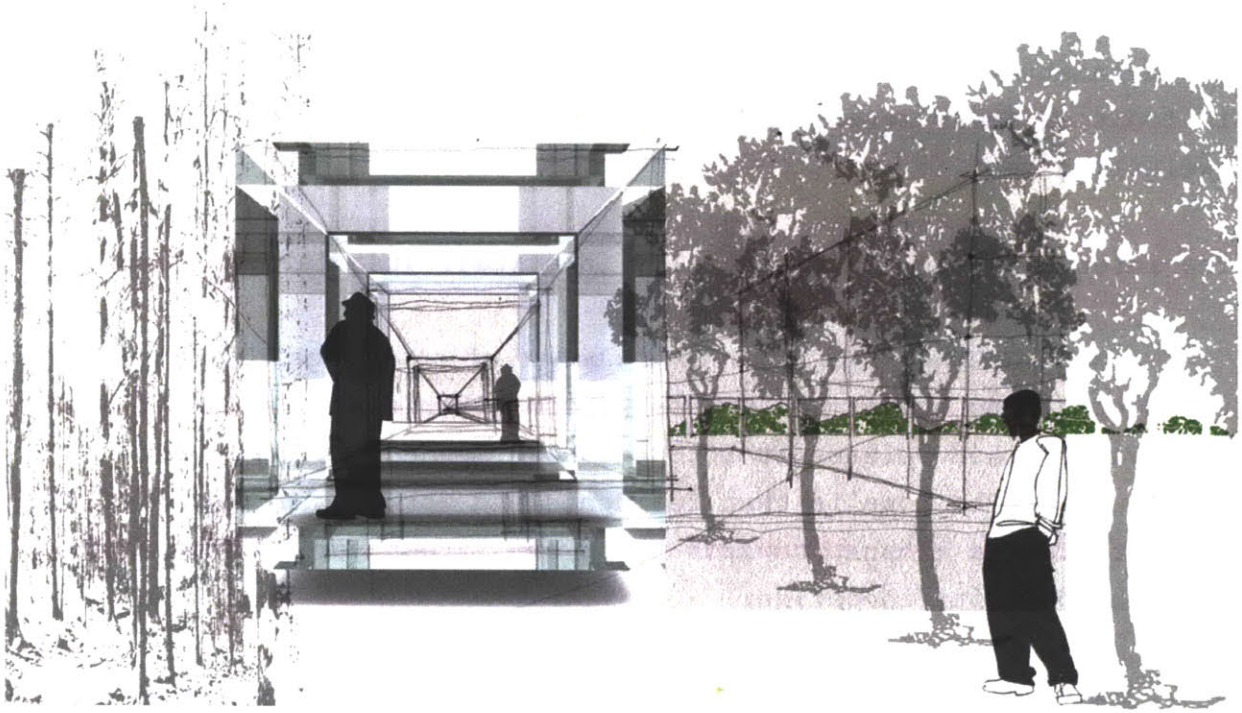
1.4: Site Analysis:
Water management

I travelled to Beijing this past summer with Jan and Dennis for the MIT/Tsinghua Urban Design Studio. There, I noticed that many store owners would throw buckets of cold water out onto their stoop facing the main street. They did it for two reasons; to clean up the sidewalk in front of their store, and to cool off the street itself in the sweltering heat.

The intention here is conceptually identital, just larger in scale:

Downtown Boston is home to a number of new large high-rise residential and commercial towers. These highrises filter their own grey-water, then release it into the Rose Kennedy Greenway and 'Spring in January.' The hope is that residents and workers in these buildings begin to feel a kinship towards their own 'front yard' because they had a hand in its inception.

These water bodies on site flow through the new topography created, with each block governed by local high and low points gravitationally directing the flow of water throughout the site.

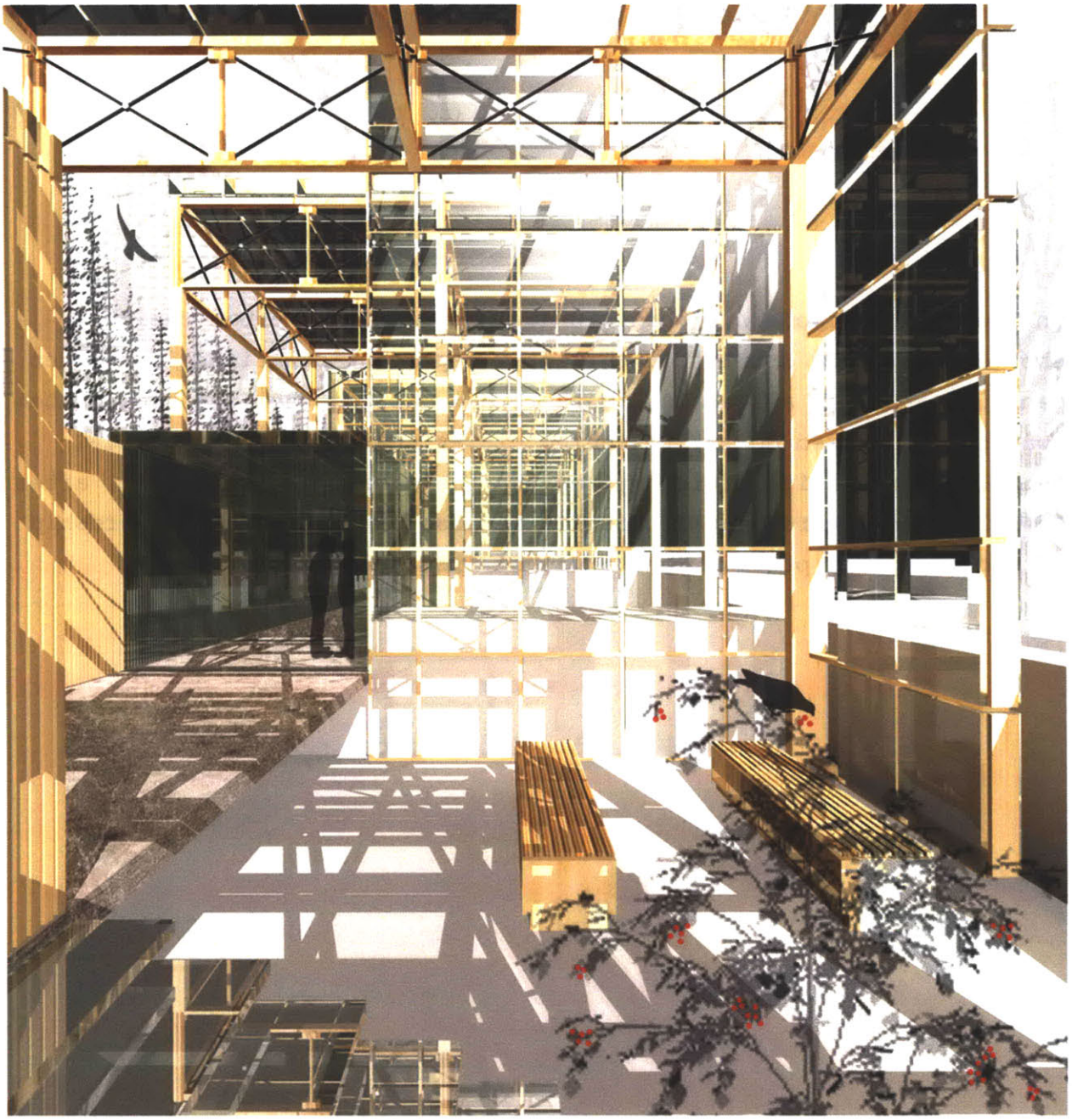


PART ONE

THE PERCEIVED PROBLEM

1.5: Potentialities

In the end, our modern architecture, landscape, and urban design should tell vivid stories of the inter-dependent relationship between man and nature at all scales, rather than masking them and hiding them away behind closed doors. Designing cities that promote ecological consciousness in its citizenry negates the question, 'what next, after we solve the environmental crisis?' because environmental stewardship is not a topical problem, but a way of life.



PART ONE

THE PERCEIVED PROBLEM

1.6: Architecture as Apparatus and Instrument

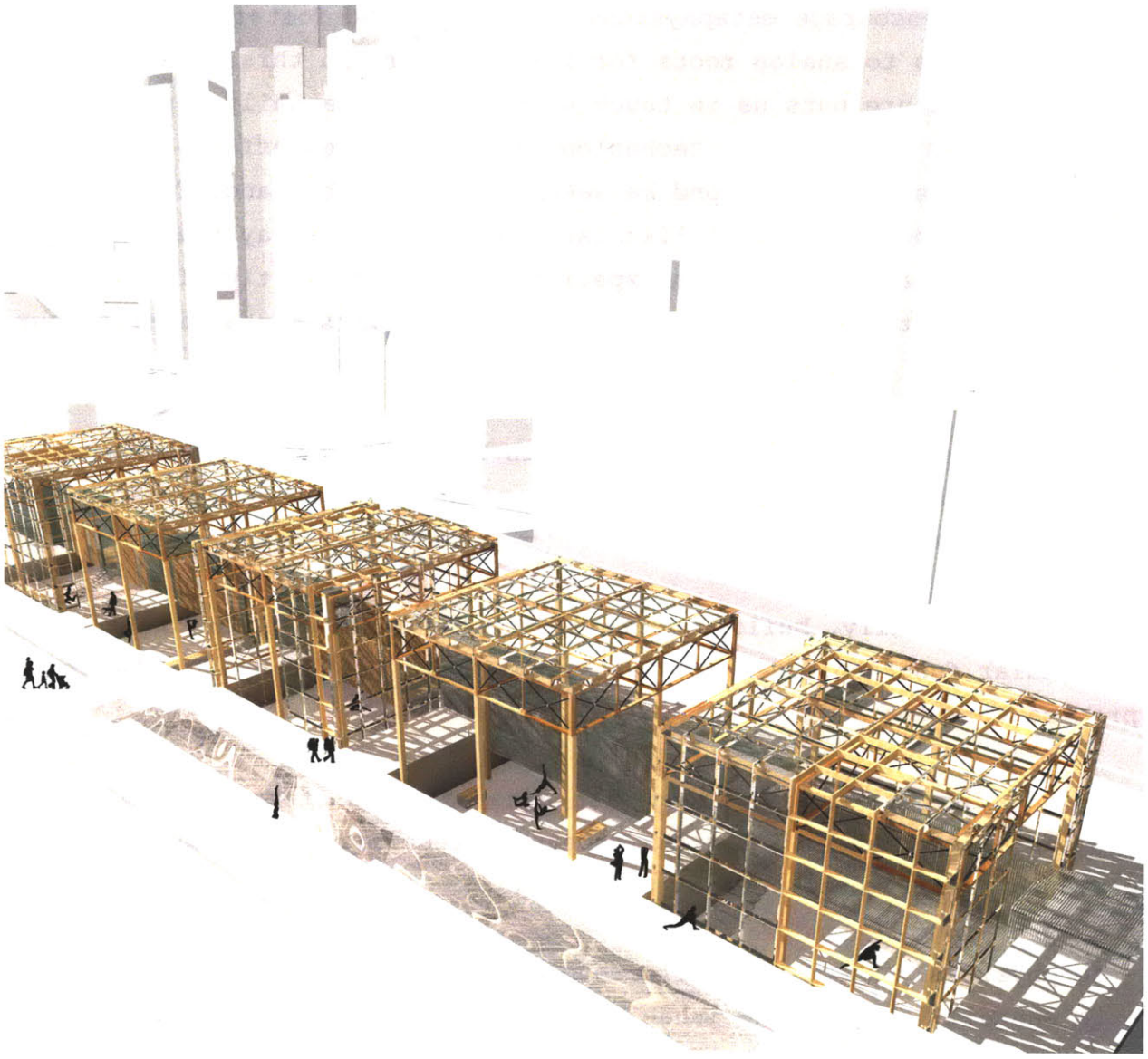
Cities encourage metaphysical awakenings and foster physical re-connections to analog roots for its citizenry in this digital age. Architecture puts us in touch with nature on a daily basis by appropriating and applying technologies in concerted efforts to strengthen the conscious bond between people and The Land. Technology allows architecture to feel like landscape in such a way that the memory of an inhabitant's experience comprises mostly of his interaction with the natural elements. Built environments liberate our senses.

In a lecture given at MIT on March 12, 2009, Stanley Saitowitz argued that buildings are 'apparatuses rather than objects; instruments rather than monuments.'

Fundamentally, buildings are 'a specific instrument having a particular function; they are mechanical tools used for delicate or precise work.'

'Spring in January' along with other designs stemming from the Ecological Age reflect a similar demeanor, recognizing the need for our designed environments to 'do' two things:

- to physically shape our world responsibly, and
- to mentally sharpen the inhabitant's awareness of his relationship with this world.



PART ONE

THE PERCEIVED PROBLEM

1.7: Program Statement

Develop one mile of 'Spring in January':

It is a continuous pedestrian experience;
A web of paths and places connecting the city.

It is a large urban stroke holding the spirit of the city together.

It provides physical connectivity between flora and fauna;
It provides mental connectivity between people and their environments.

It is a rooted 21st Century answer on sustaining a pedestrian city.

'Spring in January' has only one function:

To reconnect man to analog roots in a digital age by designing environments with overlapping thermal comfort regions between people and plants.

However, this singular function has multpile applications (see examples through archetypical users, p. 36-45)

A framework of public spaces in the form of basic sheltered environments house various groups of people and their unique agendas. (See outdoor classrooms, p. 137)

A pavilion in the North End is taken over and inhabited differently as compared to a pavilion in Chinatown. This framework does not dictate how to spaces shall be used, but simply that they will be used as sheltered environments for all.

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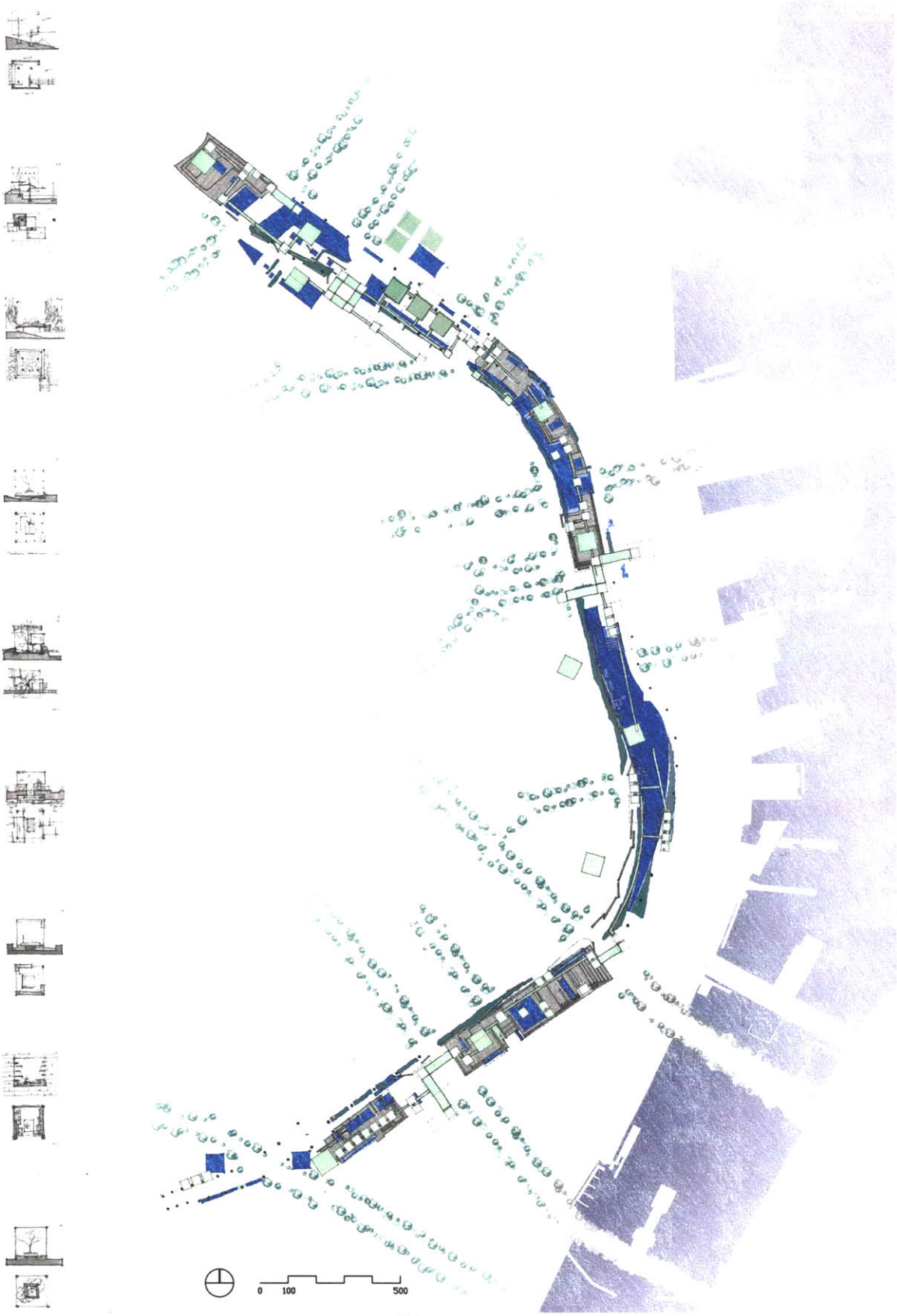
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PART TWO

THE ENVISIONED SOLUTION

2.1: Site Plan

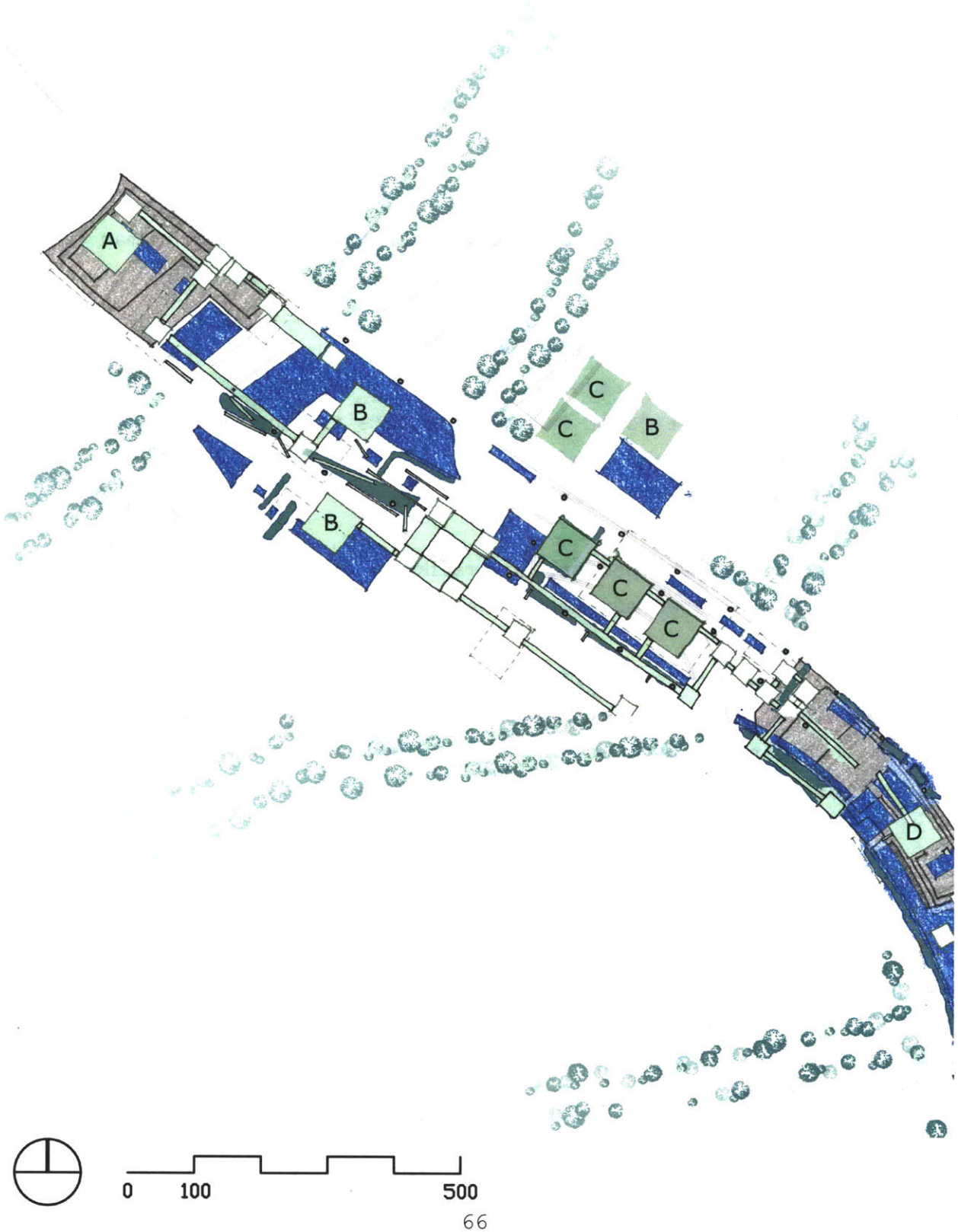
'Spring in January' is a one mile pedestrian experience providing partial shelter from the elements.

It is a reinterpretation of an old idea on how to reconnect man to nature in the city.

It is an urban connector, linking:
North: North End neighborhood
East: Harbor and Fort Point Channel Artist's Community
South: Chinatown neighborhood
West: Downtown, Central Business District

The aim is to increase pedestrian traffic by enticing people to walk in pleasant and sheltered environments;

'Spring in January' in itself is possible only because of the site's preconditions (linear site, highway underneath, urban heat island effect). The intention is to flip the script, corralling a number of these negatives together and transforming them into one positive.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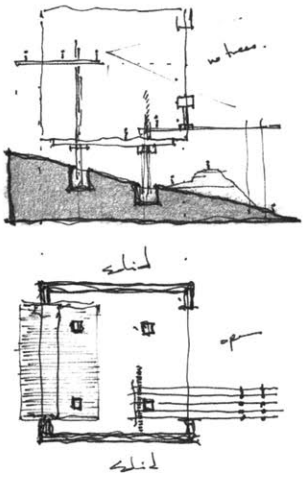
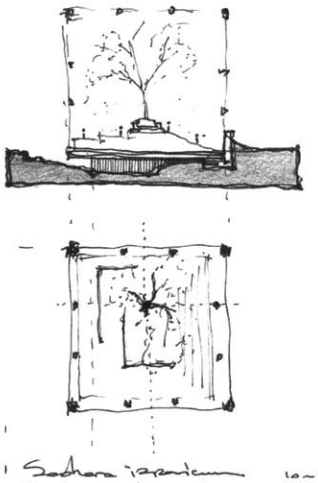
PART TWO

THE ENVISIONED SOLUTION

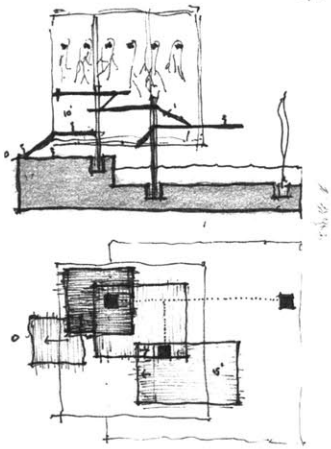
2.1: Site Plan



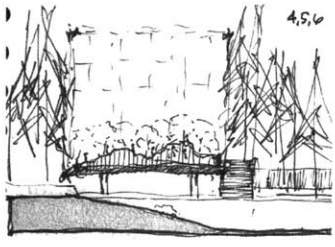
type A: vista to zakim bridge

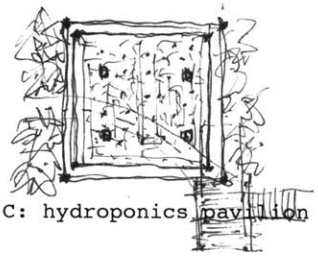


type D: Sophora japonicum

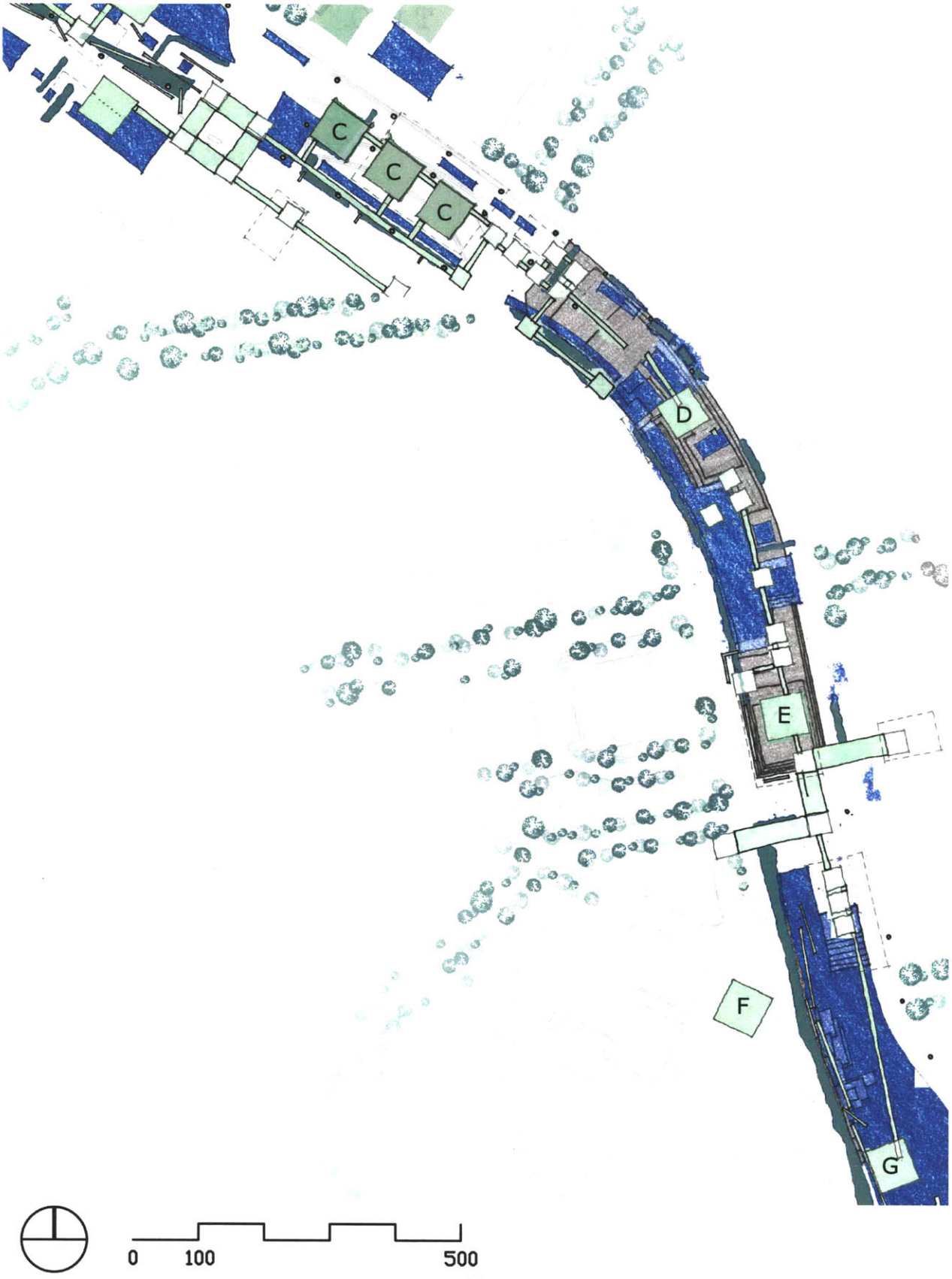


type B: farmers market





type C: hydroponics pavilion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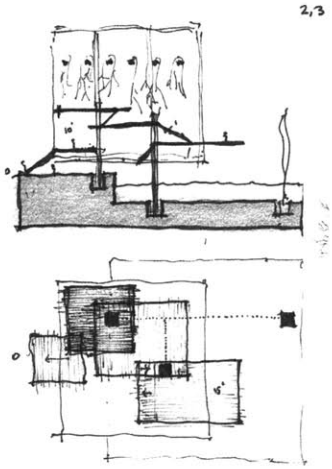
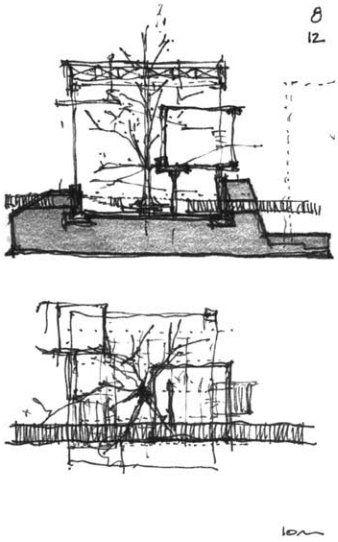
PART TWO

THE ENVISIONED SOLUTION

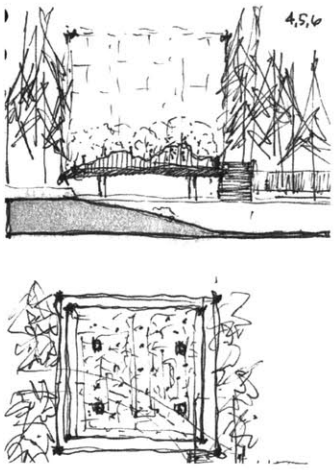
2.1: Site Plan



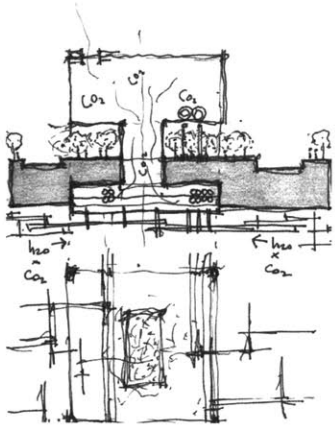
type B: farmers market



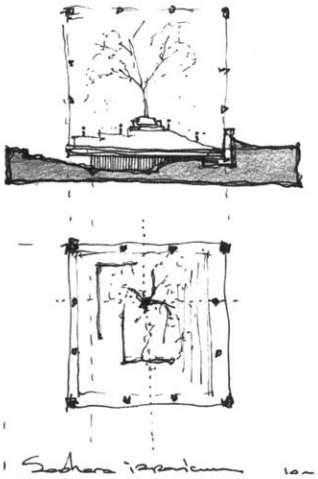
type E: outdoor classroom



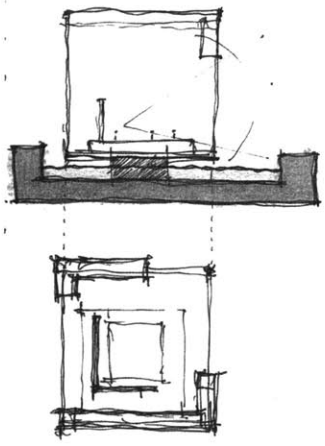
type C: hydroponics pavilion 7



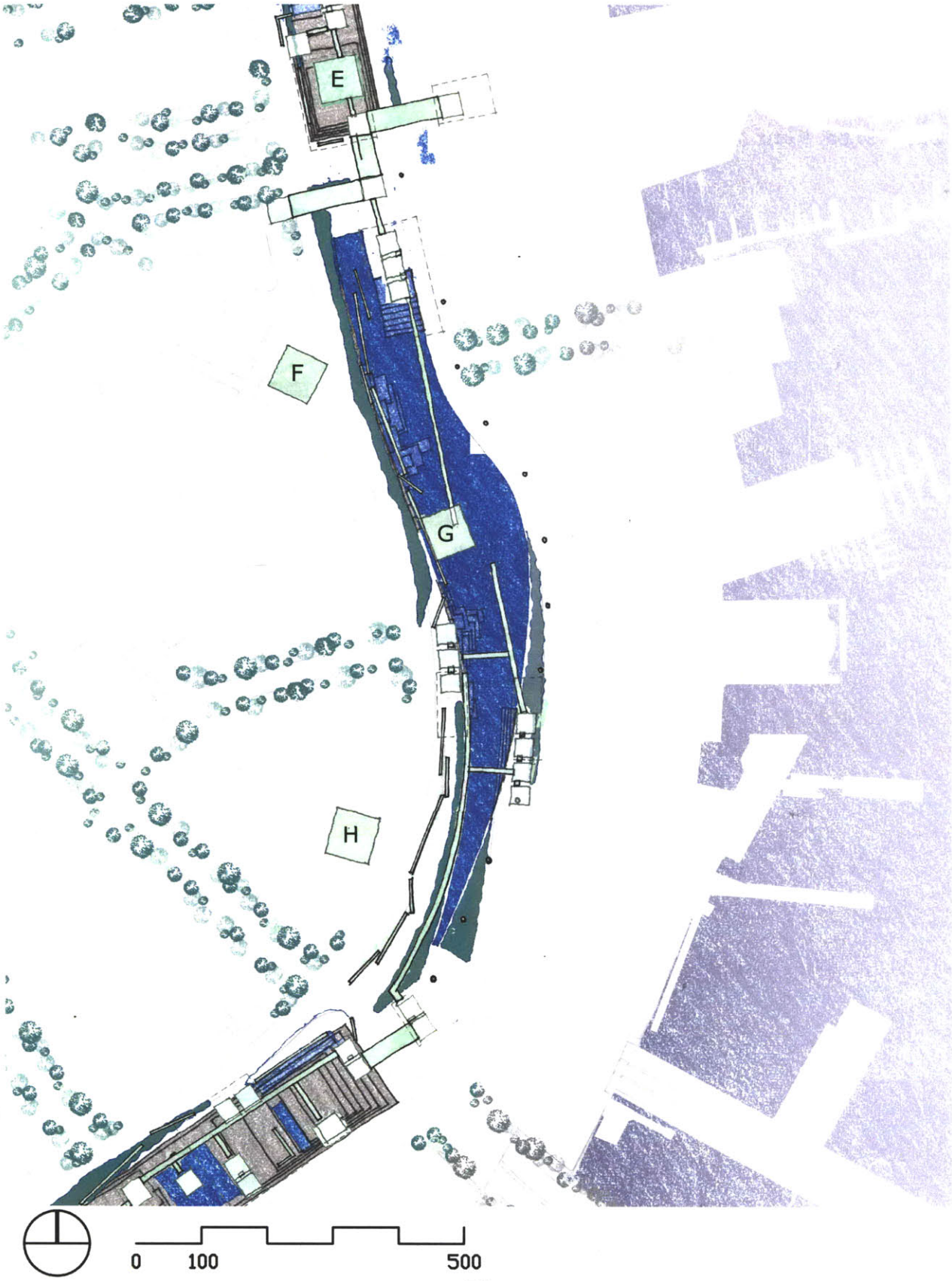
type F: exhaust vent building 10



type D: Sophora japonicum



type G: view to ocean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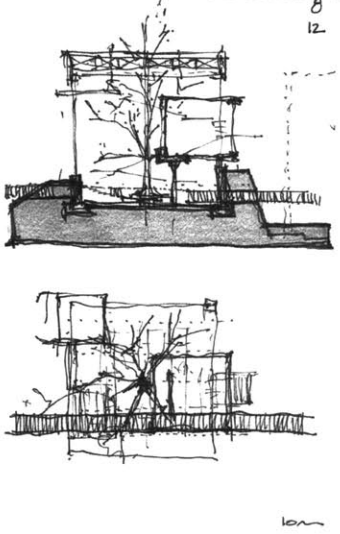
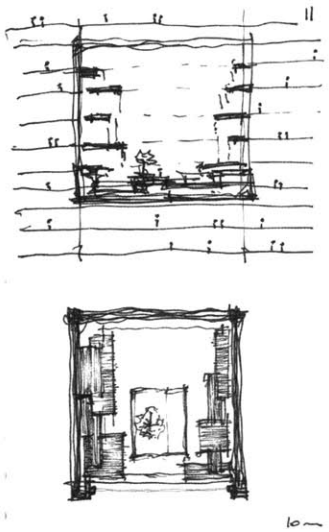
PART TWO

THE ENVISIONED SOLUTION

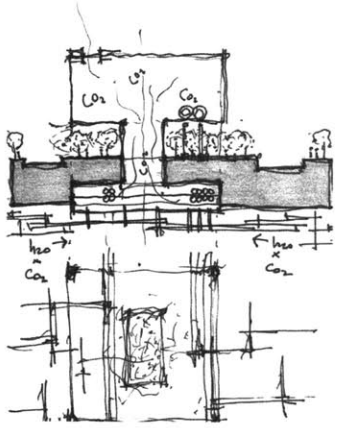
2.1: Site Plan



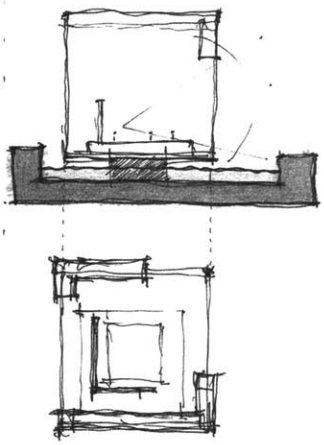
type E: outdoor classroom



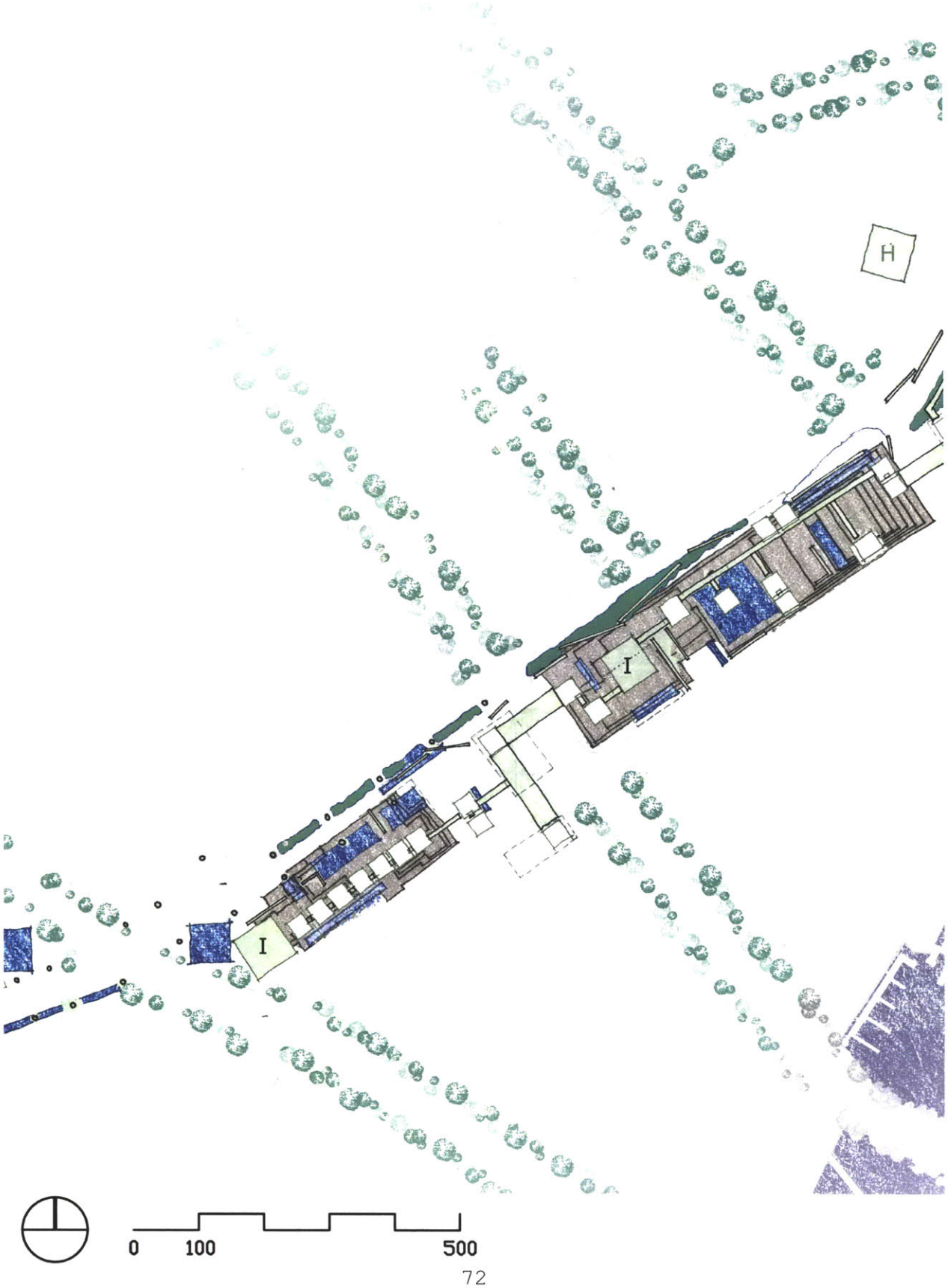
type H: residential tower water collection unit



type F: exhaust vent building



type G: view to ocean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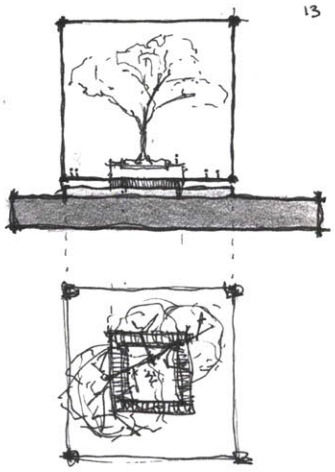
PART TWO

THE ENVISIONED SOLUTION

2.1: Site Plan



type I: Paulownia tomentosa

PART TWO

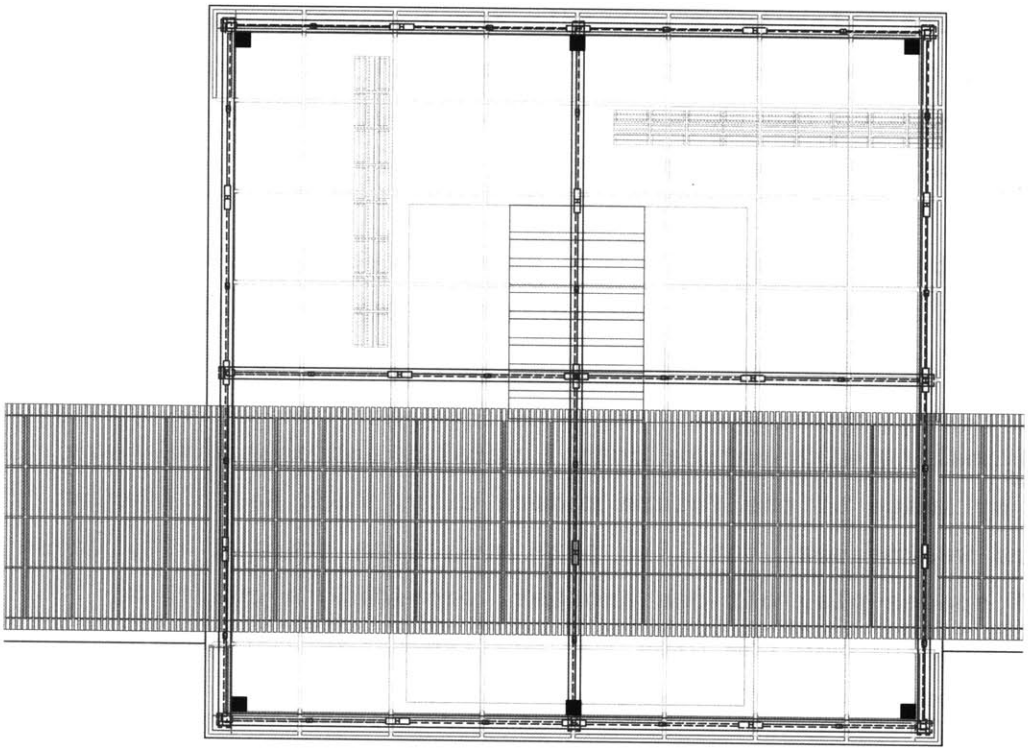
THE ENVISIONED SOLUTION

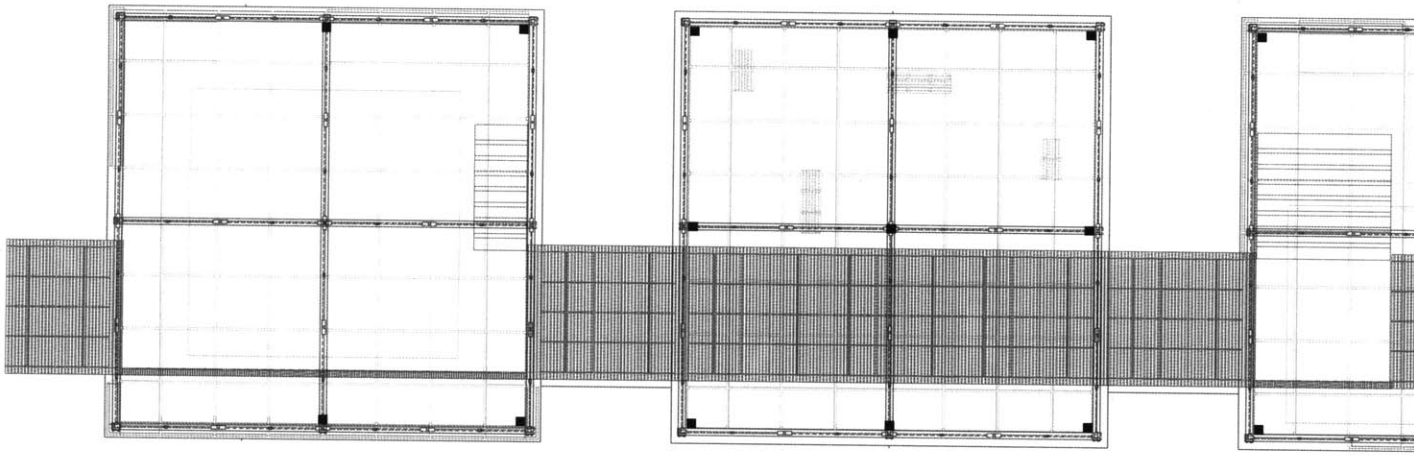
2.2: Abstraction

The basic intention is to rekindle man's consciousness and appreciation of the non-anthropocentric world in buildings and cities. How are people offered the chance to reconnect with natural flows while simultaneously being sheltered from them?

One solution is through tangible experiences with the elements; another solution is to abstract nature, providing contemplative spaces to put one back in touch with his roots.

Spaces dealing with nature both literally and abstractly are integral to my image of the future modern city. Each has different strengths and weaknesses, but like jazz musicians trading 4's, these two types of spaces play off one another, providing a continual spatial dialogue through the city for the inhabitant to tune in on and enjoy, rather than plugging in and tuning out.



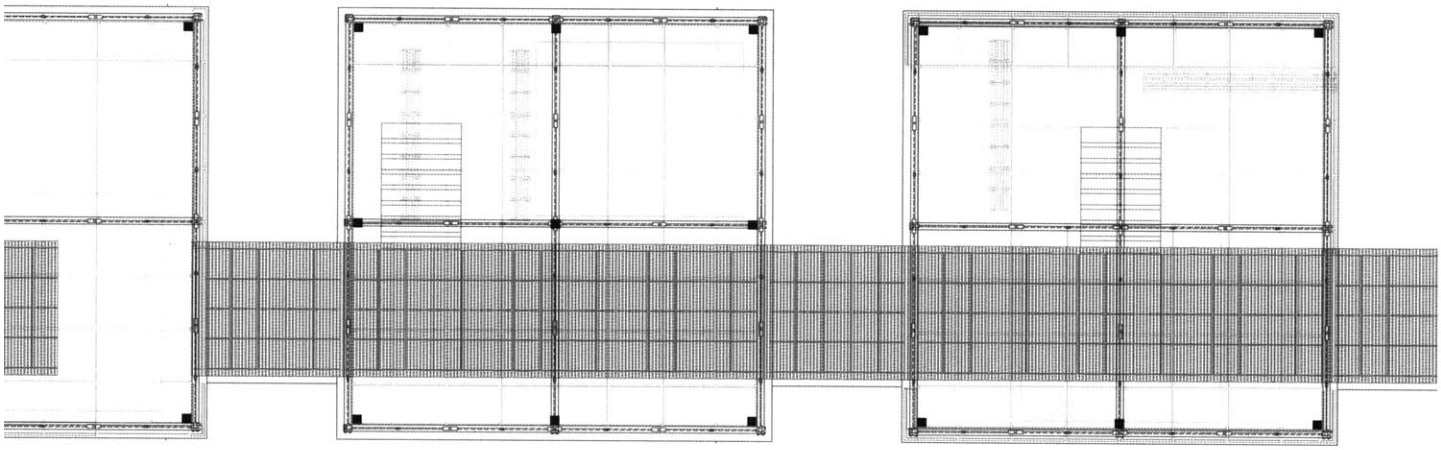


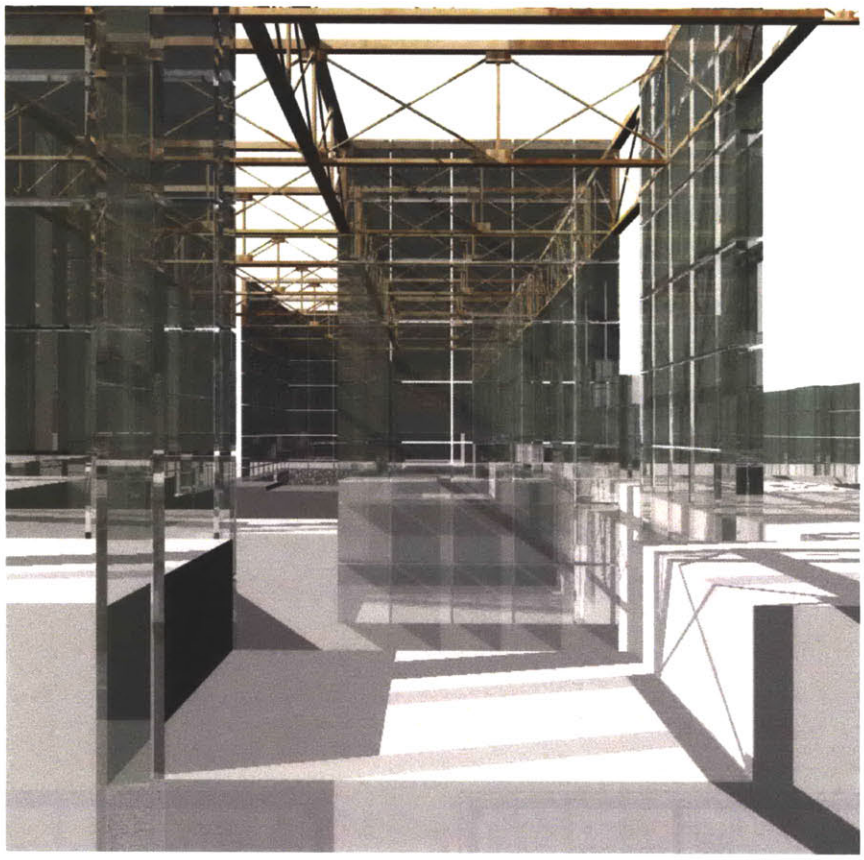
PART TWO

THE ENVISIONED SOLUTION

2.2: Abstraction

Architecture that deals with nature literally and directly by bringing plants, water, wind into the building will be designed as 'filters' in the future, as opposed to the 20th century notion of the 'envelope.' Both the inhabitants and the elements are filtered through the building and are offered a wide variation of spaces to occupy, ranging from semi-indoor, semi-outdoor rooms that are cooled by misting machines and natural ventilation to rooms that are visibly filtering grey water through a terraced system of remediating plants, to rooms that are thermally enclosed yet visually exposed.





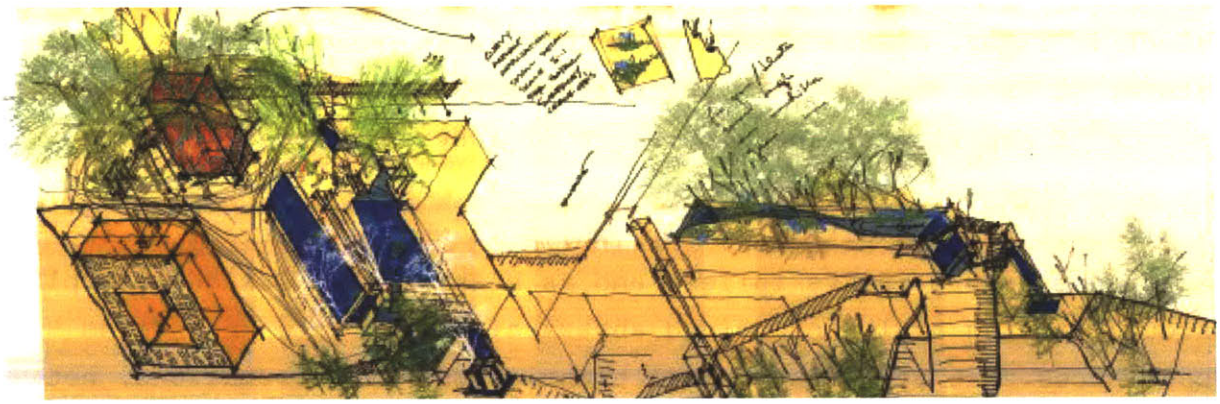
PART TWO

THE ENVISIONED SOLUTION

2.2: Abstraction

Architecture that deals with nature abstractly through the use of analogy and metaphor are the most important parts of a city with respect to solving the problem of promoting and sustaining ecological consciousness because abstraction makes us think, drawing on our associative powers to connect various experiences together in a reflective light. Abstraction allows for a more pure idealisation of nature; it is a simplified environment designed to focus on a singular essence of experience. The importance of abstract spaces lies in the understanding that nothing we build is 'natural.' As such, it is difficult to deal with directly, which is why we abstract it to experience nature in its fullest and as best we can. Design is applied through varying scales of guided abstraction to create engineered experiences that are metaphorical translations/transformations, not similes, of nature.

The intention is to bring back experience, or at least an apparent experience, between man and nature through association and design.



PART TWO

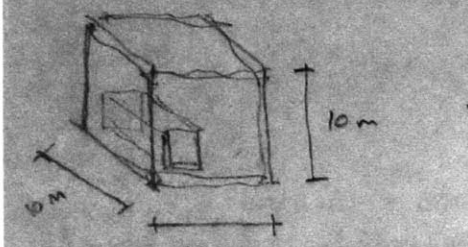
THE ENVISIONED SOLUTION

2.3: Form and Function

We design for journeys over time, not events in time: Architecture is always rooted within a contextual idea larger than itself, as designers constantly think back and forth across scales to make ever-more holistic connections with natural flows (sun, geological, wind, water, plant growth, migratory patterns) that occur over time as a fundamental part of life, without regard to people and their built form. Truly embracing natural flows assumes the understanding that process and function predominate over form on the organizational level. The concept is to spur urbanistic imagination and excitement through the introduction of varied ecological agendas at different scales into a conventional design. Successfully integrating a new system (architecture) into an existing ecosystem (landscape) and closing as many loops as manageable (environment) requires knowledge pertaining to why things work over a preference for how things look. It will be function, not form, that achieves a high degree of consistency in the built environment for the inhabitant to occupy and remember.

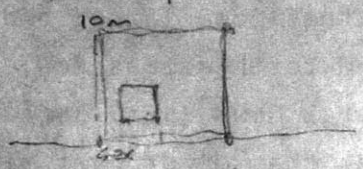
Formally, it is imperative that the inhabitant experiences daily examples of how natural flows (and the environment at large) are channeled through built form and taken advantage of, as opposed to being automated, out of sight, and out of mind. Inhabitants should see and feel how loops are being closed via strategic design across scales. The importance of form lies in its ability to express and convey its inner processes, ecologies, and functions to an outside audience, compelling people to look around with curious eyes and open minds.

1a. sketch design | FOR 1 DAY | 1/



all glass.

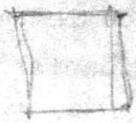
$T_{OUT\ JAN}$: -1.5°C
$T_{OUT\ MAR}$: 2.5°C
Δ 3 °C
(UP TO 7.5°C OK!)



area: 100m² 100m² 100m² 100m² 100m²

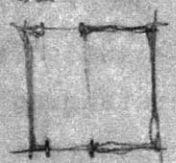
= 500 m² glass

area slab:



REINFORCED CONCRETE SLAB + XPS INS.

100m²



- this SP
- other days.

$UA_{WALLS+ROOF+FLR} = 1000\ \frac{W}{K}$

1b. U-Values

MATERIAL (UNITS)	L m	K (conductivity) $\frac{W}{mK}$	R $\frac{m^2K}{W}$	U $\frac{W}{m^2K}$	A m^2	UA $\frac{W}{K}$	SHGC
1.5" 3X GLAZED STRUCT GLASS	0.04		0.5	2	500	1000	0.55
							↓ mix
FLOOR	0.15	G.	0.15	6.67			
8" XPS INSUL.	0.3	0.029	6.89	0.145			
			7.0	0.14	100	14	INSUL.

PART TWO

THE ENVISIONED SOLUTION

2.4: Building Technology:
How To Technically Achieve 'Spring in January!'

1a. Sketch and describe a first-cut design, establishing basic dimensions and the building orientation. Specify wall, window, roof and slab areas.

1b. Choose U values for walls, roof, and the slab. Include the shading coefficient or solar heat gain coefficient for the windows.

1c. occ sched.

2/

Assume.. 40 ppl. @ 70 W/ppl ea = 2800 W, ppl

Assume.. Lights: $\frac{12\ W}{m^2} \cdot 100\ m^2 \cdot \frac{12\ W}{m^2}$ = 1200 W, light

Assume.. puters: $\frac{5\ W}{m^2} \cdot 100\ m^2 \cdot \frac{5\ W}{m^2}$ = 500 W, p.t.

(+)

TOTAL Q_{int} = 4500 W/day

1d. 24-hr avg. solar heat gain

JAN, BOS: ~~2862 direct avg.~~

GLOBAL AVG. = 1853 wh/m² (DIRECT, DIFFUSE, REFL. TOGETHER)

$\cdot \frac{1\ day}{24\ h} \cdot 500\ m^2$ GLASS = 38,600 W/d

unrealistic :)

if too much, only get 1000 wh, or 500.. few hrs/day

(10 hrs) $\frac{1}{2}$ day = 925 $\frac{wh}{m^2}$ (1853 wh/m²) $\cdot \frac{1\ day}{24\ h} \cdot 500\ m^2$ GLASS =

10 HRS = 16,000 W/d

~~20,000~~ W/d

accounting for shades..

10 hrs.

7,000 W/d

$\cdot (0.45)$ (applying SHGF 0.55) $(= 16{,}000\ W/d)$ = ~~9,000~~ W/d ← Q_{solar}

PART TWO

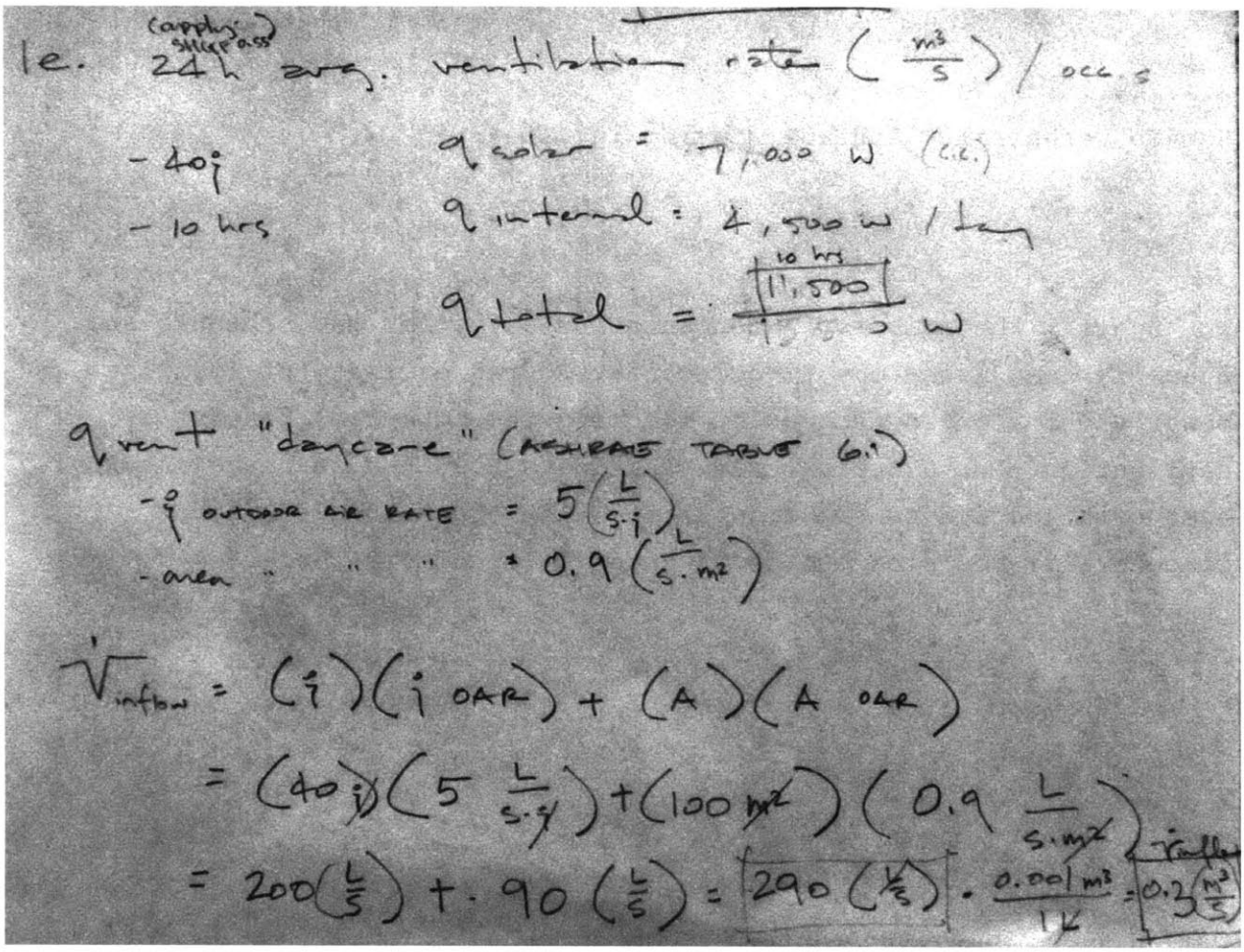
THE ENVISIONED SOLUTION

2.4: Building Technology

How To Technically Achieve 'Spring in January!'

1c. Specify the number of occupants and a typical day schedule and quantify heat gains due to occupants. Add an estimate of lighting power nad a lighting scheudle, ignoring the potential benefits of daylighting. For a typical day, calculate a 24-hour average internal heat gain (occupants and lights) in Watts. Toss in a couple of computers if you wish but don't spend a lot of time here.

1d. Using your first-cut window orientations, areas and properties, caluclate a 24-hour average solar heat gain, in Watts, for a January day. A realistic calculation will account for average cloud cover. Comment on the placement of solar mass relative to windows, which will be necessary to smooth out the solar gains (and, for that matter, internal gains).

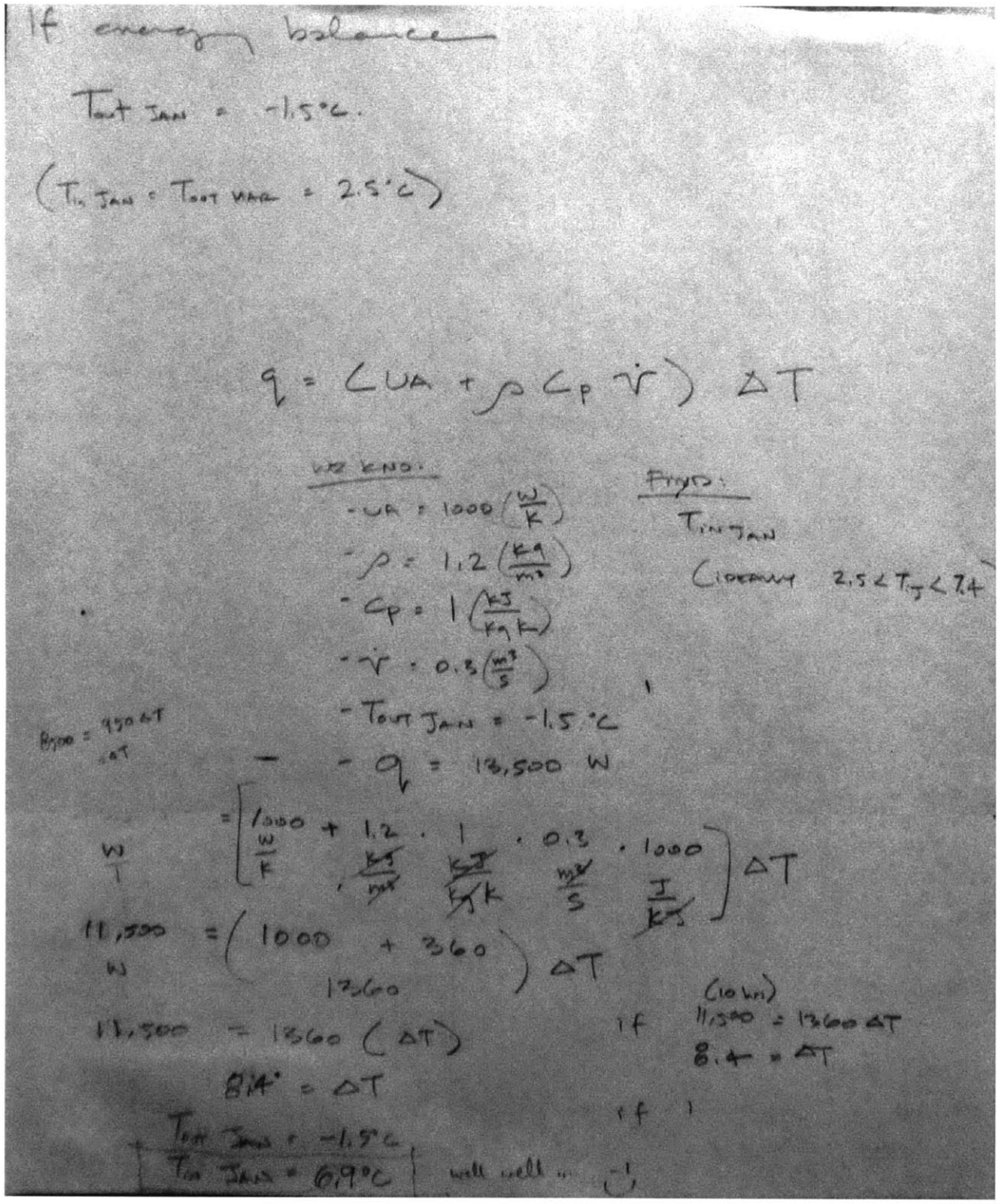


1e. Can't ignore ventilation. Calculate a 24-hour average ventilation rate in meters cubed per second based on the number of occupants and the occupancy schedule.

1f. Set up an energy balance and calculate the indoor-outdoor temperature difference for your typical January day. Using a 24-hour average outside temperature (identified or estimated from the climate data), estimate the inside temperature.

PART TWO

THE ENVISIONED SOLUTION



T out Jan: -1.5 C

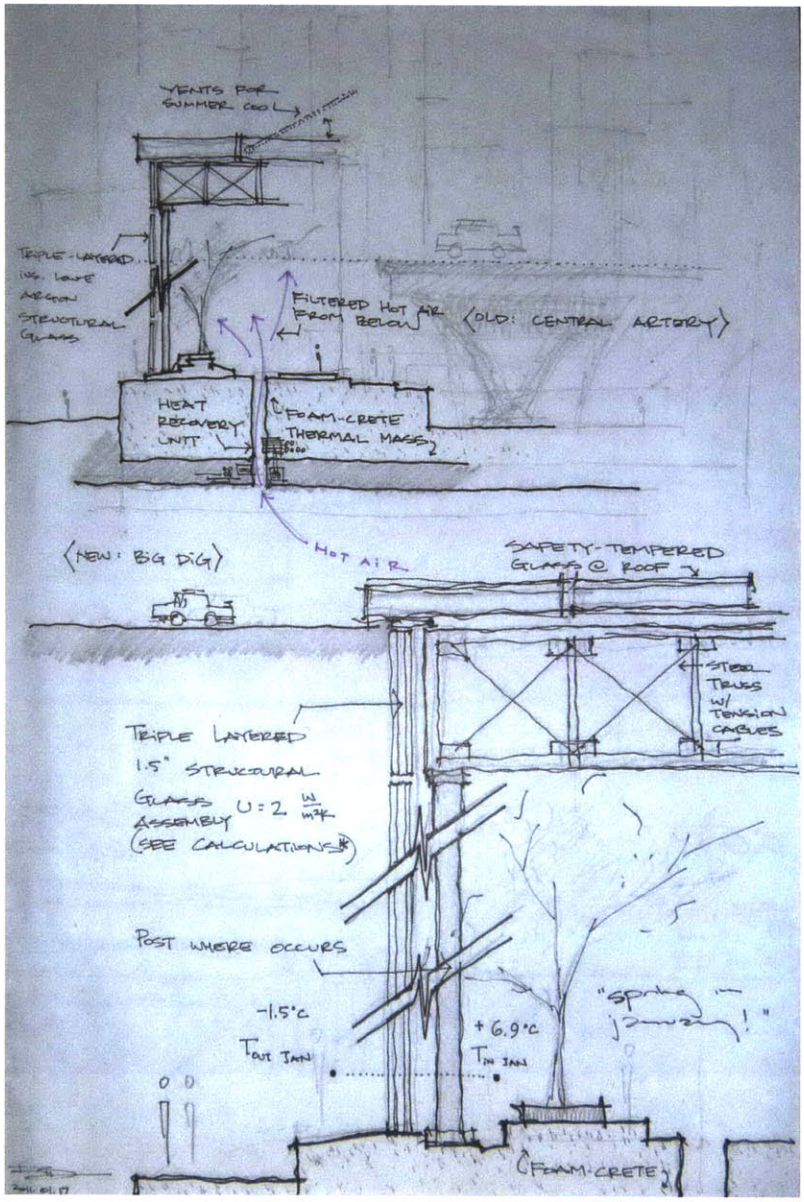
T in Jan: +6.9 C

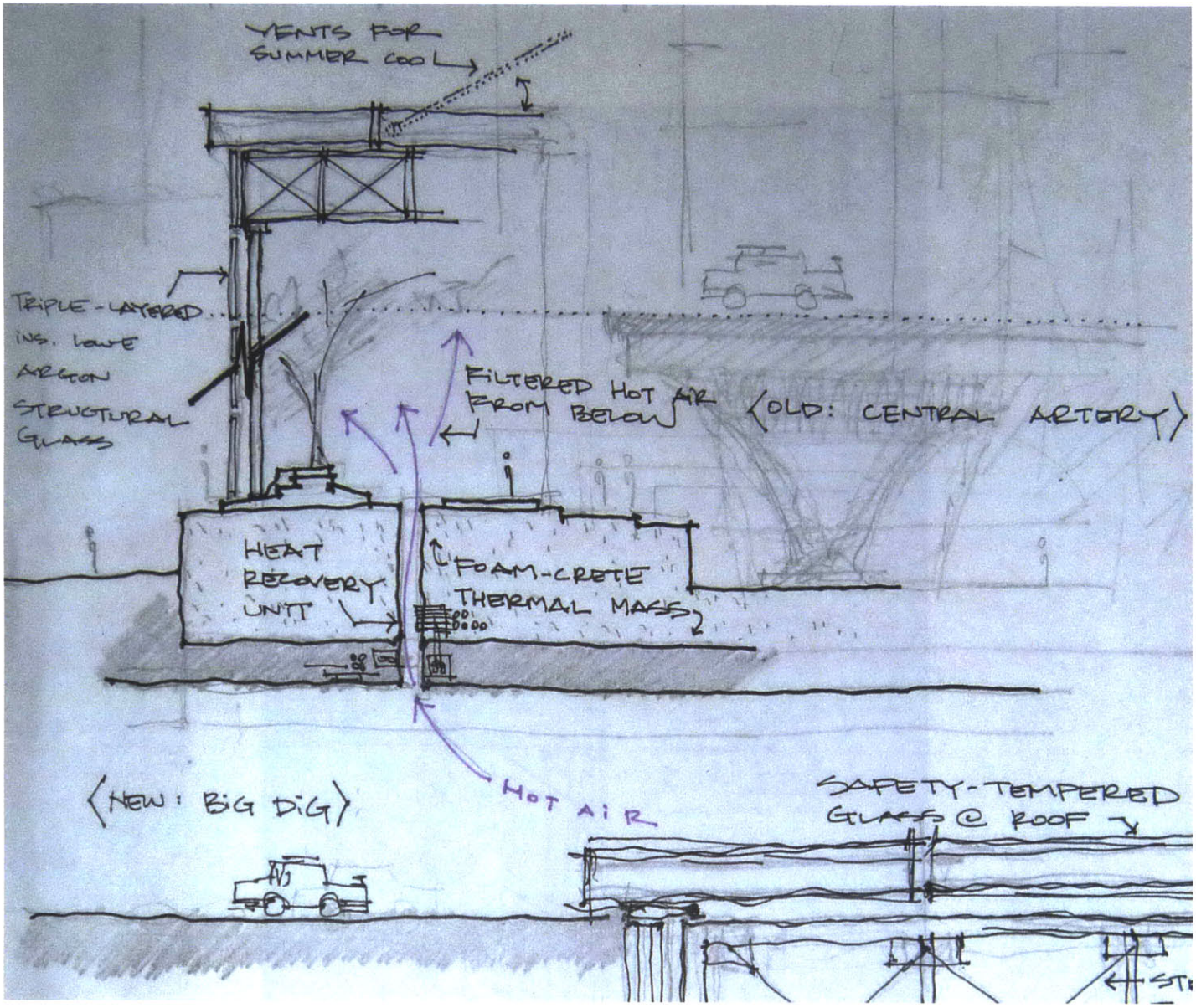
PART TWO

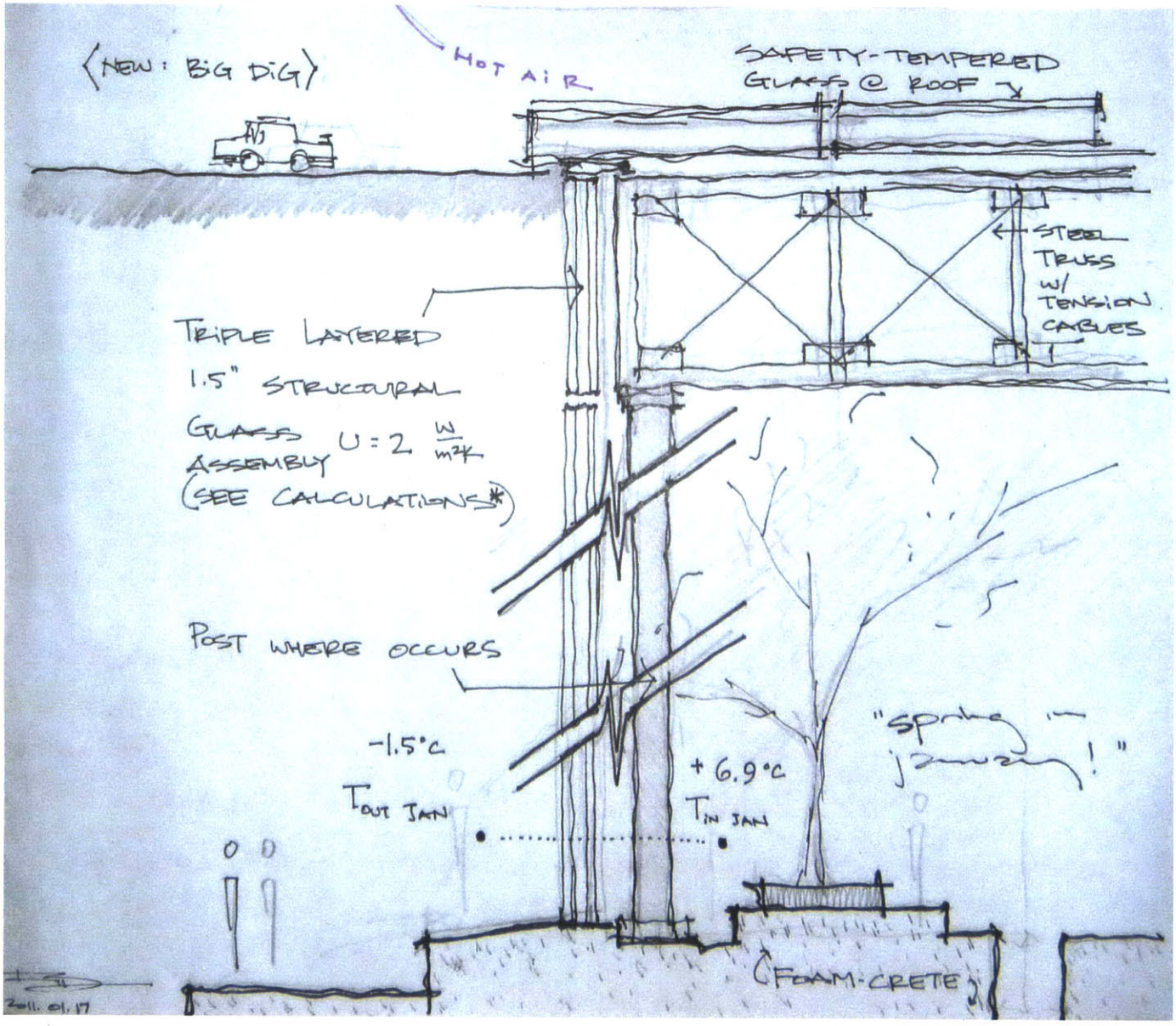
THE ENVISIONED SOLUTION

2.4: Building Technology

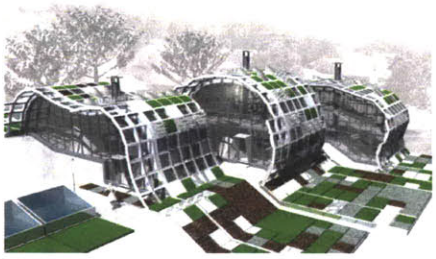
How To Technically Achieve 'Spring in January!'




VENTS FOR SUMMER COOL
TRIPLE-LAYERED INS. LOWE ARGON STRUCTURAL GLASS
FILTERED HOT AIR FROM BELOW
⟨OLD: CENTRAL ARTERY⟩
HEAT RECOVERY UNIT
FOAM-CRETE THERMAL MASS
⟨NEW: BIG DIG⟩
HOT AIR
SAFETY-TEMPERED GLASS @ ROOF


(NEW: BIG DIG)
HOT AIR
SAFETY-TEMPERED GLASS @ ROOF
STEEL TRUSS W/ TENSION CABLES
TRIPLE LAYERED 1.5" STRUCTURAL GLASS ASSEMBLY U = 2 W/m²K (SEE CALCULATIONS*)
POST WHERE OCCURS
-1.5°C
T OUT JAN
+6.9°C
T IN JAN
"spring in January!"
FOAM-CRETE
Zell. 01.17

III



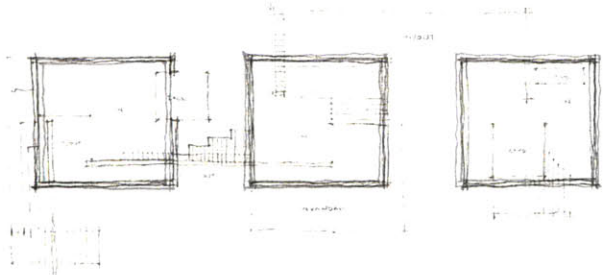
PART THREE

THE ARCHITECTURAL IMPLICATIONS

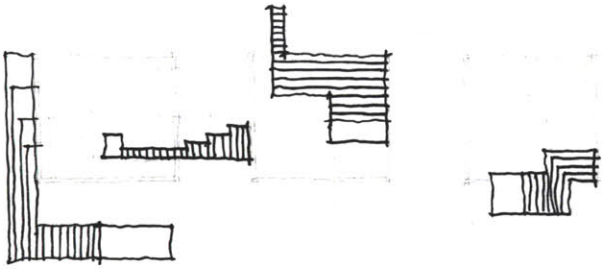
3.1: Human Experience

The problem addressed by this thesis is of a psychological nature. As noted by Peter Head and ARUP in the 2008 Institution of Civil Engineers Brunel Lecture, much existing technology paired with common sense can go a long way to solve the environmental crisis. When successfully implemented, a new type of urban fabric will be woven into our quilt, with future cities connected by high-speed MAG-LEV trains and dense mixed-use developments stemming from public transportation nodes featuring human-interface devices that stream commuter information in realtime. Discouraged car use results in street square-footage reprogrammed for new uses such as the generation of renewable energy through sunlight collection or algae-harvesting (bio-fuel). This reduces the amount of asphalt paving and consequently the urban heat island effect. Sides of buildings and rooftops are apportioned for vertical urban food farms, reducing both the heat island effect and long-range transportation. The entire city eventually becomes retrofitted with a green thermal blanket, responsive to the seasons while sustaining human life.

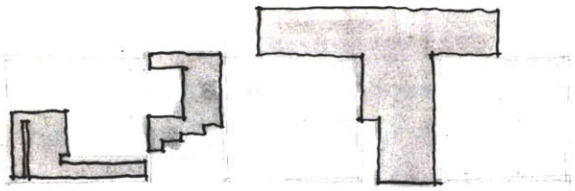
Continually-developing building technology (per above) will solve more and more of the challenges of green building practice, so the problem to be addressed is the connection between quantitative problem solving and qualitative human experience.



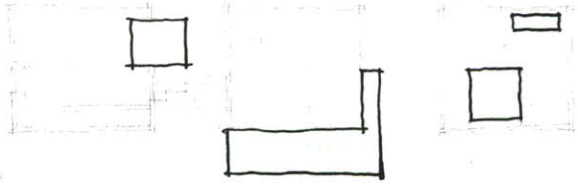
BASE



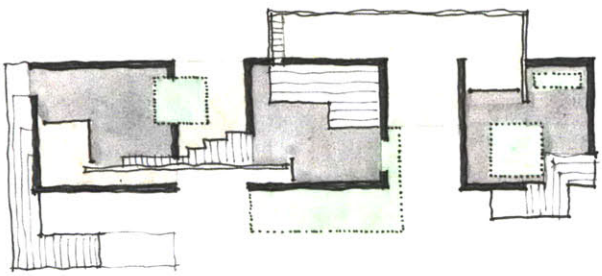
TERRACES / LEVEL CHANGES



LAYERED ENCLOSURES



COURTYARDS / VERANDAHS / DECKS



COMPOSITE

PART THREE

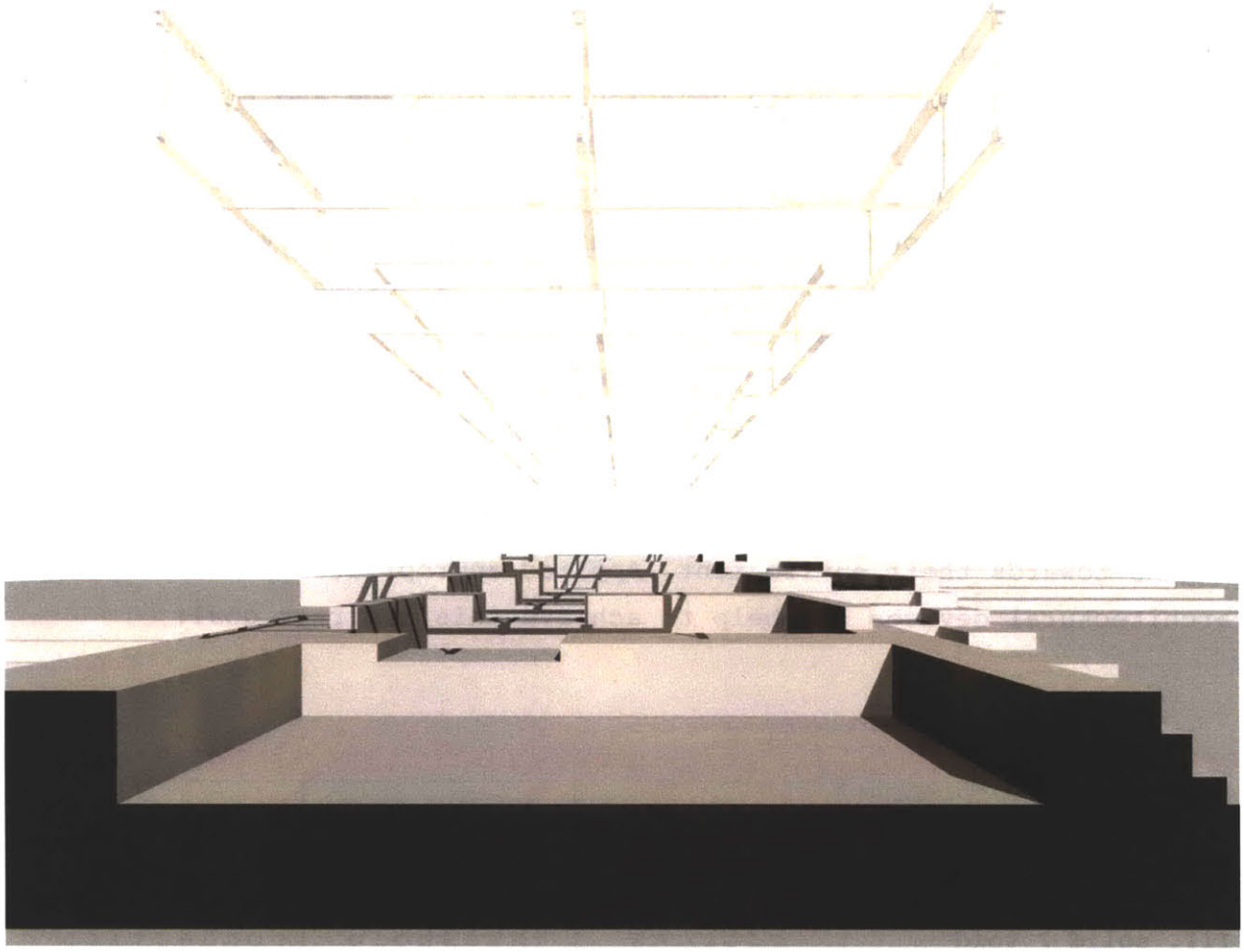
THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

Designers are tasked to produce comfortable and habitable spaces that align architectural and urban experience with natural flows in concerted efforts to elevate consciousness of place and time for the citizens of future cities. This thesis assumes that in order for human civilization to avoid further environmental disasters resulting from ecological thoughtlessness, future cities must provide for their citizens easily-accessible everyday spaces that promote physical and mental refuge, an escape back to their roots from the otherwise virtual and disconnected ways of digital life. By enriching their lives with constant reminders of the beauty and wonder of the natural world even while living in urban environments, the hope is that the future modern city can be a place that is both responsible and comfortable for humans towards their environment. Applied appropriately, three specific architectural devices can help to achieve this abstract goal:

I. terraces	terrain	journey	memory
II. layered enclosures	filter	territory	experience
III. solid / void	ecotone	threshold	connection

Employing these elements does not guarantee a design that heightens the inhabitant's consciousness of their place within a larger non-anthropocentric world. Rather, each device is the simplest architectural manifestation of a broader and more holistic concept aiming to link an architectural gesture to a mental state of mind.



I. terraces	terrain	journey	memory
II. layered enclosures	filter	territory	experience
III. solid / void	ecotone	threshold	connection

PART THREE

THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

I. Terraces / level changes

Terraces and level changes within the built environment relate to ecological issues through the concept of establishing a **'terrain,'** defined by the Merriam-Webster Dictionary as 'a geographic area, especially as considered with reference to its natural features.' In the spirit of this definition, the notion of a firmly established ground plane defined by natural features acts as a base upon which all further architectural operations occur. These terraces / varying levels become the foundation for circulation. Taking circulation one step further, a terrain therefore implies a **'journey'** moreso than a destination. The inhabitant is ever-so-conscious of his footsteps as he traverses the terrain of the built environment, constantly aware of his movements both laterally and vertically through space over time. Taking the concept one step further still, 'journeys' over an extended period of time lead to the formation of a **'memory'** of the place.

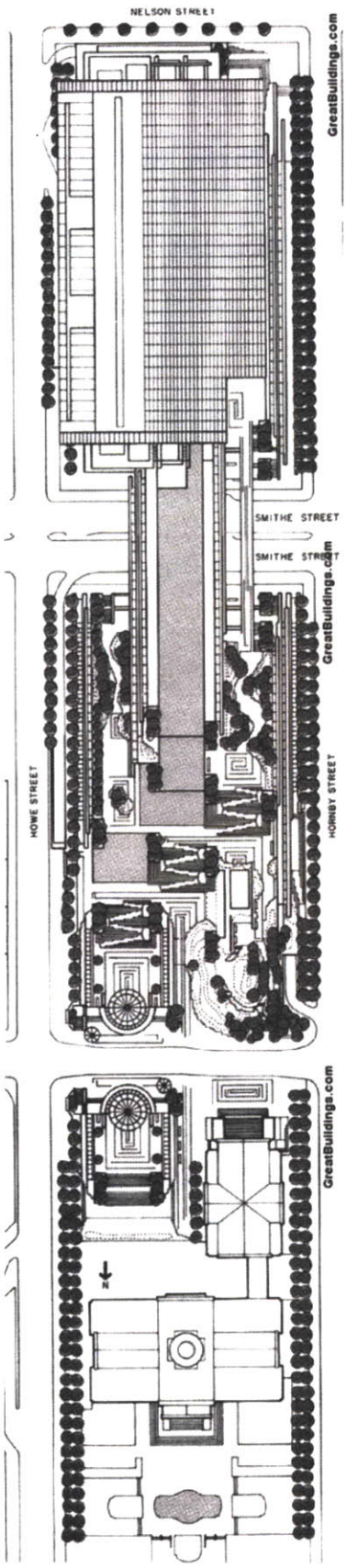
PART THREE

THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

I. Terraces / level changes

Working backwards, the holistic notion of 'memory' can be achieved by means of a 'journey' through a 'terrain' of terraces and level changes.


NELSON STREET
SMITHE STREET
SMITHE STREET
HOWE STREET
HORNBY STREET
GreatBuildings.com
GreatBuildings.com
GreatBuildings.com

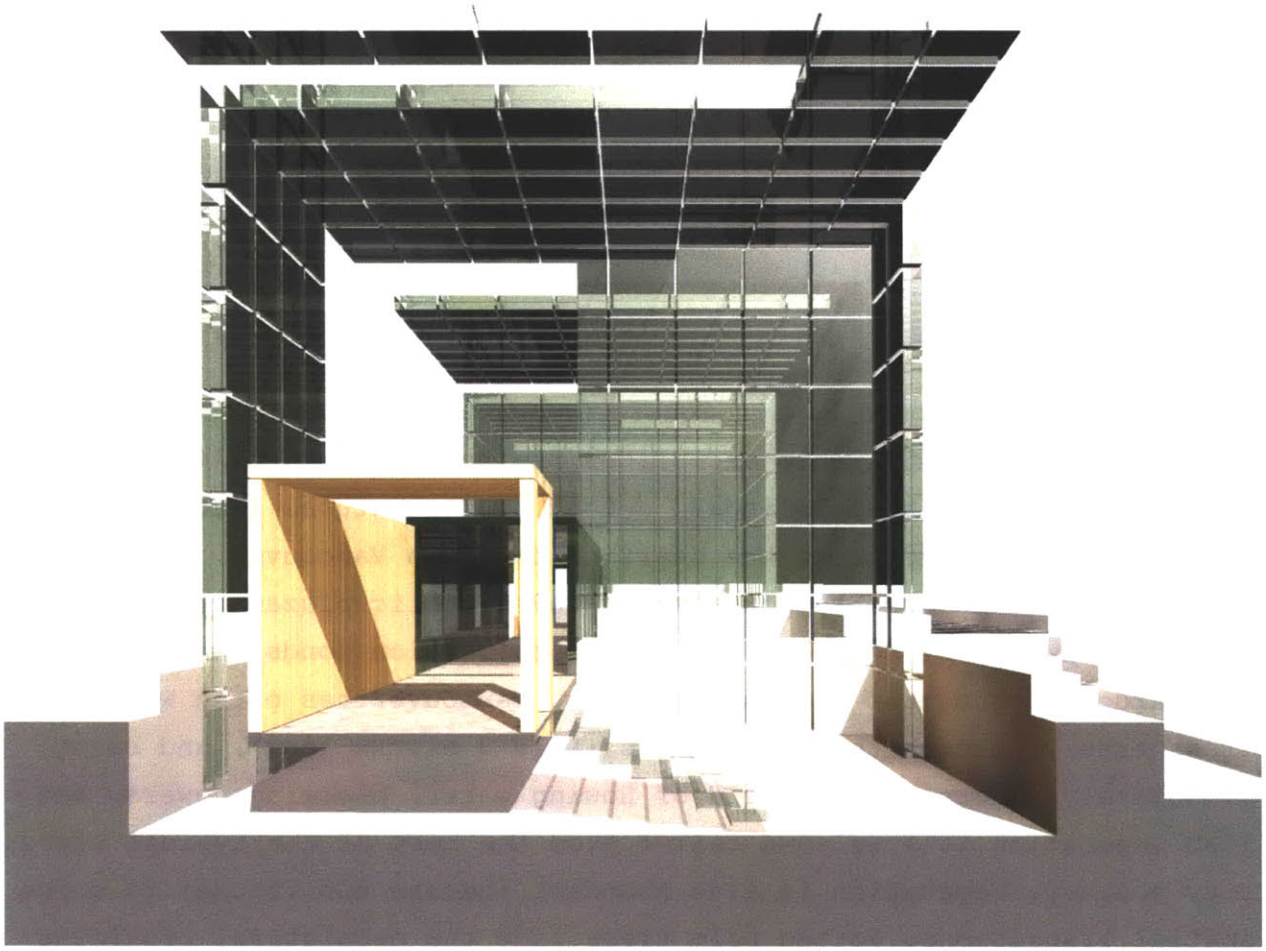
PART THREE

THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

I. Terraces / level changes

Arthur Erickson's Robson Square Government Center, located in Vancouver, British Columbia exemplifies the notion of establishing an urban 'terrain' that is indeed defined by its natural features. It is a 3-block complex in the heart of downtown Vancouver, and the building's plinth also supports multi-level public plazas which are home to a number of connected rainwater collection ponds, waterfalls, and gardens throughout the three blocks. Vancouverites often walk transversely through the terrain (as it is 3 blocks long), and being immediately immersed in a world of flowing water, blooming flowers, and lush vegetation is a welcome relief from the rest of the typical cross-city journey. Vegetation is also abundant indoors and is used to define spatial transitions: Potted palm trees line the escalators, providing a datum to record the inhabitants vertical rise as he journeys up from the roots to the trunk to the shoots (floor to floor). Each floor plate has a planter on the south end with ivy overflowing down and seen from the lobby on the first floor, the effect of the overlapping ivy is staggering as it makes the entire 7-story building seem like one large green mountain with a space frame floating high above it.



I. terraces	terrain	journey	memory
II. layered enclosures	filter	territory	experience
III. solid / void	ecotone	threshold	connection

PART THREE

THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

II. Layered enclosures

Layered enclosures relate to ecological issues through the concept of understanding architecture as a **'filter'** rather than an envelope. While an envelope implies one single and clear-cut boundary between two spaces, a filter implies a physical procession of retention and/or saturation that necessarily takes place over an expanded physical **'territory.'** Scaled to architectural and urban conditions, an expanded physical 'territory' encompassing a three-dimensional volume (filter) rather than a two-dimensional plane (envelope) encourages a holistic **'experience'** as opposed to a finite and specific transition.

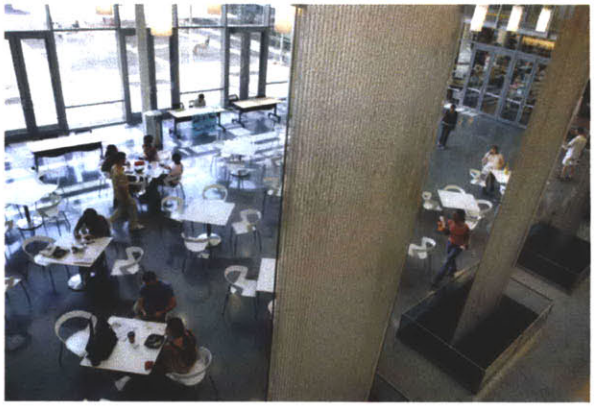
PART THREE

THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

II. Layered enclosures

Working backwards, the holistic notion of 'experience' can be achieved by means of expanding the 'territory' of a project, within which the natural flows are mediated and 'filtered' through a series of layered enclosures.



PART THREE

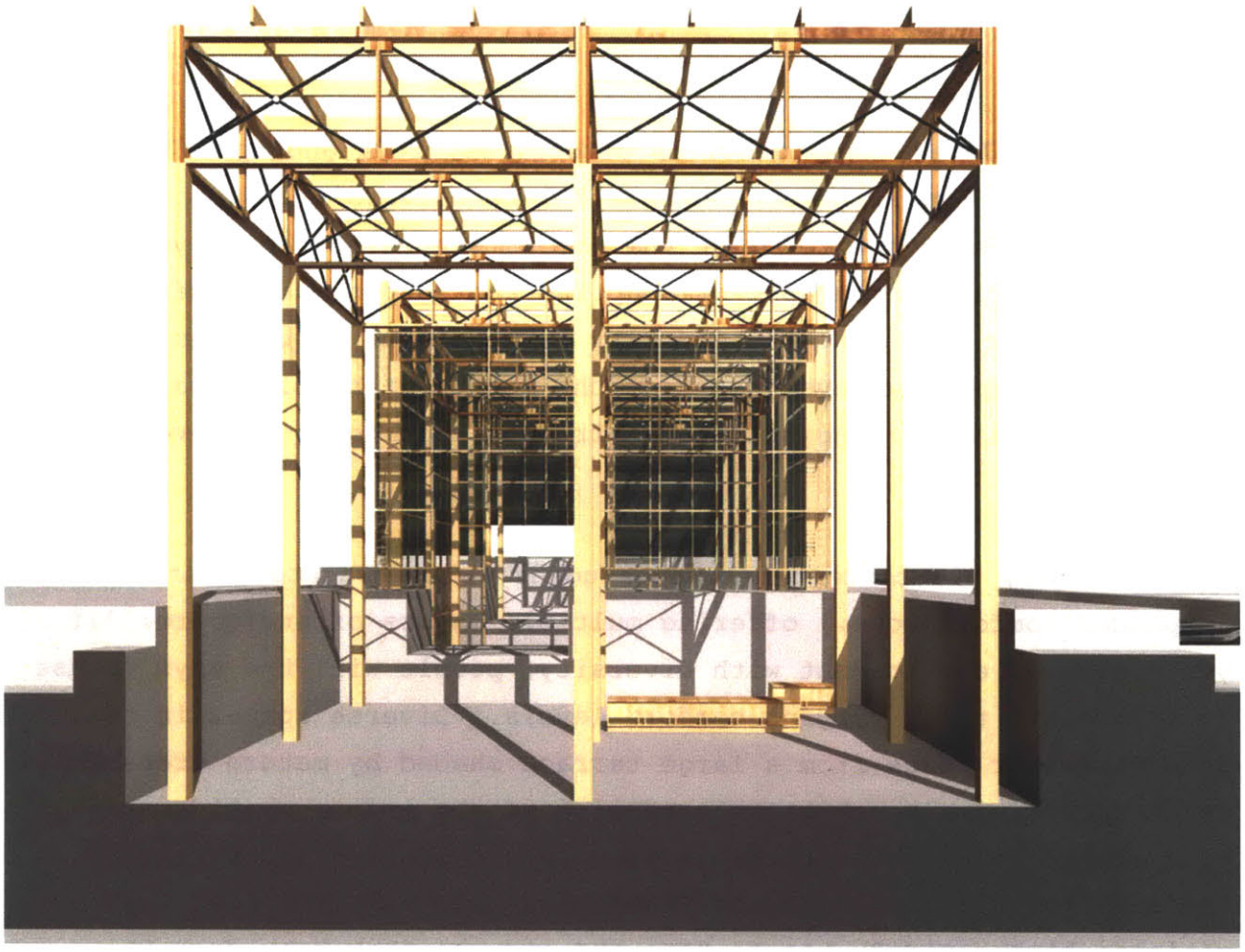
THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

II. Layered enclosures

Vincent James came to MIT on October 30, 2008 and spoke about his Lavin-Bernick Student Life Center at Tulane University. Upon visiting New Orleans, James noticed that the porous city block and layered facades of buildings capable of adapting and responding to weather conditions was what made the old city so beautiful in contrast to the typical contemporary development of the modernist bubble, sealed from the elements and relying solely on air conditioning to achieve thermal comfort.

As such, his concept for the student center was to create an 'expanded comfort zone,' offering multiple layers of enclosure: 'If you create an environment with diversity, people will find ways to use it to achieve their varying comfort levels.' Diverse spaces in the student center range from a large terrace shaded by mature trees to an outdoor dining porch as an extension of the indoor seating area to a glazed facade with operable windows and louvers and finally to the interior. Inside, VJAA and Transsolar knew that the best way to mitigate high humidity was to move the air, so they drew from the knowledge of the region and installed Southern-style shoofly fans placed in close proximity to massive 24' high 'water walls' flowing with water chilled below the dew point. The experience of the building then becomes directly associated with the outdoor conditions as students move up and down in the building depending on the time of day and their preferred level of thermal comfort. 'Obviously, on a hot day we need shade and cooling. But we need to provide that diversity of spatial conditions that allow people to make their own choices.'



I. terraces	terrain	journey	memory
II. layered enclosures	filter	territory	experience
III. solid / void	ecotone	threshold	connection

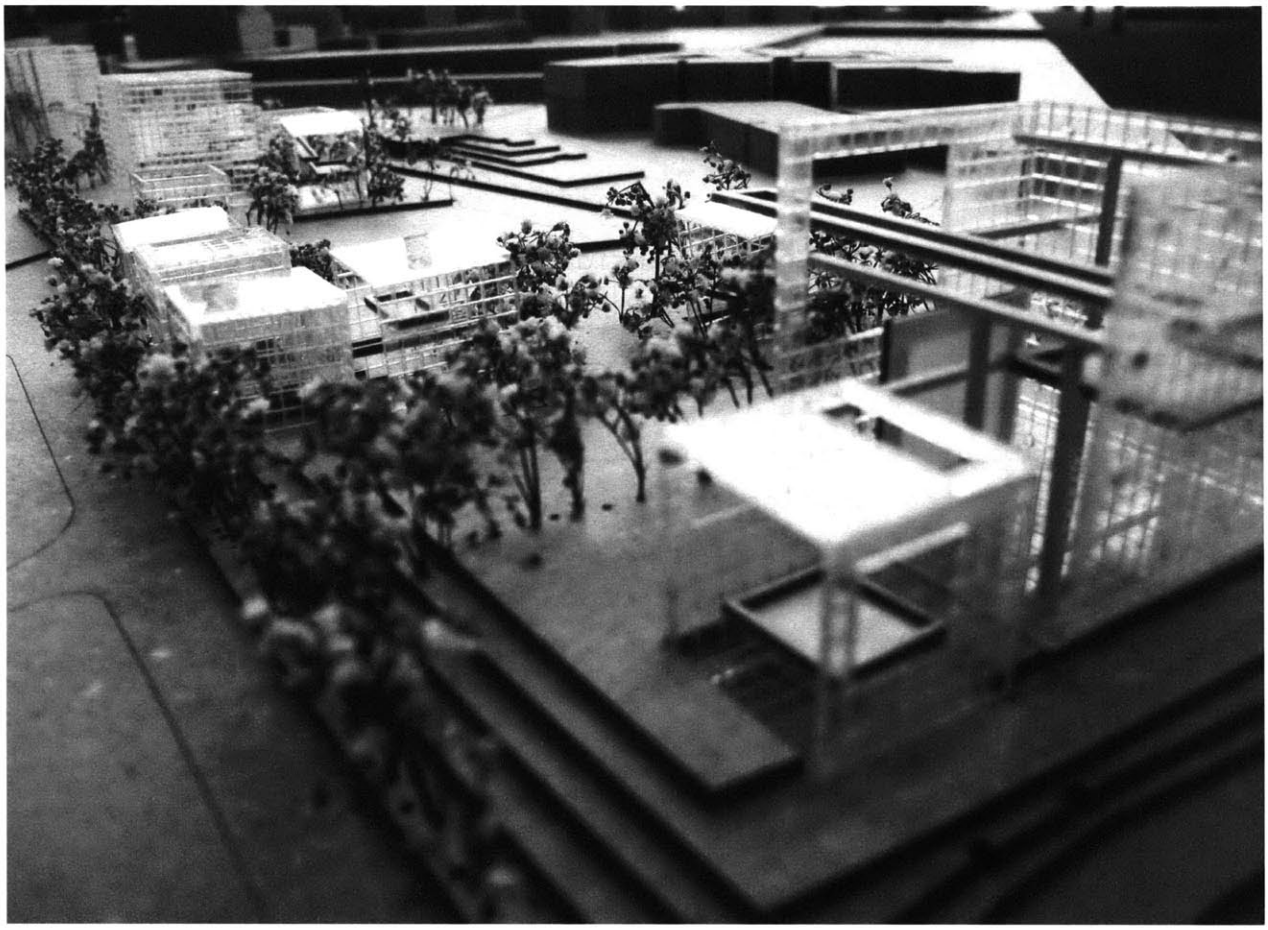
PART THREE

THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

III. Solid / Void Relationships

Solid / void relationships (inside/outside spaces) relate to ecological issues through the conceptual application of an **'ecotone,'** defined as 'a transitional area between two adjacent ecological communities.' In architectural terms, the two adjacent ecological communities are the inside and the outside, and the concept of an ecotone implies the importance of semi-indoor / semi-outdoor **'thresholds'** within, around, and through the building that mediate the transitions between fully indoor conditions and fully outdoor conditions. These thresholds provide holistic **'connections'** between not only inside and outside, but more importantly between the inhabitant and his environment.



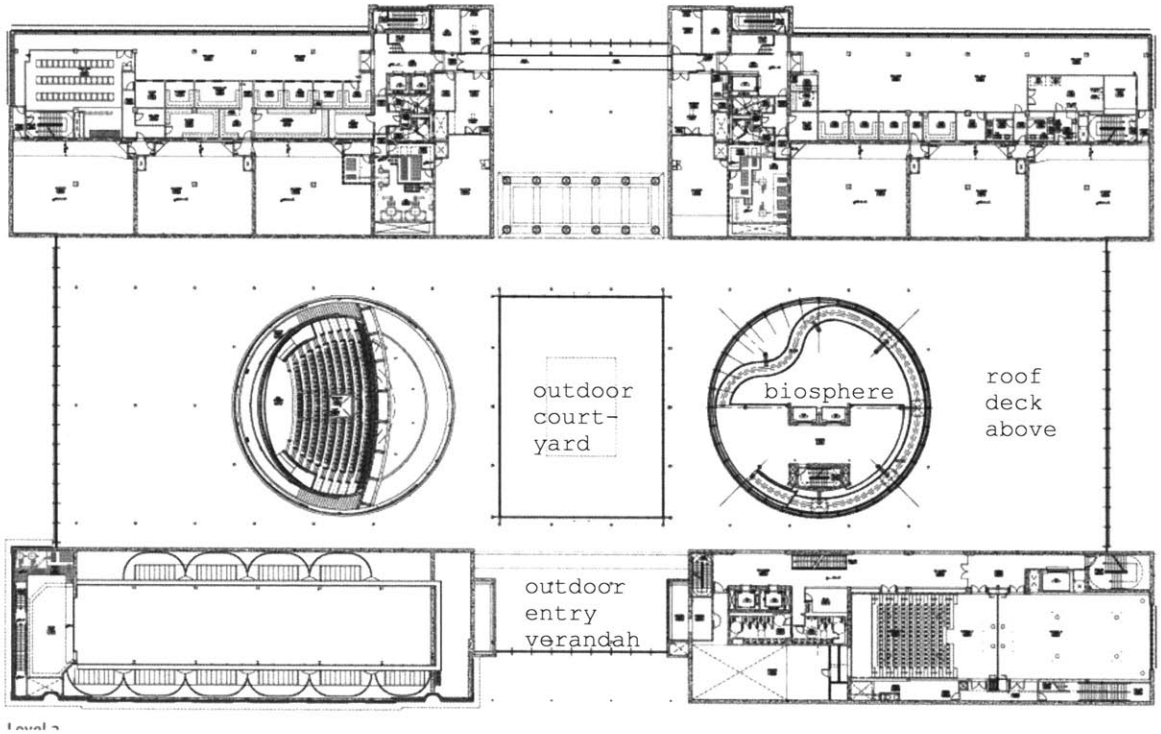
PART THREE

THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

III. Solid / Void Relationships

Working backwards, the holistic notion of 'connection' between inhabitant and environment can be achieved by means of establishing a range of spatial 'thresholds' that act as 'ecotones' between inside and outside, manifested in the simplest of architectural relationships, the solid / void.


outdoor
court-
yard
biosphere
roof
deck
above
outdoor
entry
verandah

PART THREE

THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

III. Solid / Void Relationships

The new California Academy of Sciences designed by Renzo Piano is essentially one large simple enclosed volume highlighted by an outdoor entry verandah, an outdoor piazza, an observation roof deck, and a self-sustained ecosystem (aquarium + conservatory). These distinct spatial thresholds encourage a continual dialogue between interior and exterior experience as the inhabitant navigates through the project. Visitors arrive to the Academy via Golden Gate Park, and they wait in line to get tickets under a large outdoor entry space shaded by glass panels embedded with 60,000 PV cells. With ticket in hand, they enter the single large interior space, split into thirds by two large spherical orbs (one the aquarium+conservatory, the other a planetarium). Between the orbs and on axis with the entry is an outdoor courtyard with seats and a small cafe, heavily used as a central meeting point. Above the orbs, one can explore the roof deck which is planted with species native to california such as beach strawberries (Fragaria chiloensis) that attract native birds, sea pink (Armeria maritime) that attract butterflies, and of course the state flower, the California poppy (Eschscholizia california). Going back inside, the visitor can enjoy lunch in the Moss Room, serving locally sourced regional cuisine.

PART THREE

THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

III. Solid / Void Relationships

The highlight of the building is the aquarium + conservatory orb, where people are inside yet feel outside. The journey begins at ground level (water below, trees above) and walk along a ramp that spirals up through the forest all the way to the top of the canopy. As butterflies and birds float and zoom around above and one looks down to see large sharks and fish circling the waters below, we wonder if we are looking at the world through the butterflies' eyes. At the top is an elevator that whisks the traveler down below ground, into the underwater aquarium (lit from above). A glass tunnel provides a distorted view up through the water into the trees, and one begins to wonder if this is what life looks like from a fish's perspective.

PART THREE

THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

III. Solid / Void Relationships

It is important to note in addition that the California Academy of Sciences is the largest public Leed Platinum-rated building in the world, using 35% less energy than required by standard building code. It boasts an impressive list of responsible green design moves including the regulation of heat and humidity (heat recovery systems, planted roof, radiant floors); the abundant use of natural light and ventilation (90% spaces naturally lit, undulating roof draws air into courtyard to cool spaces around it, motorized skylights automatically open and close to vent hot air, operable windows in staff offices); the use of renewable energy (60,000 PV cells / 215,000 kWh / year, or 5% of the building's needs), efficient water usage (retain 98% all stormwater, or 3.6 million gallons. This is used for all landscaping needs as well as to flush the toilets, reducing the use of potable water for wastewater by 90%); the use of recycled building materials (90% of demolition waste recycled, insulation made from blue jeans containing 85% post-industrial recycled content); the living roof (2.5 acre link in ecological corridor as the largest concentration of native vegetation in the city, nearing 2 million plants); and transportation (20% of all building materials come from within 500 miles of site).

academycafe

Under Executive Chef Kelly Degala, the academy cafe serves a wide variety of multi-cultural cuisine, made fresh, with healthy, seasonal and organic ingredients. In redefining museum dining, the cafe offers delicious and healthy foods using sustainable ingredients. From the raw organic sugar used in our baked goods, to the sustainably farmed local vegetables prepared daily, to the organic, fair trade coffee, every effort is made to support local producers and promote environmentally responsible farming.

Main Menu Card

THE MOSS ROOM

Executive Chef Michael Morrison creates the The Moss Room's Modern California menu.

The desserts, from seasonal fruit inventions to organic chocolate indulgencies, are carried out by executive pastry chef Angela Gong.

The Moss Room bar, under the charge of executive beverage director Clay Reynolds and open during lunch and after 4pm on Wednesdays through Sundays, hosts small production spirits, fresh organic juices, local beers, and delicious, interesting wines by the glass.

Lunch Menu
Dinner Menu
Lunch & Dinner Desserts
Wine List
January Rum Month - Cocktail Menu

PART THREE

THE ARCHITECTURAL IMPLICATIONS

3.2: Three Architectural Devices

III. Solid / Void Relationships

The California Academy of Sciences exemplifies the notion that much current green technology exists, and that the real problem is to promote ecological consciousness. This project achieves that goal through the delicate interweaving of indoor and outdoor spaces throughout the visitor's experience, with visitors acknowledging this by taking the building as their own, endlessly exploring and experiencing the entire building inside out.

The Academy ties virtually every aspect inside the building to its outdoor surroundings, down to the cuisine it offers. The Academy Cafe and the full service Moss Room are treated like sustainable exhibits, with menus offering multicultural food reflecting the various cultural influences in the Bay Area using only fresh local ingredients. (What they fail to mention is that even at the cafe, a lunch with mini ice-cream sandwich cost $28). As for the kiddies … according to chefs Loretta Keller and Charles Phan, 'rather than creating a designated "kids menu," we have incorporated items with wide appeal into the standard menu, including our takes on chicken noodle soup, spaghettini and meatballs, and macaroni and cheese.'

'Every site contains three places: the physical place with its earth, sunlight, and view; a cultural place, the locus of the traditions of human intervention; and a spiritual place, or that which we would call an evocative presence, which stirs our imaginations and sends us in search of images, memories and analogues. These three aspects of place roughly correspond to body, mind, and spirit.'

PART THREE

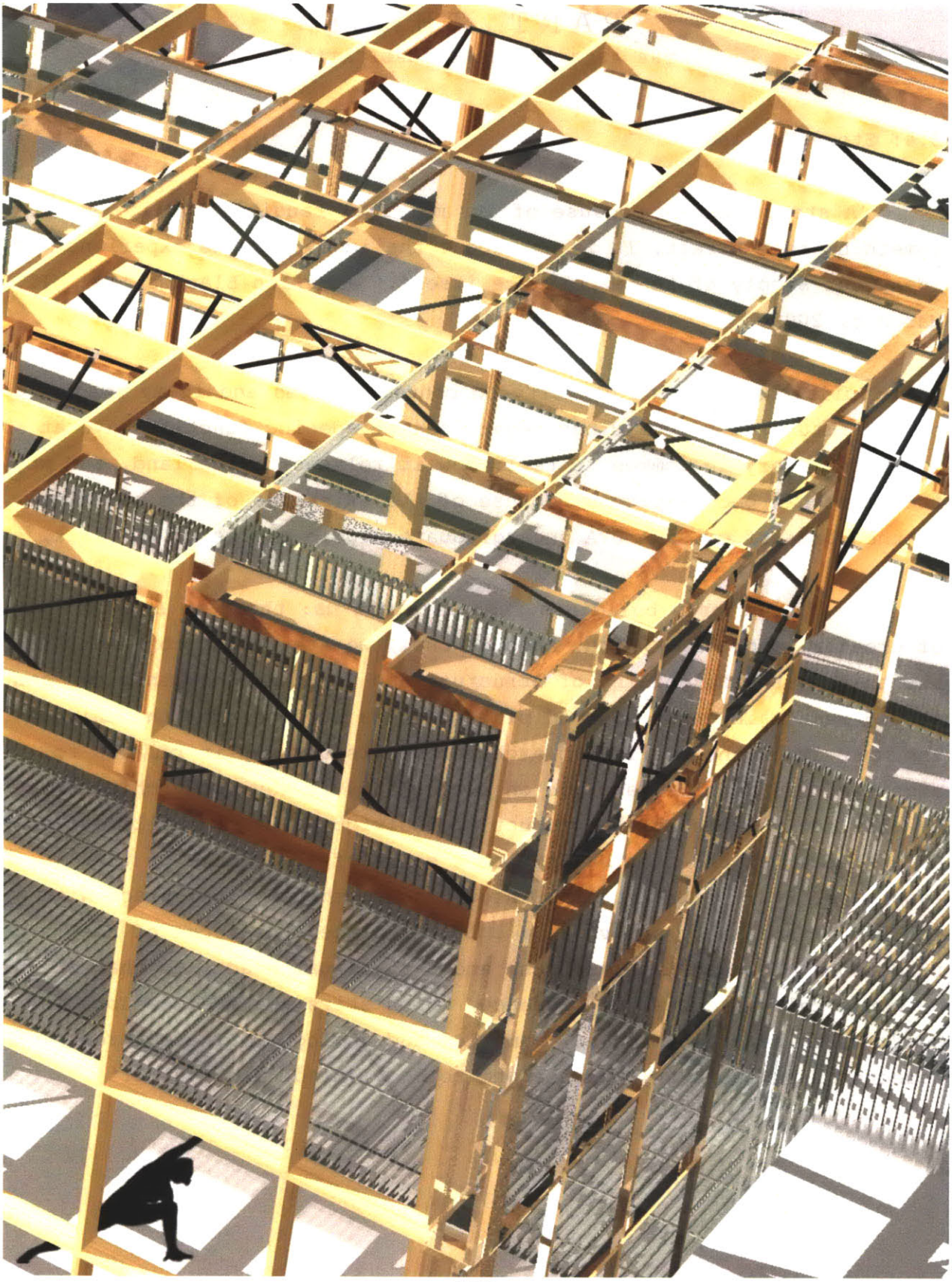
THE ARCHITECTURAL IMPLICATIONS

3.4: Story-Telling

'A story endures because of its material tangibility; it is something that's felt. It is not about the idea, nor the experience of idea, but simply of the experience itself.' - Marlon Blackwell at MIT, March 5, 2009.

Buildings have the capacity to convey stories and in my image of the future city, buildings regardless of specific function have at least one story in common to tell: How it relates to the land, and why the place has been improved because of the existence of the building. In the words of my final UVA undergraduate studio professor WG Clark,

'It is not only buildings that interest us: there is something of greater importance which, through them, we are trying to reach. it has to do with the joining of structure and land, and how this can and should result in a sureness of place that is stronger for the union. The most important quality of architecture is the way it relates to, signifies, and dignifies a place on earth. This is why the architecture we most admire - be it the product of individuals or of civilizations - is that which has been built with a sense of allegiance to the landscape. Every site contains three places: the physical place with its earth, sunlight, and view; a cultural place, the locus of the traditions of human intervention; and a spiritual place, or that which we would call an evocative presence, which stirs our imaginations and sends us in search of images, memories and analogues. These three aspects of place roughly correspond to body, mind, and spirit.'



PART THREE

THE ARCHITECTURAL IMPLICATIONS

3.4: Story-Telling

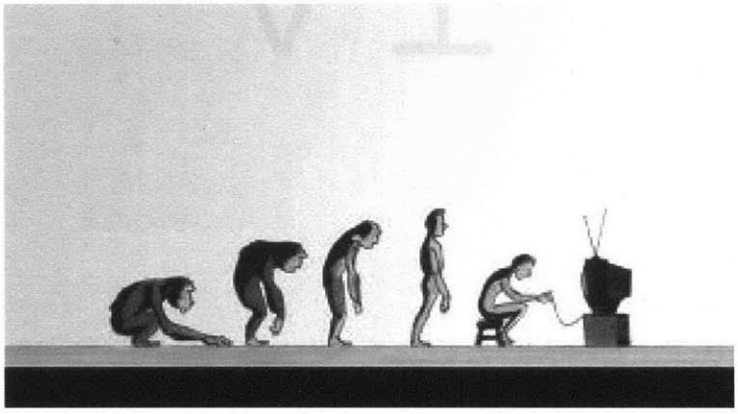
Similarly, 'Spring in January' strives to embody the idea that joining structure and land results in a sureness of place that is stronger for the union.

The physical place (body) is addressed through the creation of new grounds via topographic level changes; the use of sunlight and solar gain to achieve thermal comfort; and the attempt to establish views to the water via strategic high-points in the topography, as well as views of a new framework support nature in an urban setting.

The cultural place (mind) is addressed through the cultivation of young minds through educational programs pairing 'Spring in January' with local schools, encouraging them to 'grow outside.'

The spiritual place (spirit) is addressed through the belief in the idea that the habitable spaces of the contenporary city can be valued as spaces for healing and refuge.

IV



PART FOUR

THE SOCIAL IMPLICATIONS

'We can't dwell in the past.'

'No, you can't. Technology shapes psyches as well as environments, and maybe the peoples of the West are too sophisticated, too permanently alienated from Nature to make extensive use of their pagan heritage. However, links can be established. Links must be established. To make contact with your past, to re-establish the broken continuity of your spiritual development, is not the same as a romantic, sentimental retreat into simpler, rustic lifestyles. To attempt to be a backwoods homesteader in an electronic society may be as misguided as attempting to be Hindu when one is Anglo-Saxon. However, your race has lost many valuable things along the road of so-called progress and you need to go back and retrieve them. If nothing else, to discover where you've been may enable you to guess at where you're going.'

- Tom Robbins, 'Even Cowgirls Get the Blues'

'I play inside because that's where all the electrical outlets are.'

PART FOUR

THE SOCIAL IMPLICATIONS

4.1: Physical and Mental Health

Growing up, I witnessed the world around me transition from an analog lifestyle to a digital lifestyle. Cassette mix-tapes were replaced by 80 gig Ipods; library card catalogs were replaced by Google; palimpsest drawings were replaced by 3D-renderings.

Despite the numerous advantages the digital lifestyle has to offer, society has noticed negative mental and physical impacts in children who have grown up solely in the digital age, including attention deficit disorder and obesity. The theory is that the new 'Plug-In Generation' suffers from ADD because they are constantly fed short bursts of information (google searches finding 1,000 results in 0.0026 seconds; 30 second TV commercials).

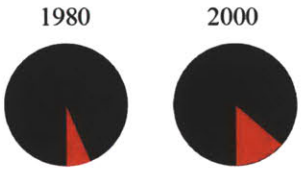
According to an article by Richard Louv (coined the term 'nature deficit disorder'), studies showed that time in natural settings significantly reduced symptoms of ADD in young children, and that obesity can be a result of kids spending too much time with digital devices as opposed to being physically active. A study by the National Science Foundation's Advisory Committee for Environmental Research and Education found that children today spend an average of 6 hours each day in front of the computer and TV but less than 4 minutes a day in unstructured outdoor play. An estimated 16% of children in the United States are obese, with nearly 10 million children under the age of 16 being overweight. 'I play inside because that's where all the electrical outlets are,' says a middle-school student in San Diego California.

National Science Foundation's Advisory Committee for Environmental Research and Education:

Children spend 6 hours in front of the computer and TV for every 4 minutes of outdoor play.

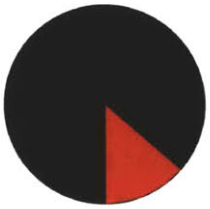
America Sports Data:

6% of American children <13 spend any amount of time at all outdoors.



National Center for Health Statistics

15 percent of children ages 6 to 18 were overweight in 2000, up from 6 percent in 1980.



National Environmental Education Foundation, Roper Report:

15% of Americans (45,000,000) believe that the Ocean is a source of fresh water.

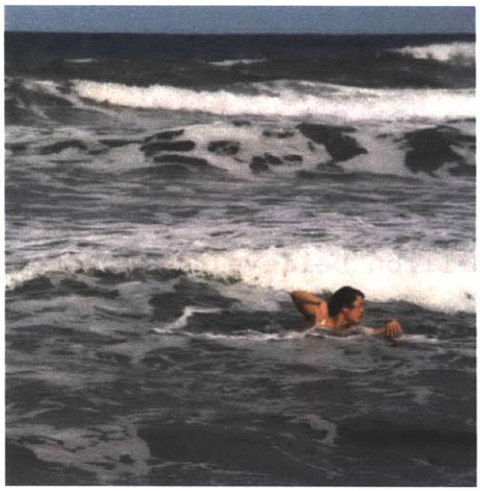
PART FOUR

THE SOCIAL IMPLICATIONS

4.1: Physical and Mental Health

Studies by America Sports Data reveals that in a typical week, only 6% of American children younger than 13 spend any amount of time outside at all, and this has led to what Louv and other researchers call 'nature deficit disorder,' correlated with negative psychological and physical effects including obesity, loneliness, depression, attention problems and greater social isolation.

According to No Child Left Inside literature, studies consistently reveal that the U.S. public suffers from a tremendous environmental literacy gap, with 88 percent of the public failing a basic energy quiz: 45 million Americans think the ocean is a source of fresh water, and 130 million believe that hydropower is America's top energy source.



PART FOUR

THE SOCIAL IMPLICATIONS

4.1: Physical and Mental Health

Earlier this summer, I went to visit my old swim coach with whom I swam in the early 1990's. As we sat there talking, I noticed how the kids were not only swimming, but also doing push-ups, sit-ups, lunges, and other dry-land exercises between sets. I asked her why we didn't have such fun and varied workouts when I swam for her, and she responded:

'Do you remember when you were nine, ten? How did you get here? You biked to and from home everyday. Who carried your backpacks for you? Yourself. These kids are so out of shape! Their parents drive them everywhere, carry their bags for them, they sit at home and play video games all day, watch TV all night, eat garbage ... they aren't even fit to be in the pool in the first place.'

It's one thing to come across unbelivable statistics and shake my head at the deplorable state of the younger American generation, but it's a completely different story to see these trends active in my own backyard, devouring the soul of my hometown community ..


NATIONAL
WILDLIFE
FEDERATION


FOREST SERVICE
US
DEPARTMENT OF AGRICULTURE


SIERRA
CLUB
FOUNDED 1892


Audubon

PART FOUR

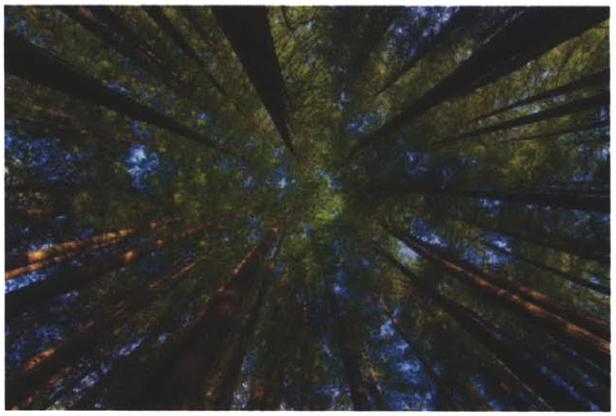
THE SOCIAL IMPLICATIONS

4.2: The Social Reactions

The social reaction to this vague disaster-in-progress has been multifaceted: Perhaps the most public case is that of the federal government's No Child Left Inside Act, promoting the integration of outdoor place-based primary education into curricula across the nation.

'We must do a far better job getting young people outside to exercise, play and experience their natural world. This will require the attention of the public health community, environmental educators and our schools. The No Child Left Inside Act will be a critical tool. We must emphasize the importance of environmental education and provide the resources needed to allow schools conservation groups to effectively teach children about their world.' (Michael J. Klag, Dean of the Johns Hopkins Bloomberg School of Public Health)

Other programs include the US Forest Service's More Kids in the Woods program, acclimating children to being comfortable in the woods at a young age; The Sierra Club's Inner City Outings, for children in urban areas; and the National Wildlife Federation's Green Hour, a campaign for spending one hour outside per day. One of the most interesting cases is that of the National Audubon Society, which is pushing for the creation of a family-focused nature center in every congressional district in the nation. "Once these centers are embedded, they're almost impossible to kill," says John Flicker, president of the Society. "They help create a political constituency right now, but also build a future political base for conservation." These nature centers support the vision of every school being connected to an outdoor classroom, as school districts partner with nature centers, nature preserves, ranches, and farms to create the new modern schoolyard.



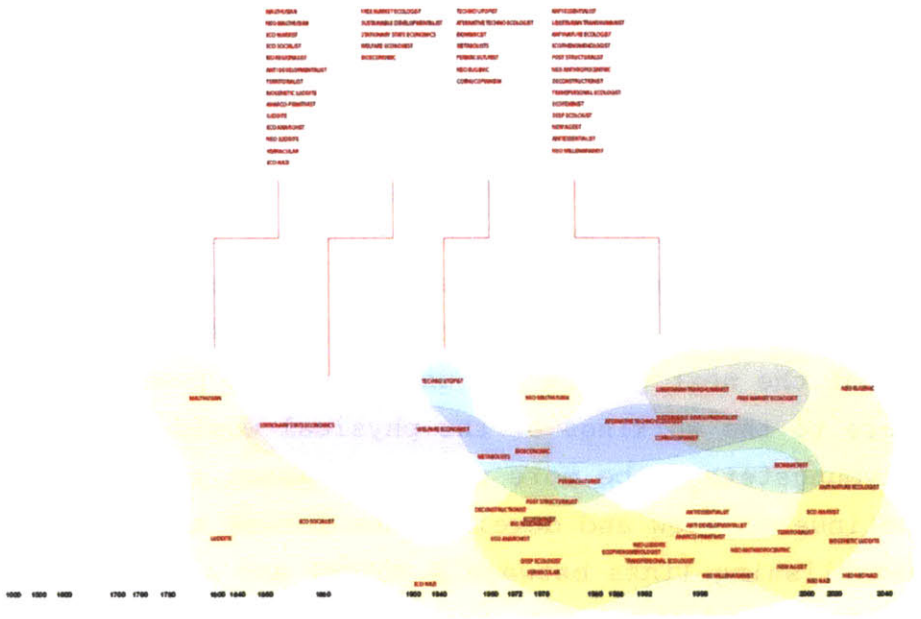
PART FOUR

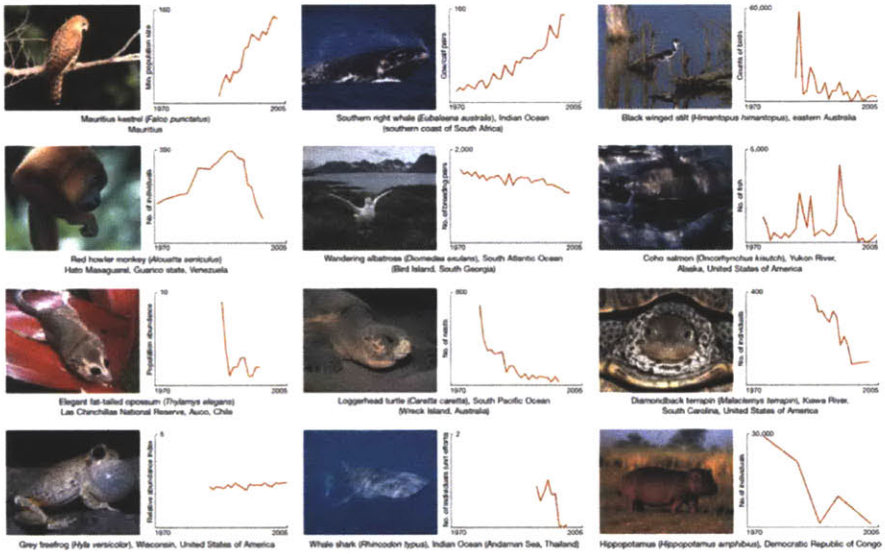
THE SOCIAL IMPLICATIONS

4.2: The Social Reactions

This is already happening at the California Academy of Sciences, where local school teachers receive professional development and leadership training through the Academy's Teacher Institute on Science and Sustainability. Its strength and uniqueness lies in its wealth of resources branching from its roots as both a museum and a research facility. This rich and welcome transfer of the Academy's information to teachers of the next generation underlies the pedagogical belief that exposure to the workings of the physical world at an early age will train youngsters to be more conscious about their place within it as they continue to grow and develop into future stewards of the land.

By establishing links between a school and a nature center, the urban children of the future have secured access to nature and physical places that can provide what Louv refers to as a 'transcendent experience.' An epiphany experienced by almost all nature activists, it can take place anywhere ranging from a national park to a clump of trees at the end of a driveway. I grew up in Palo Alto California, where much of the local public school policy included place-based learning even in the 1980's. I vividly recall my most memorable field trip: I was in 3rd grade, and in the morning we went to Muir Beach where we saw rugged, battle-scarred 6,000 lb. elephant seals basking in the sun next to the most delicate little pastel sea anemones clinging to the rocks in the sand. In the afternoon, we went across the street into Muir Woods, an ancient California Redwood forest with massive trees living over 3,000 years and reaching up towards 400'. The entire forest was teeming with thousands of tiny bright orange and yellow monarch butterflies as they covered every surface of every tree, and my love for that exhilarating rush when nature bestows to me wonder after wonder is still going strong.




Mauritius kestrel (Falco punctatus)
Mauritius
Southern right whale (Eubalaena australis), Indian Ocean
(southern coast of South Africa)
Black winged stilt (Himantopus himantopus), eastern Australia
Red howler monkey (Alouatta seniculus)
Hato Masaguaral, Guarico state, Venezuela
Wandering albatross (Diomedea exulans), South Atlantic Ocean
(Bird Island, South Georgia)
Coho salmon (Oncorhynchus kisutch), Yukon River,
Alaska, United States of America
Elegant fat-tailed opossum (Thylamys elegans)
Las Chanchillas National Reserve, Auco, Chile
Loggerhead turtle (Caretta caretta), South Pacific Ocean
(Wreck Island, Australia)
Diamondback terrapin (Malaclemys terrapin), Kiawa River,
South Carolina, United States of America
Grey treefrog (Hyla versicolor), Wisconsin, United States of America
Whale shark (Rhincodon typus), Indian Ocean (Andaman Sea, Thailand)
Hippopotamus (Hippopotamus amphibius), Democratic Republic of Congo

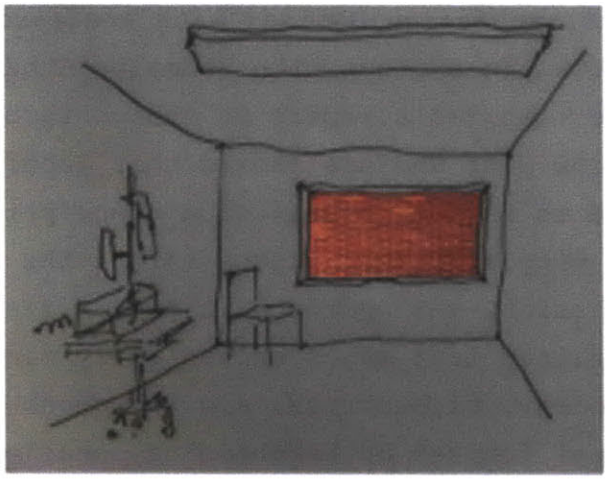
PART FOUR

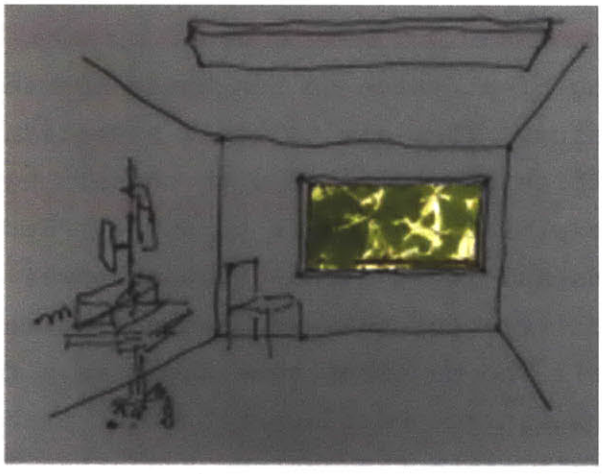
THE SOCIAL IMPLICATIONS

4.2: The Social Reactions

I took 4.244 Urban Design Seminar with Professor Dennis Frenchman in the spring of 2009. In a group with Debmalya Guha, Daniel Daou, and Eirini Kasioumi, we compiled a report on the contemporary attitude of nature in the city. Our findings showed that labeling oneself 'ecological' proved to be too general of a description to be of any use in an age when many different groups target the same problem and desire the same solution, yet approach it from different viewpoints and beliefs. We outlined four major ecologically-minded groups: anti growth, economy-ecology, technocrats, and the pheno-philo-meta's. (Image 12) This paper focuses on heightening consciousness, which is most closely linked to the pheno-philo-meta group (deep ecology, biophilia hypothesis, romanticism, phenomenology, biocentrism, ecofeminism, environmental ethics, ecosophy). The variation found in the social reactions stem from this broad underpinning of ecological thought, as each group focuses on a different aspect of the same problem:

Deep ecologists consider humankind an integral part of its environment, placing great value on non-human species, ecosystems, and processes in nature. They aim to avoid a utilitarian-based environmentalism, which is concerned with conserving the environment so that it can be exploited for human purposes. 'Ecological science, concerned with facts and logic alone, cannot answer ethical questions about how we should live. for this we need ecological wisdom' Arne Naess 1973 (founder). The movement came about as a reaction to the massive amounts of human economic activity that pushed the biosphere far from its 'natural' state through the reduction of biodiversity and climate change. As a consequence, civilization is directly responsible for causing mass extinction. (Image 13) Deep Ecology is fueled by a rediscovery in a modern context that 'everything is connected to everything else' (Devall, Sessions).





PART FOUR

THE SOCIAL IMPLICATIONS

4.2: The Social Reactions

Ecosophists believe that while the human mind is shaped by the modern social world, it can be readily inspired and comforted by the wider natural world, because that is the arena in which it originally evolved. it includes the relationship of humans with other species and ecosystems. These relationships have a long evolutionary history and have reached a natural affinity within the structure of our brains. Of interest is how the self identity becomes entwined with nature, so that loss of those sacred places is far more devastating to indigenous people than often understood.

'Biophilia' literally means 'love of life or living systems.' The biophilia hypothesis states that human preferences toward things in nature, while refined through experience and culture, are the product of biological evolution. For example, adult mammals are generally attracted to baby mammal faces and find them appealing across species. The large eyes and small features of any young mammal face are far more appealing than those of the mature adults, suggesting that the positive emotional response that adult mammals have toward baby mammals helps increase the survival rates of all mammals. EO Wilson and Stephen R. Kellert's book 'The Biophilia Hypothesis' sites a study by Ulrich (1984) examining the effect of window view on recovery rate from gall bladder surgery. Two groups of patients were matched on age, sex, weight, tobacco use, and previous hospitalization. The pairs of patients thus differed only on their hospital room window view. One member of each pair looked out onto a group of deciduous grease whilst the other's window view looked out onto a brick wall. The study results showed that those patients with the natural view recovered faster than those in the other group (i.e. their post-operative hospital stays were shorter). Also, the natural view group patients had fewer negative comments in the nurses' notes and requested fewer injections of pain killers compared to those with the brick wall view.

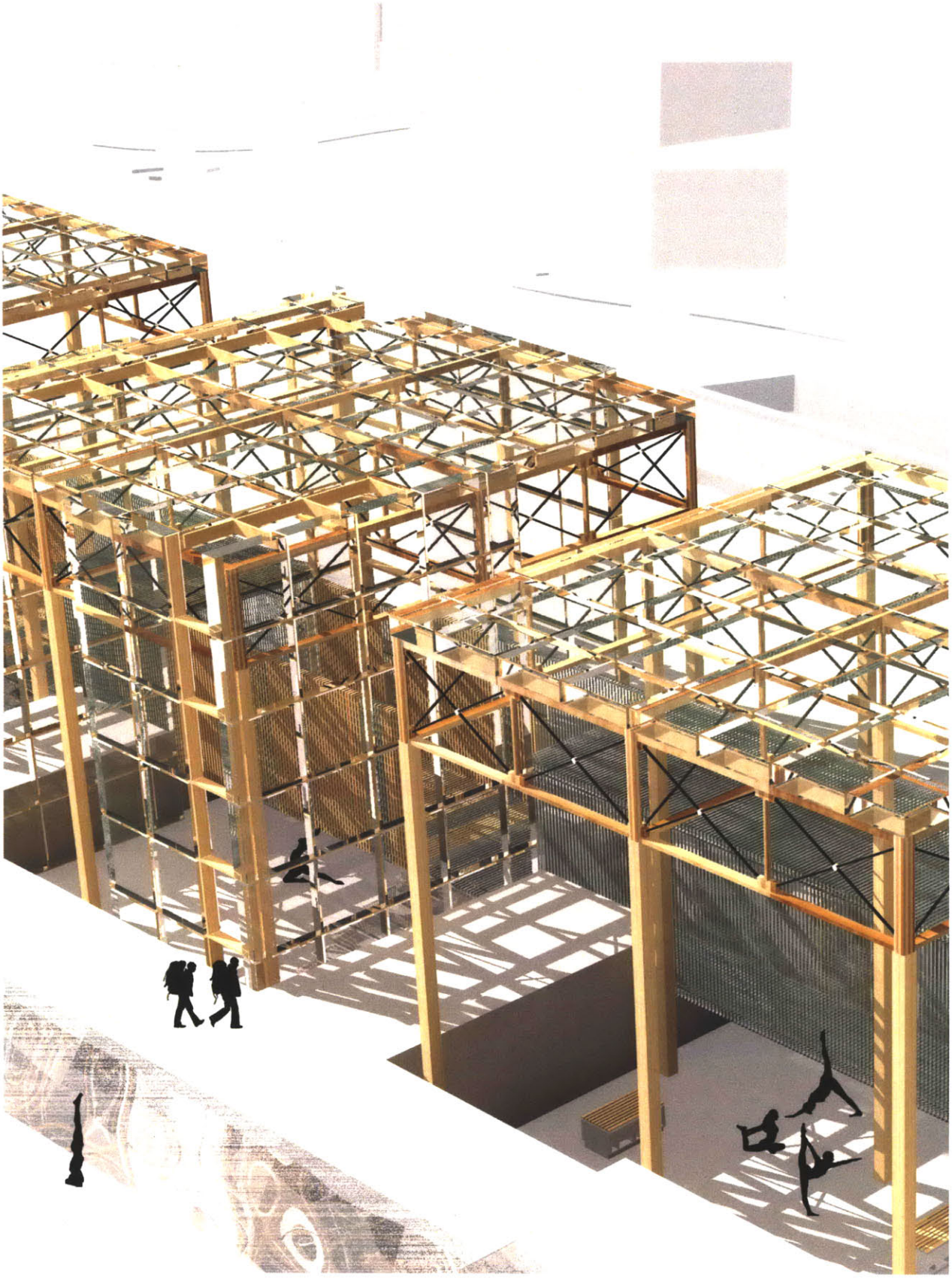
PART FOUR

THE SOCIAL IMPLICATIONS

4.2: The Social Reactions

Our built environments should be used to entice all people, children especially, to explore their surroundings and to be exposed to natural flows and wonders at all scales; they should engage the children's senses, occupying their thoughts and bringing smiles to their faces. This has profound implications on the way society deals with the ecological age because if society embraces the simple fact that there are health benefits for children spending time outdoors, the worth of the environment may be re-evaluated. Rather than measuring environmental health through the absence of toxins, it should be measured for its ability to improve human health.

V



PART FIVE

CONCLUSION

'The success of any social movement depends on its ability to show a world where people will want to go.' - Martin Luther King, Jr.

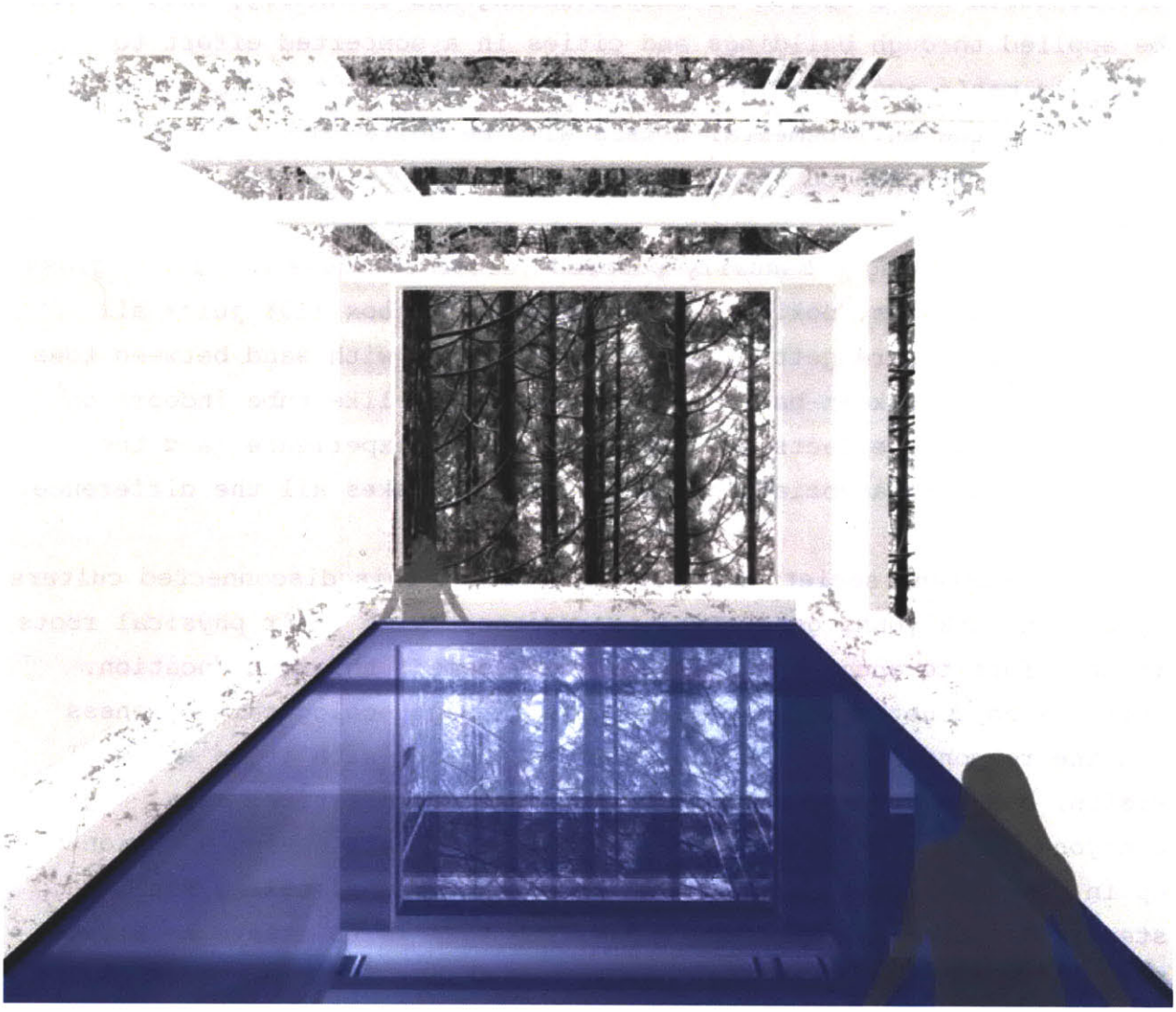
PART FIVE

CONCLUSION

Modern society has been swept off its feet by the offerings of the digital age, and a loss of ecological consciousness has resulted in poor physical and mental health of the population. However, human civilization has a wealth of understanding and technology that should be applied through buildings and cities in a concerted effort to rekindle man's awareness of the larger non-anthropocentric world around him. Since the environmental crisis will be solved quantitatively, this thesis focuses on 'experience' as opposed to 'effect.'

Compare using a manually-powered juicer to squeeze a fresh glass of orange juice vs. poking a straw into a juicebox (10% juice all right!); or compare getting a tan at the beach with sand between toes vs. going to a fake-n-bake, sitting in a coffin-like tube indoors on a sunny day. The effects are similar, but the experience (and the personal control associated with it) is what makes all the difference.

Our current society has reacted against this disconnected culture by pushing the young generation to reconnect with their physical roots in an effort to encourage spiritual development through education. There is no doubt that sustaining life through ecological awareness and the responsible living decisions associated with it is an ideal vision, but as Professor Freelon (professional practice) says, everyone needs a BHAG: A Big Hairy Audacious Goal. Having a vision up in the sky allows us to work down on the ground, taking small steps towards envisioning our ideas. The idea is to create a 'Bifocal Nature,' designing spaces for people and plants (nature) where digital technologies work effectively to reestablish conscious links between man and his surroundings; encouraging him to 'grow outside.'



PART FIVE

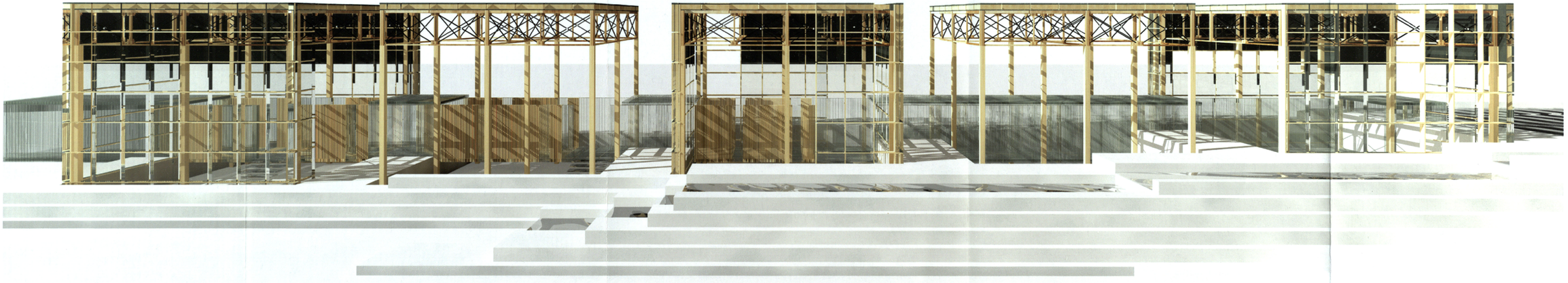
CONCLUSION

Advances in technology will undoubtedly set the course for where we as a digital society go in the future. At the same time, technology creates analog spaces for the contemplative poet.

These spaces of refuge are not for all, nor 'necessary'; they are for sentiment. It is for the Romantic that I wish to help reconnect back to natural flows. In a highly digital world, some of us will need analog escapes; connections back to the analog world are, if nothing else, provisions for escape.

The desire to maintain links with the analog world - such as using a manually-operated orange juicer or going to the beach to get a tan - reminds humanity of their roots and where they came from, especially in this digital age. There was history and there was tradition; the assumption is that if humanity knows that it will always be part of a continuing process, then it is reassuring to relive parts of the past, even if only an escape.

So it is not about the orange juicer, nor the orange, nor the tree; it is about creating a spiritual linkage to something way past, back long time ago. The role of architecture and urban design is to provide these types of spaces that excite the soul: Sensory ecosystems for habitation are made possible by digital technologies (Back to the future!), promoting tactile experience and spurring subconscious memory connecting us to a good place in evolutionary time, in sync with our humble beginnings, to 'be right with the world.'



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4.241, Professor Julian Beinart: Theory of City Form class notes

4.244, Professor Dennis Frenchman: 'Nature and the City'

4.155, Professor Nondita Correa-Mehrotra: Nature and the City

4.156, Professor Shun Kanda: Japan Studio

4.464, Professor Les Norford: Building Technology IV

4.560, Professor Takehiko Nagakura: Geometric Modeling

4.562, Professor Takehiko Nagakura: Architecture in Motion Graphics

4.171, Professor Jan Wampler: Haiti Workshop

4.145, Professor Jan Wampler: Cyprus Studio

4.171, Professor Jan Wampler: Hawaii Workshop

4.166, Professor Jan Wampler: China Studio

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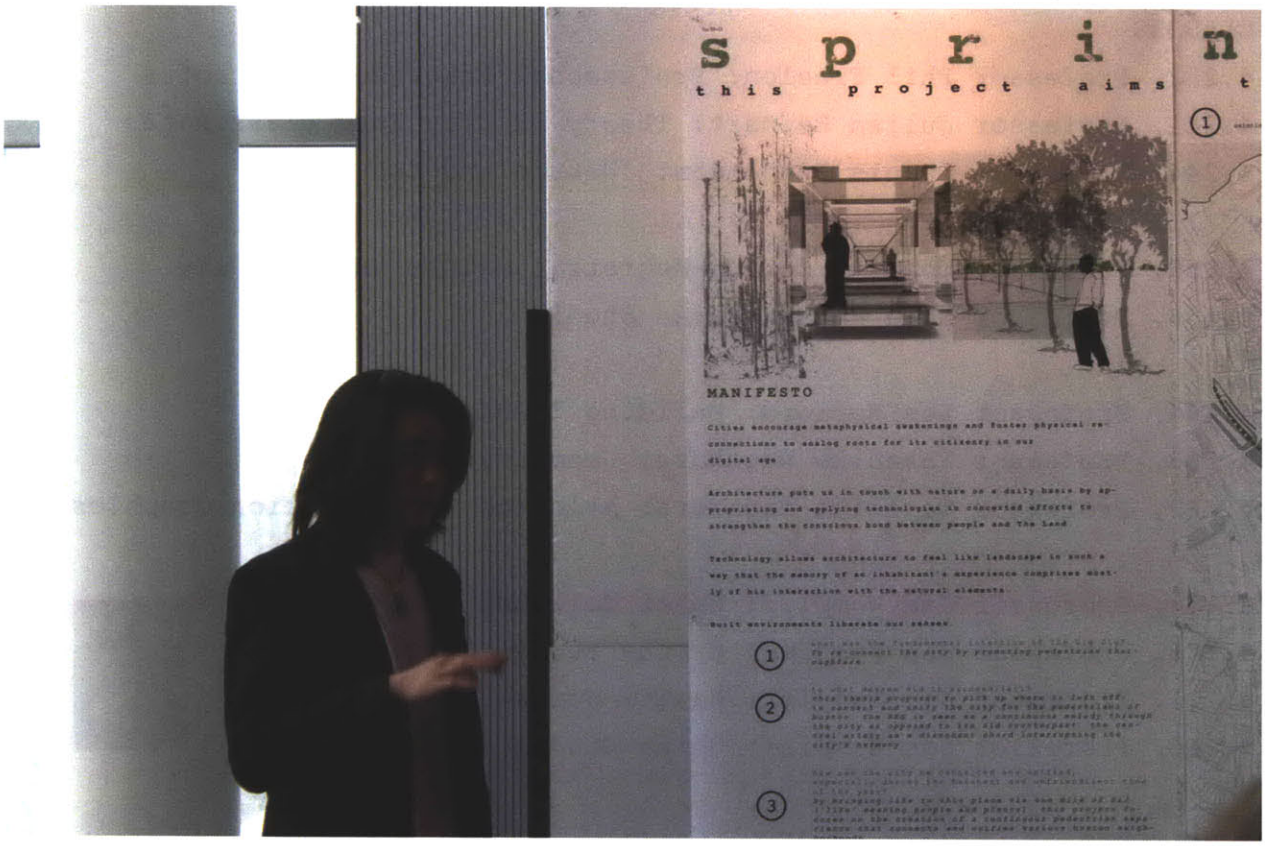
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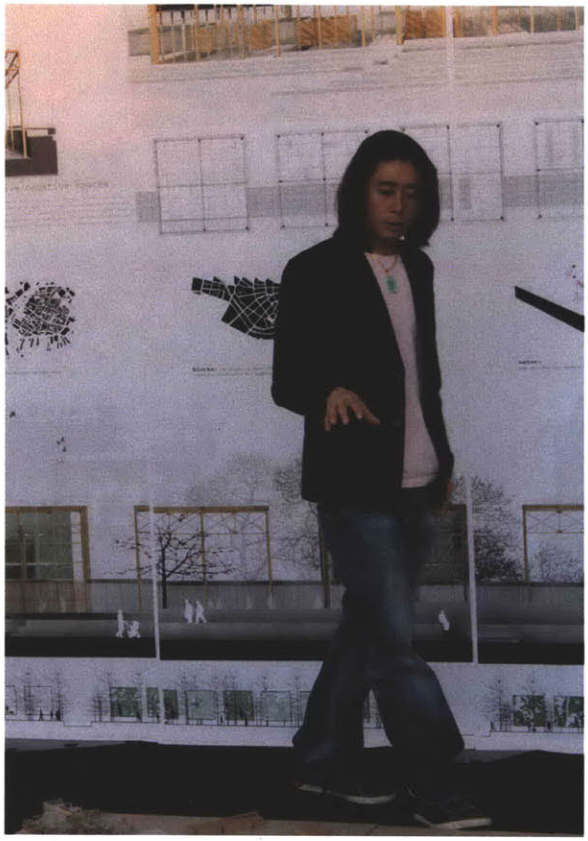
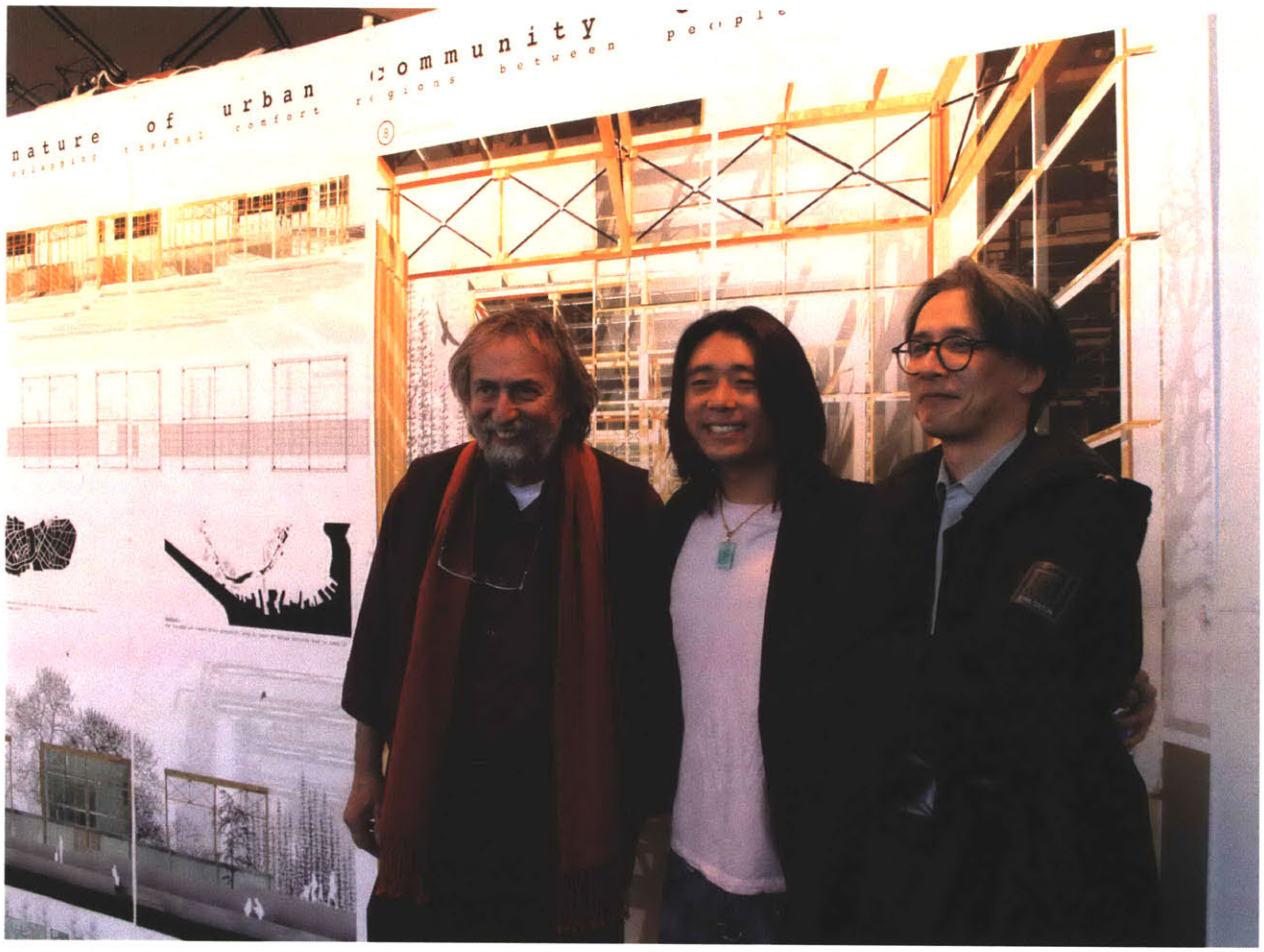
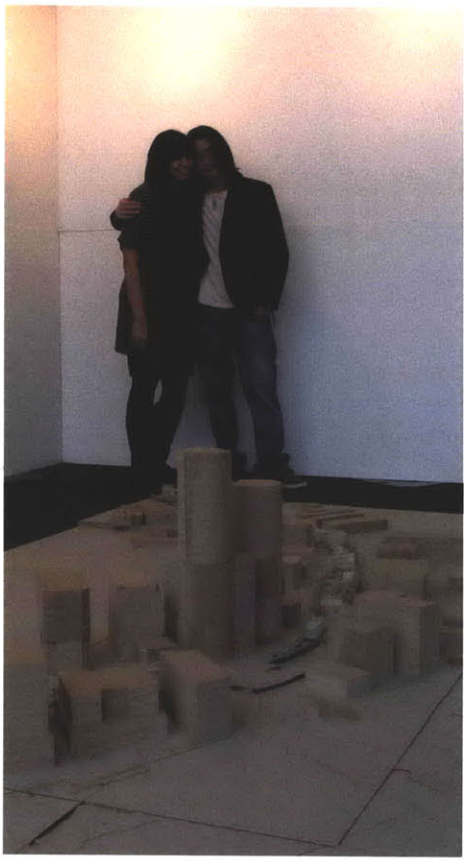



i n g
i n
j a n u a r
the bifocal nature of urban community


nature of urban community



concrete and cars
are their own prison bars
like this life im livin in
but the plane brought me farther
im surrounded by water
and im not goin back again
adios and vaya con dios
yeaa im leaving MA
gonna lay in the hot sun
and roll a big fat one
and grab my guitar and play

ADIOS & VAYA CON DIOS