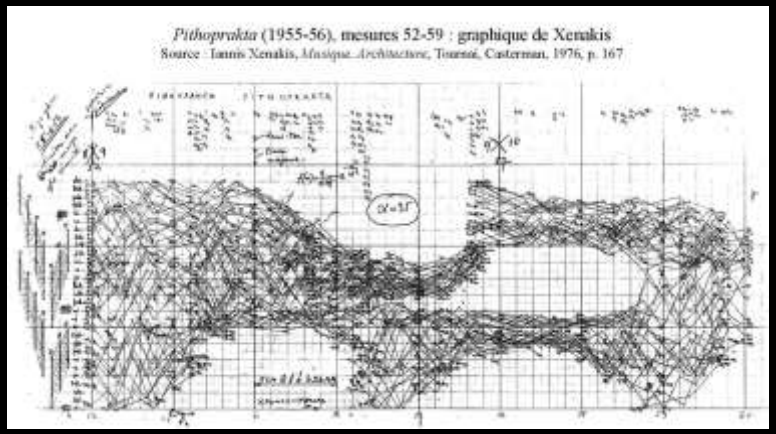
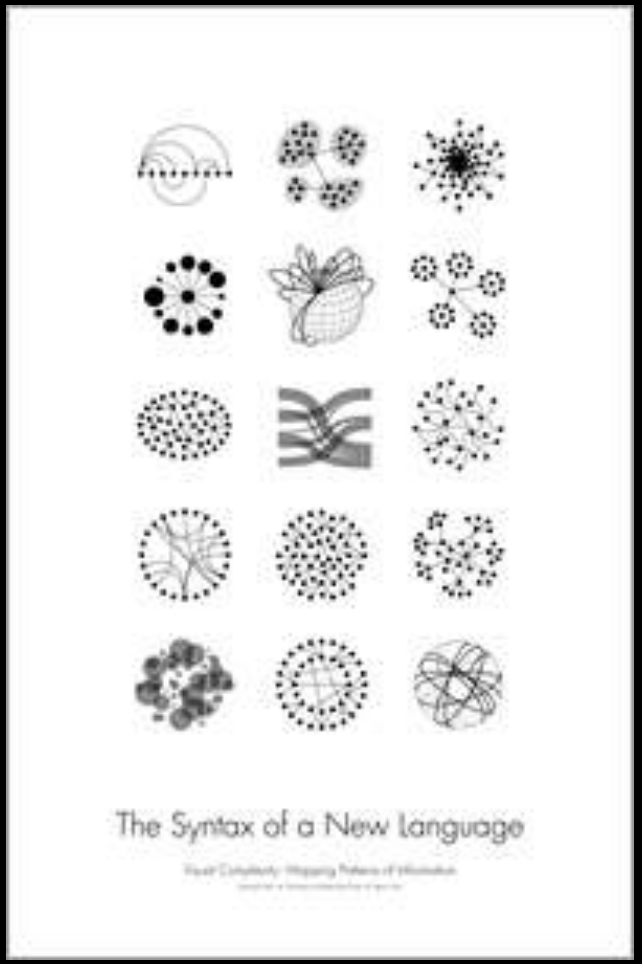
Systems
Unit + Organization + External Force

I. Diagramming: Abstraction + Synthesis
II. Analog Parametrics
III. Digital Parametrics





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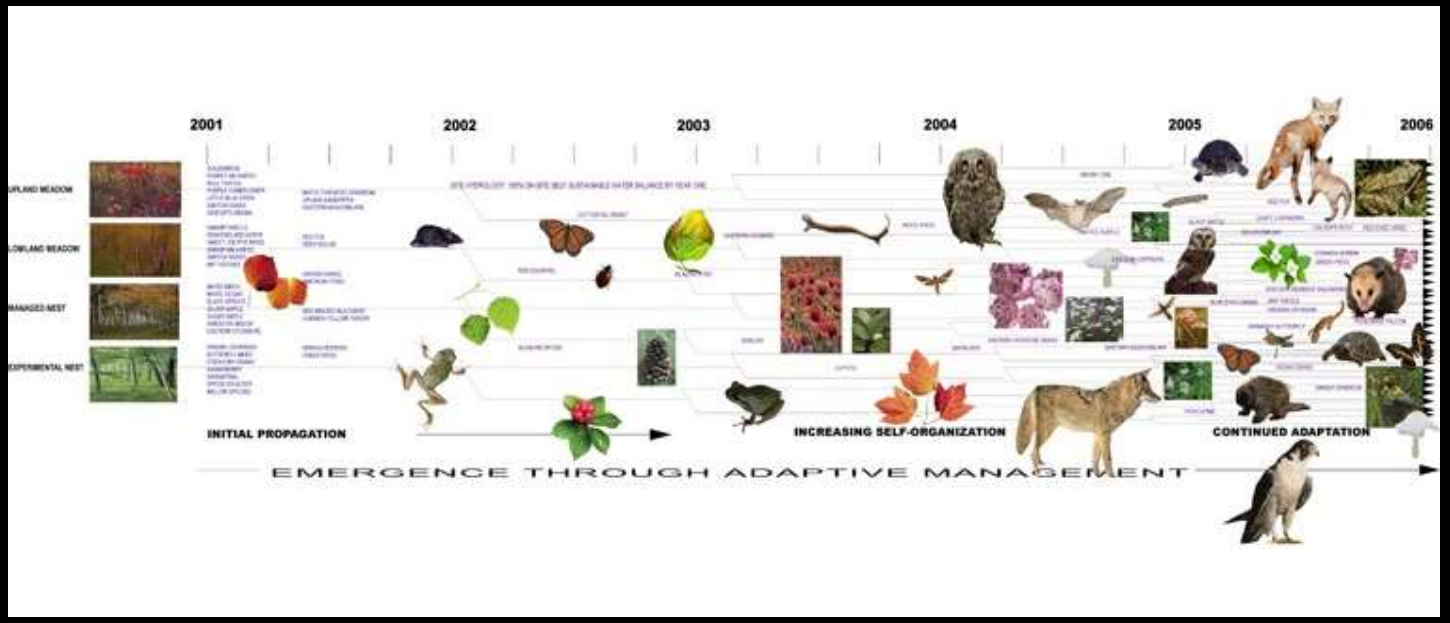

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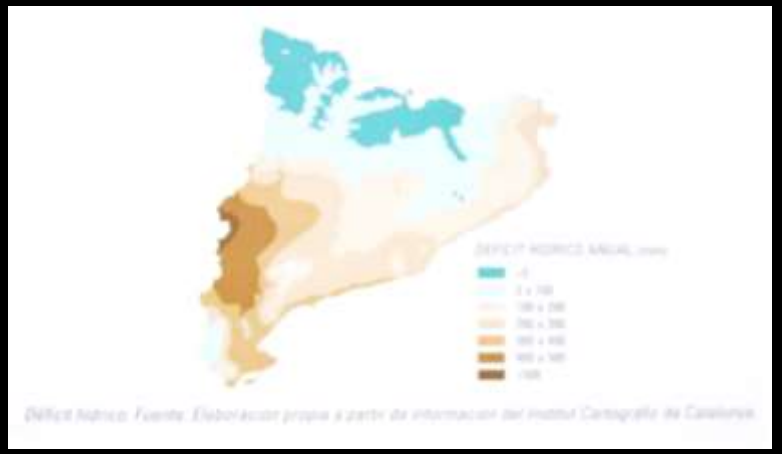

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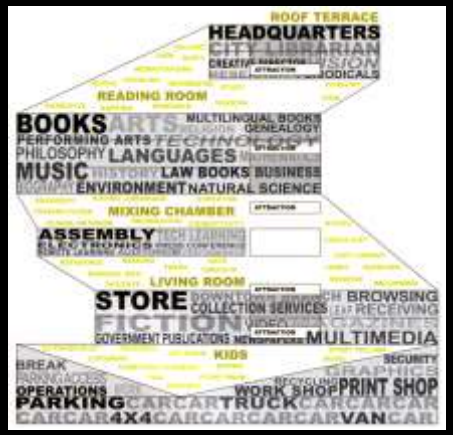

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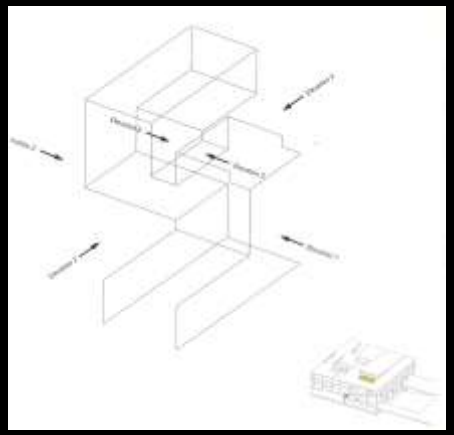

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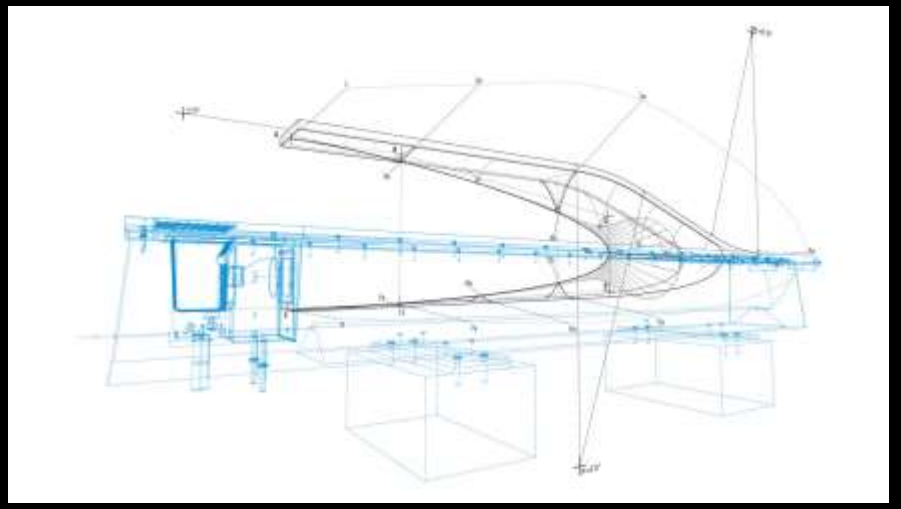

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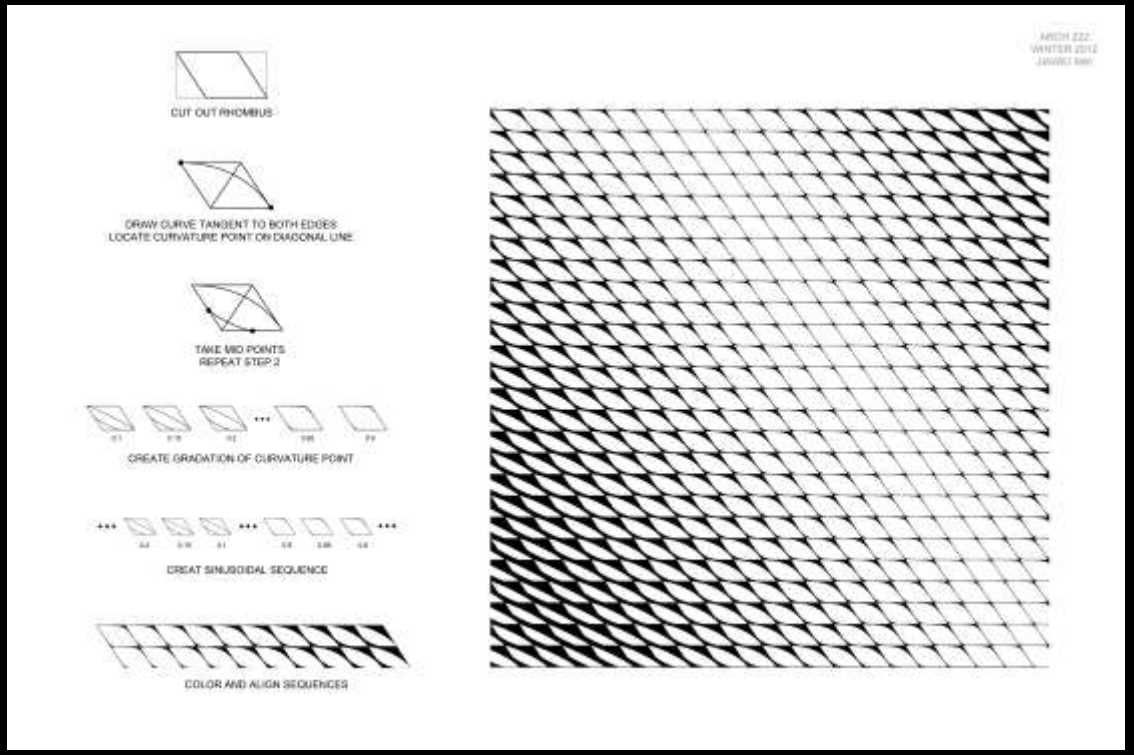

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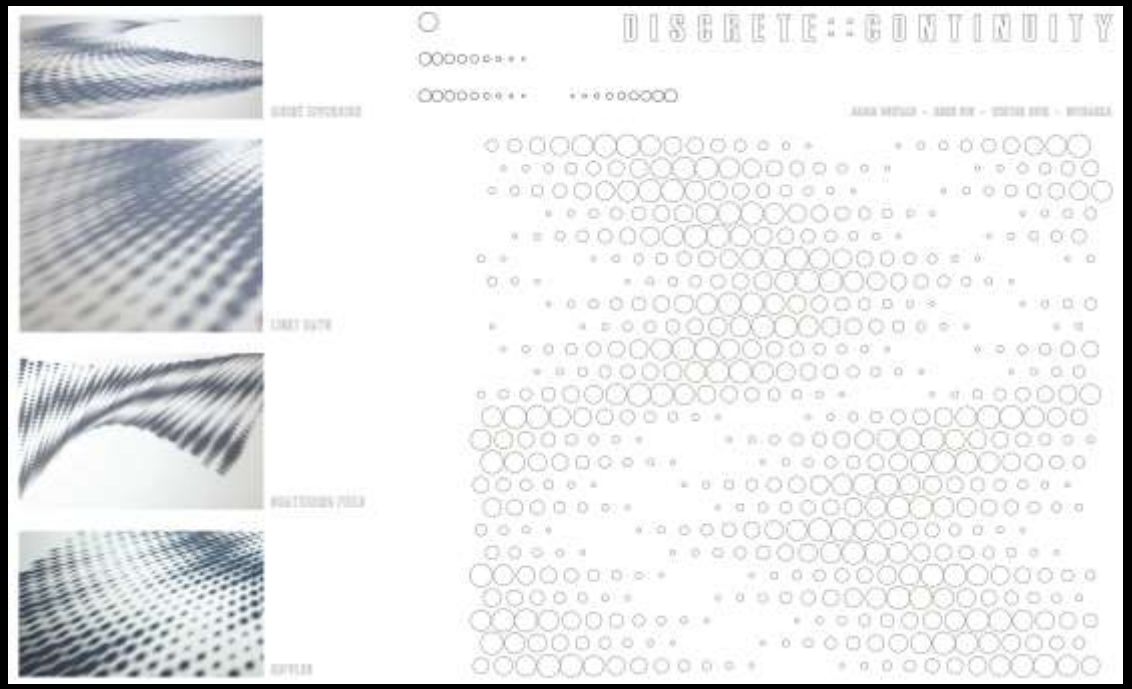

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Light and Energy

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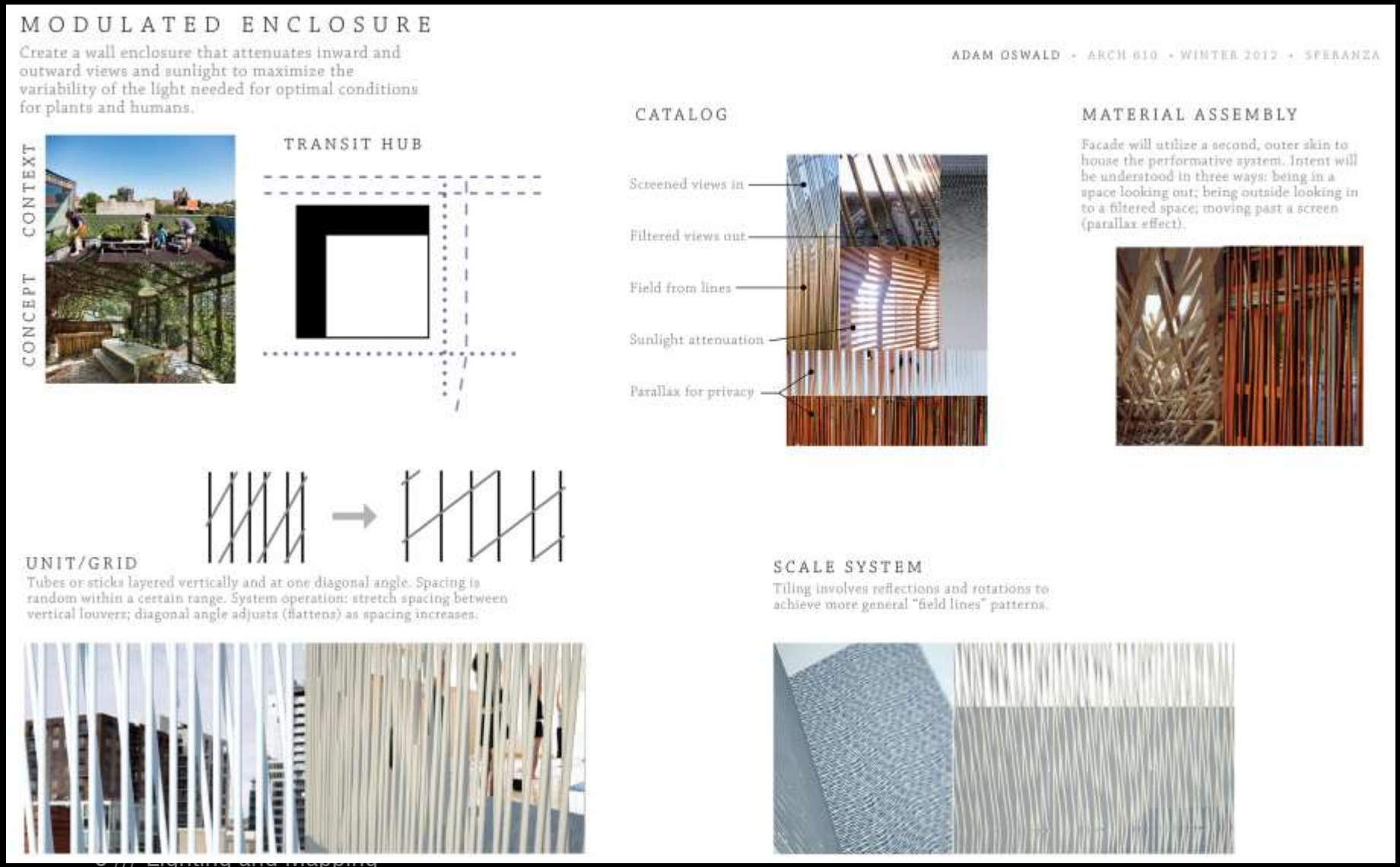

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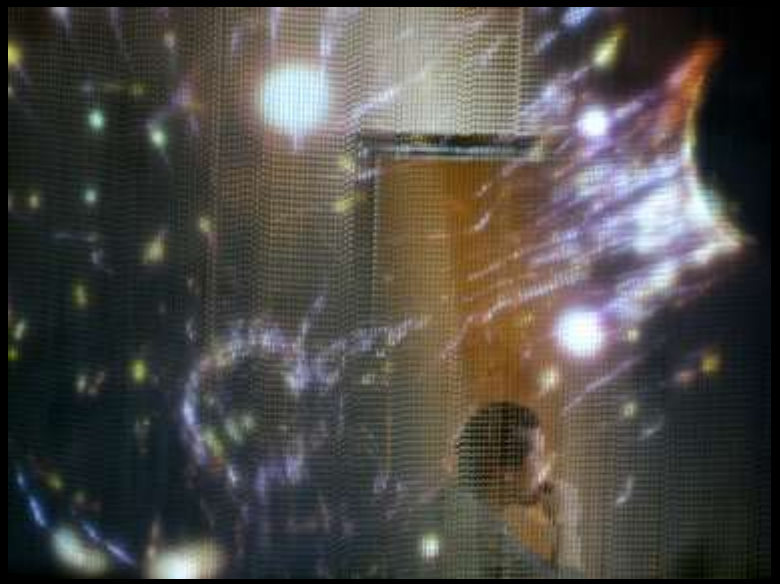

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"Id like to think that we are now entering a third, more mature phase in our relationship to digital technology.

Thanks in part to a new generation of architects who have been educated entirely within the digital regime, and on the other hand to the first generation of digitally trained architects who have continued to evolve their thinking, the computer is beginning to have a ***practical*** impact, beyond the **formal** or the **metaphorical**."

- Stan Allen, *If…then… Architectural Speculations*

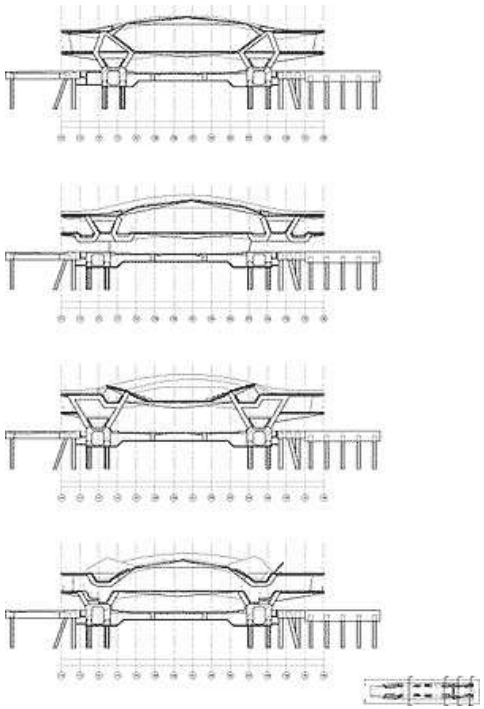
I. Diagramming: Abstraction + Synthesis
II. Analog Parametrics
III. Digital Parametrics

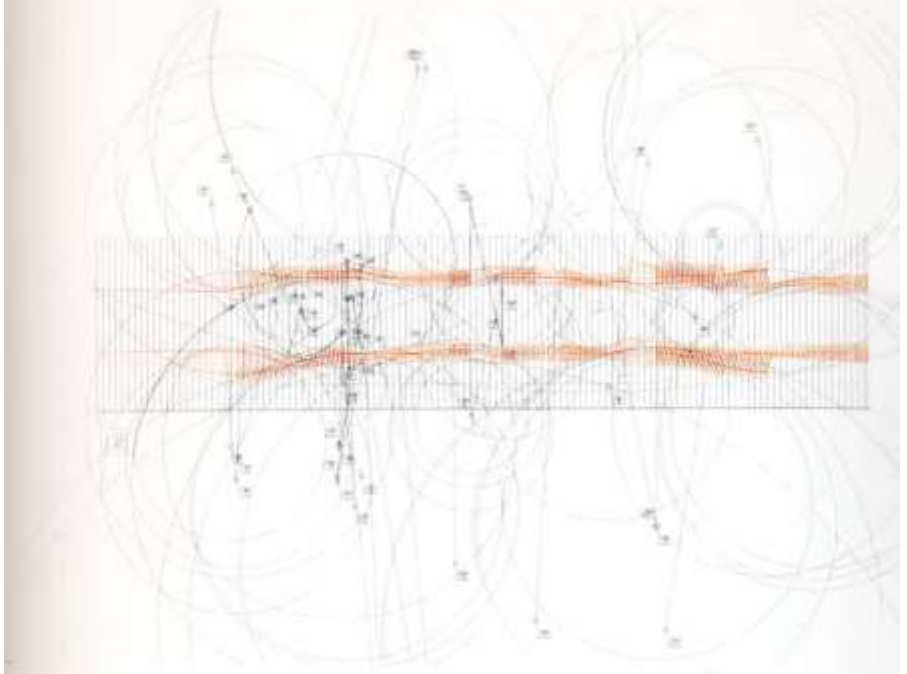
“Drawings are primary instrument for the production of architecture.

But a design process that remains limited to the relationship between drawings and real-space buildings is constrained to the actualization of conventions and commonly resists the integration of variation, local specificities or changes of conditions.

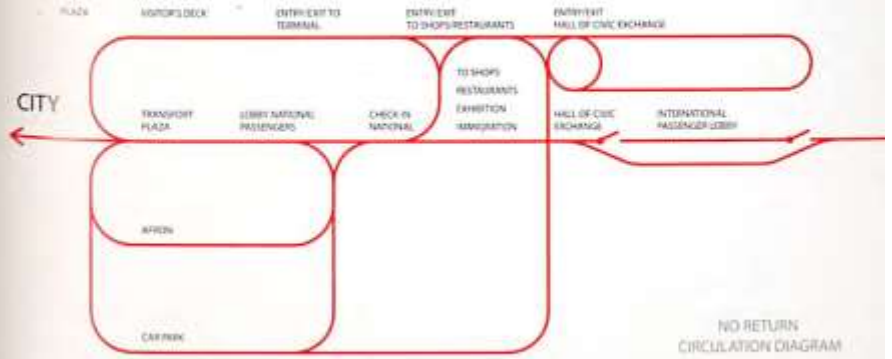
This is where the diagrammatic process becomes advantageous in a culture characterized by change.”

- Alejandro Zaera-Polo, *Between Ideas and Matter*



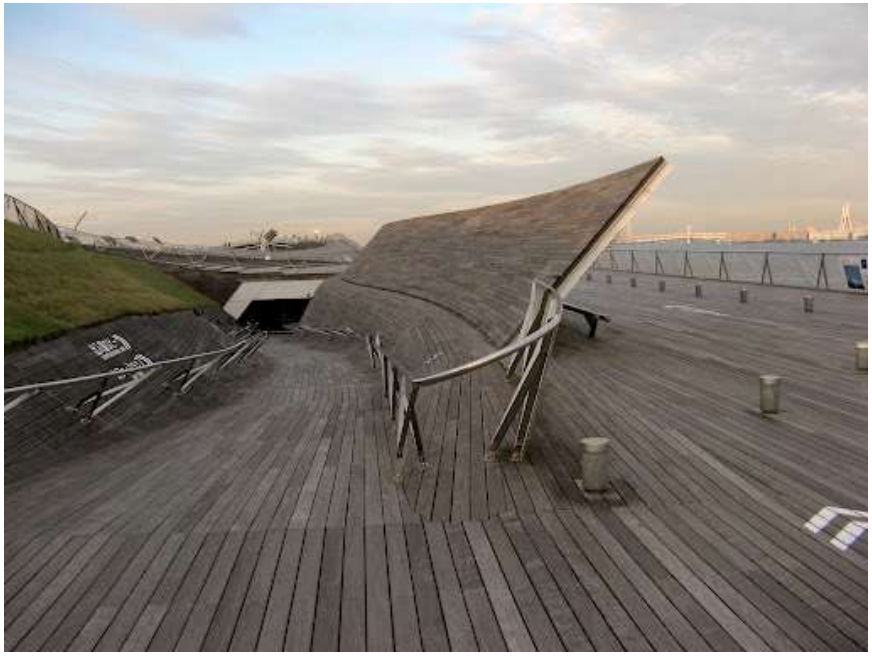


Foreign Office Architects, Yokohama International Ferry Port Terminal, 1999. Diagram of the geometrical setting out of the girder axis. © FOA.



Foreign Office Architects, Yokohama International Ferry Port Terminal, 1999. Circulation diagram. © FOA.

Foreign Office Architects F.O.A. Yokohama Terminal



Foreign Office Architects F.O.A. Yokohama Terminal

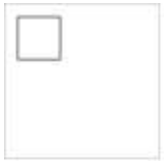
Systems

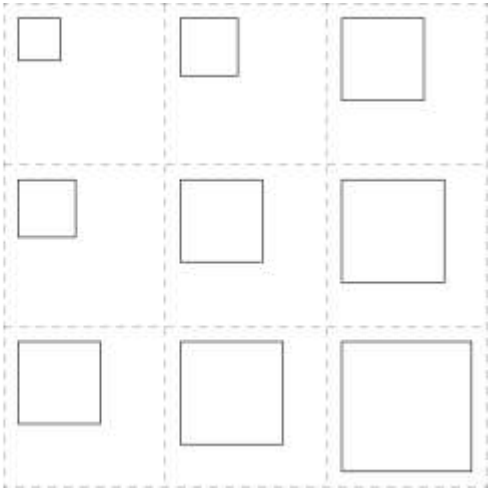
=

Unit + Organization +Variation (External Force)

Framework
+
People

Geometry



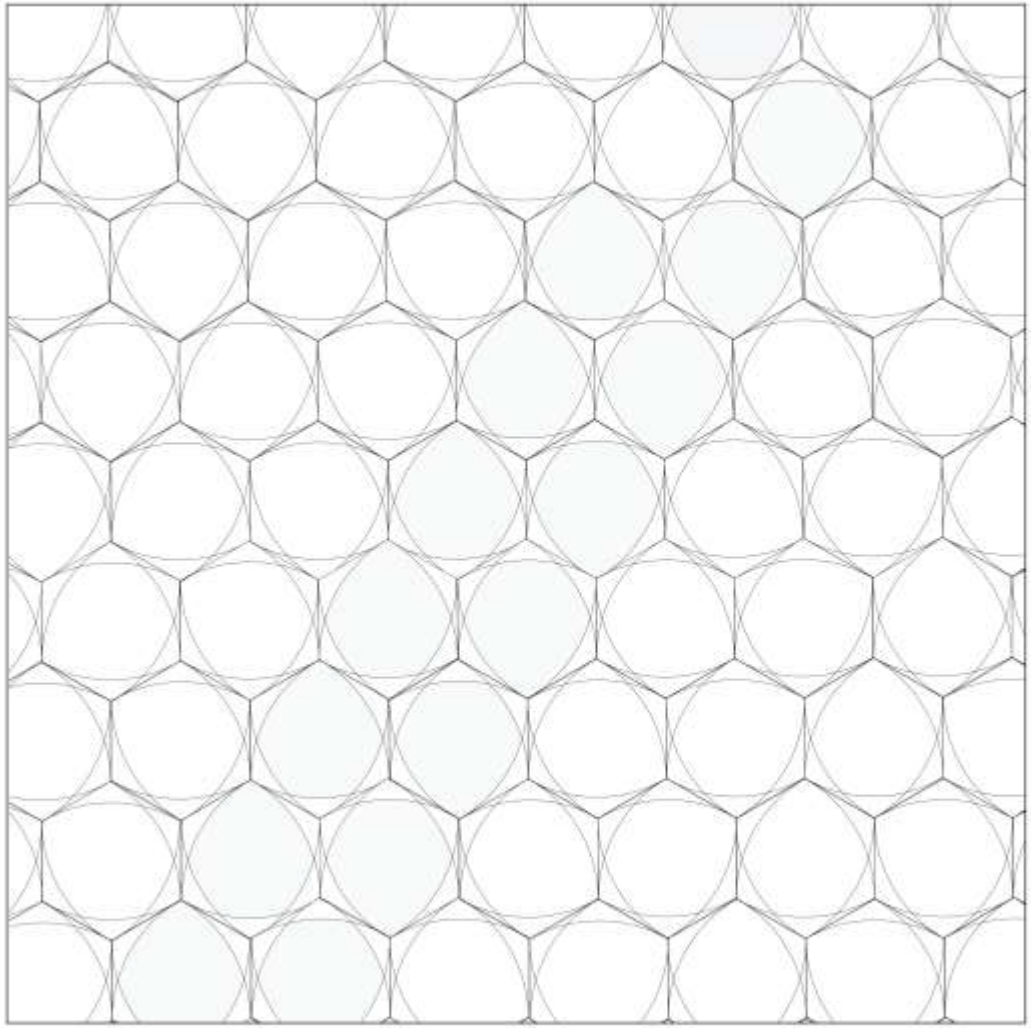


Kinetic Affect

Shift

Motion

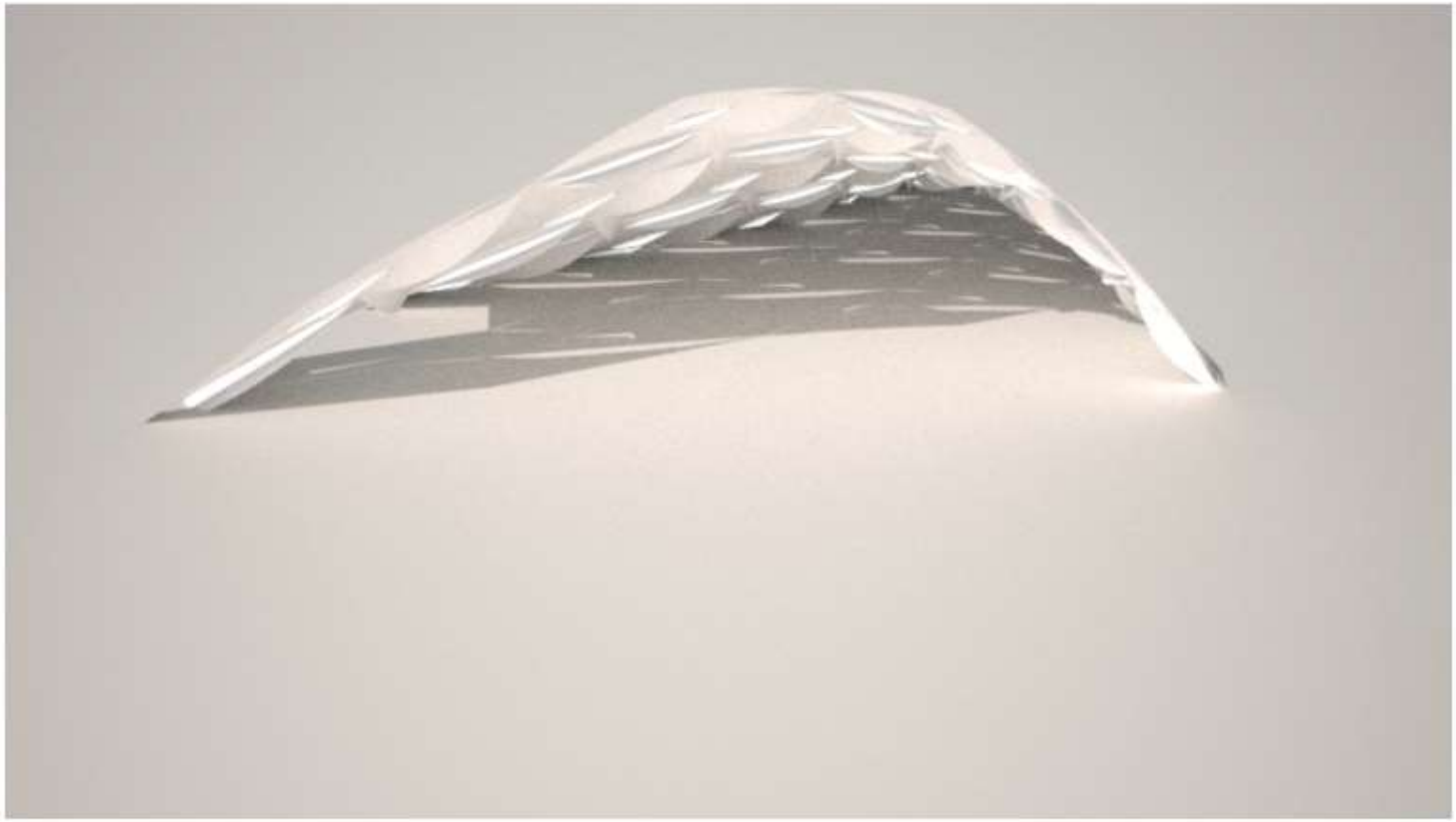
Wane



Kari Hayenga | Design Communication II | Exercise 5a | 11.3.14

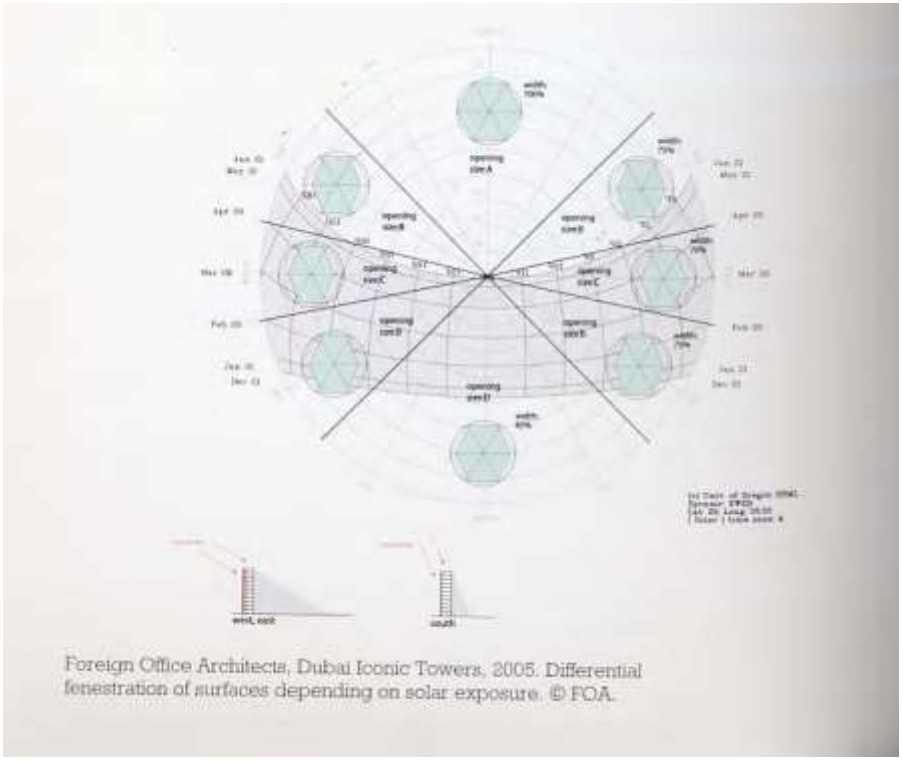
Analog Parametric Screen: student Kari Hayenga, ARCH 610_F14, University of Oregon

EXERCISE 6A: Lighting



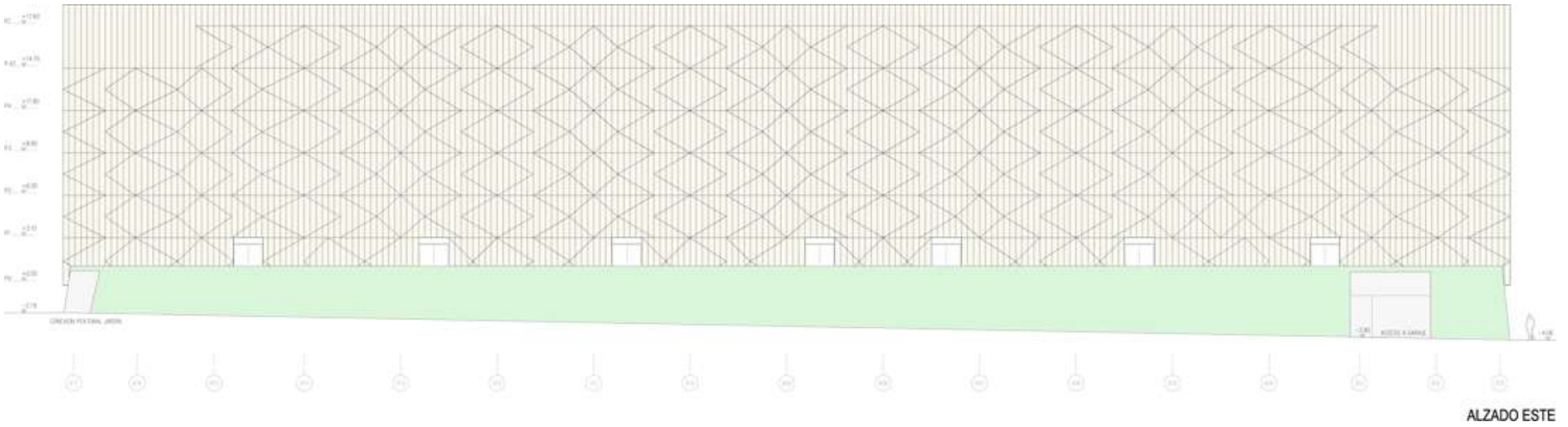
JACQUELIN PRESBAUGH | ARCH 222 | SPRING 2014 | P. SPERANZA

Analog Parametric Screen: student Jacquelin Presbaugh, ARCH 222_S14, University of Oregon



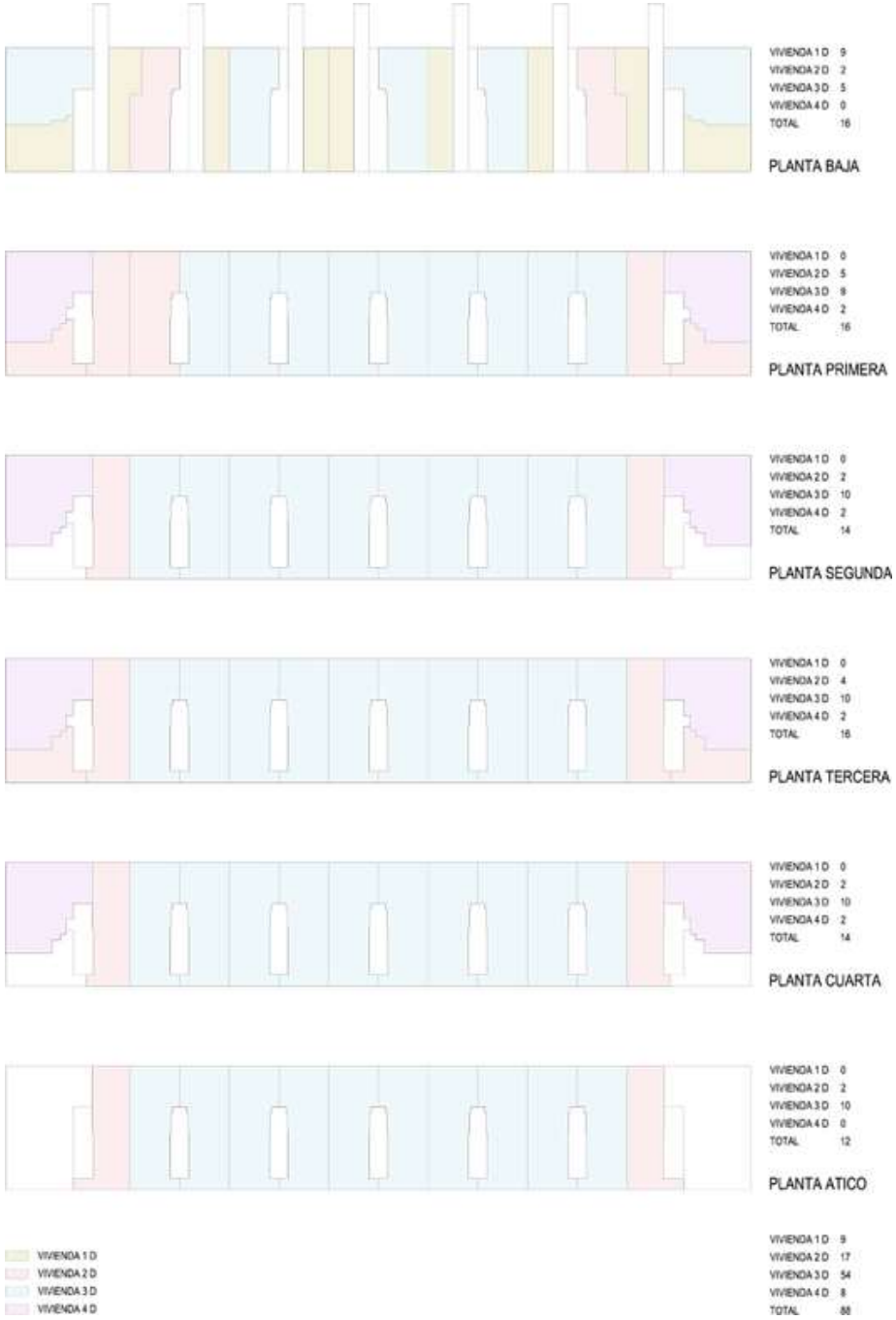
Foreign Office Architects, Dubai Iconic Towers, 2005. Differential fenestration of surfaces depending on solar exposure. © FOA.

Foreign Office Architects F.O.A. Dubai Iconic Tower, Differential fenestration of surfaces depending on solar exposure, © University of Oregon, SRML, Sponsor: EWEB

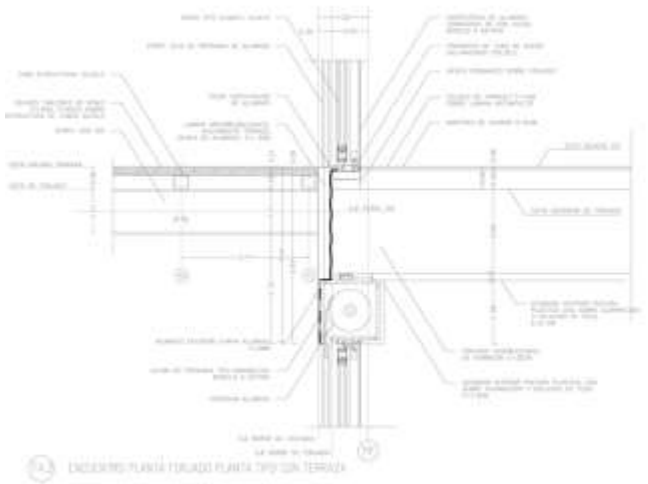


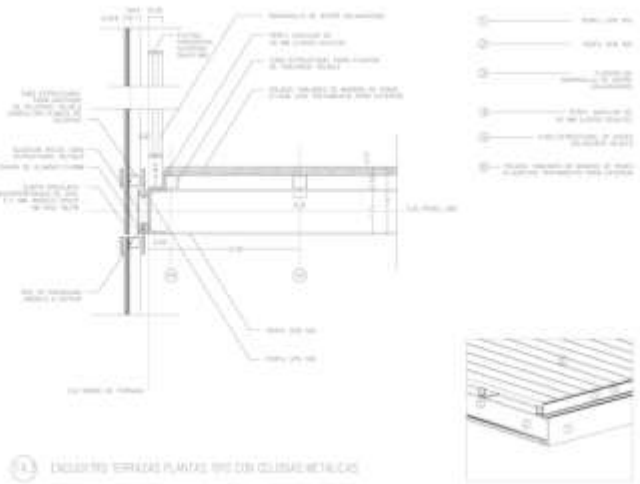
ALZADO ESTE

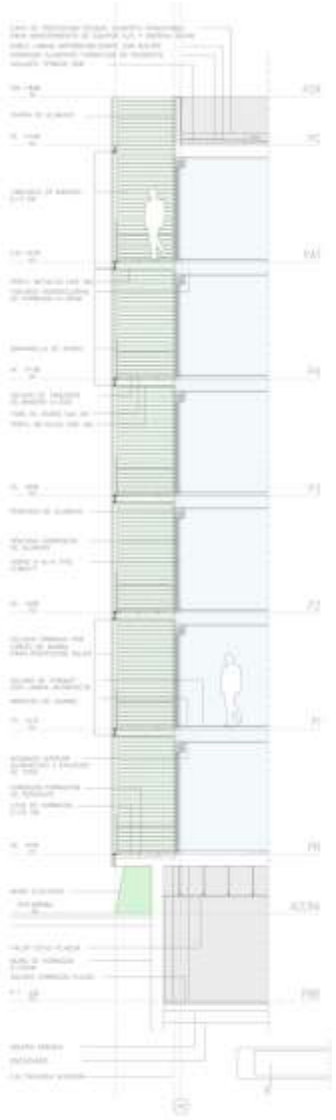
Foreign Office Architects F.O.A. Alejandro Zaera Differentiated fenestration

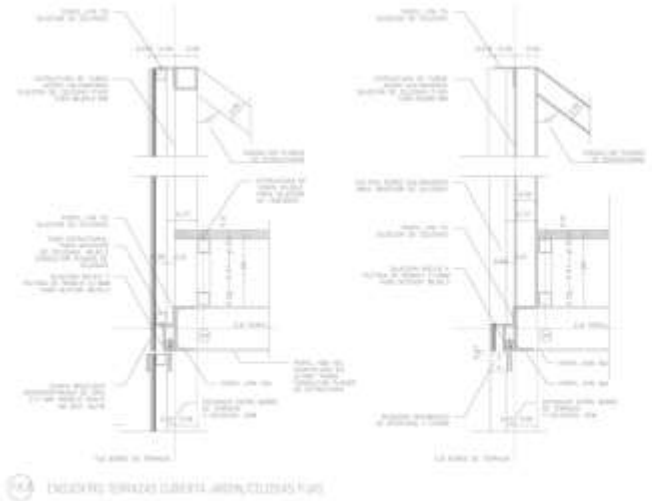


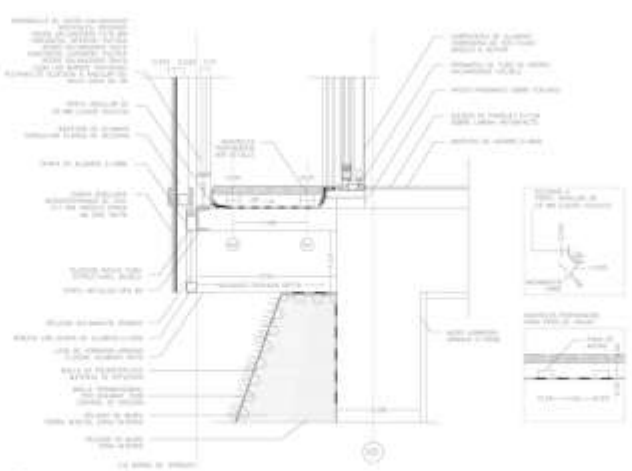
Foreign Office Architects F.O.A. Differentiated fenestration





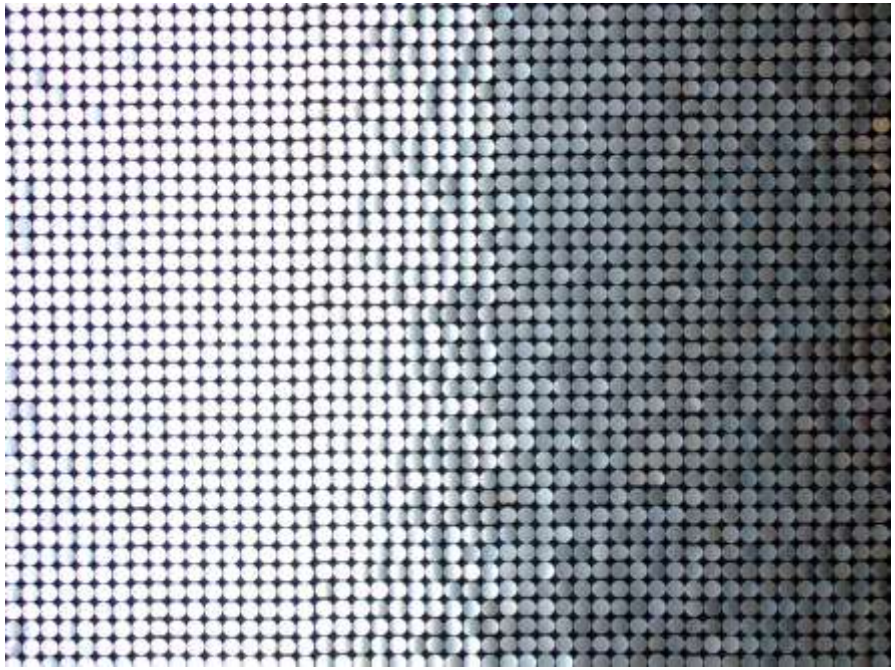




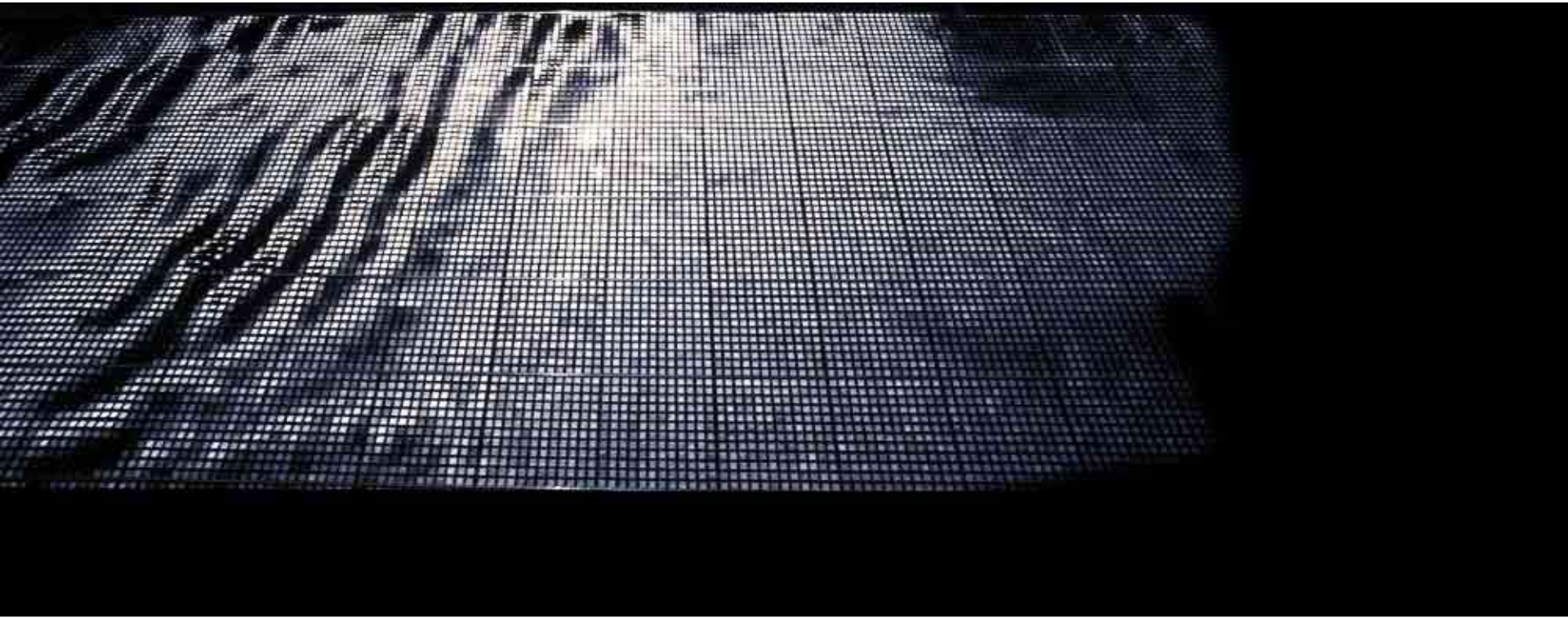


DETALLES SECCION TRANSVERSAL FACHADA

Foreign Office Architects F.O.A. Differentiated fenestration



Informing a System (Spatial Composition)



Ned Kahn: pattern of fluid dynamics of wind

Informing a System: patterns emerge from outside forced in site (context)

Natural (External Forces)
-Lighting, Jean Nouvel
-Solar gain
-Thermal retention
-Wind, Ned Kahn and Ventolera Winery
-Gravity (horizontal and vertical)

Human (External Forces)
-Image (IIT, Mies)
- Phenomenal Transparency
-Visual transparency
-Acoustic
-Sound
-Tactile, Jaqua
-Playfulness, scale to children, Diagonal Mar by Enric Miralles

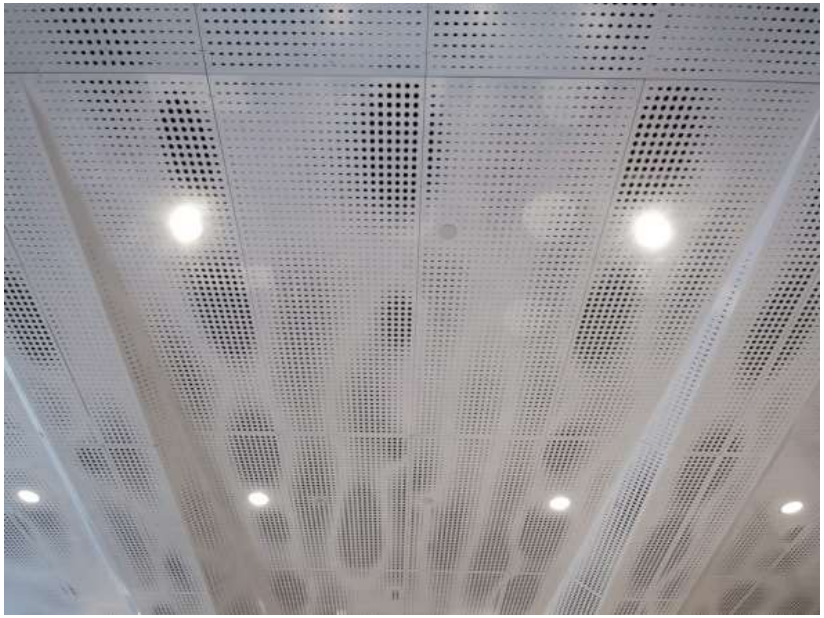
Informed by the context of program and site

Change / Time

1. Fixed variation in the system, Her Secret is Patience
2. Moving parts, Ill de Llum
3. Participant moves, Granada, Nieto Sobejano
4. Outside Change, sun and wind, Ned Kahn

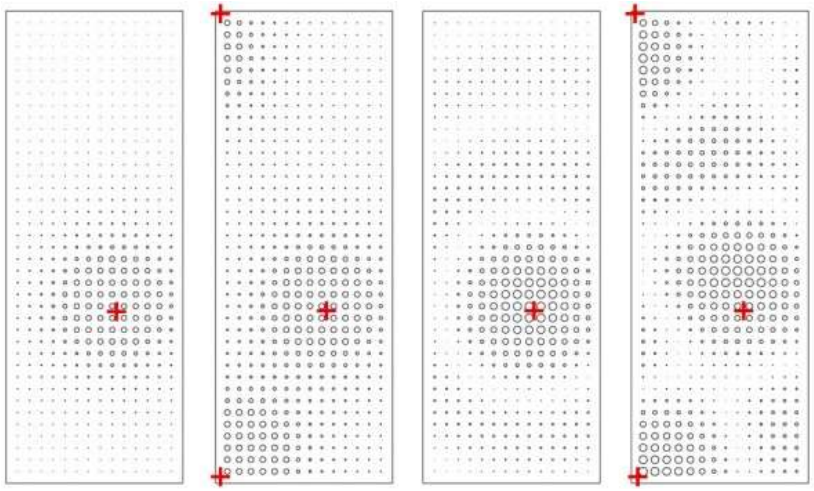
System at Change

Marble Fairbanks, Altschul Auditorium

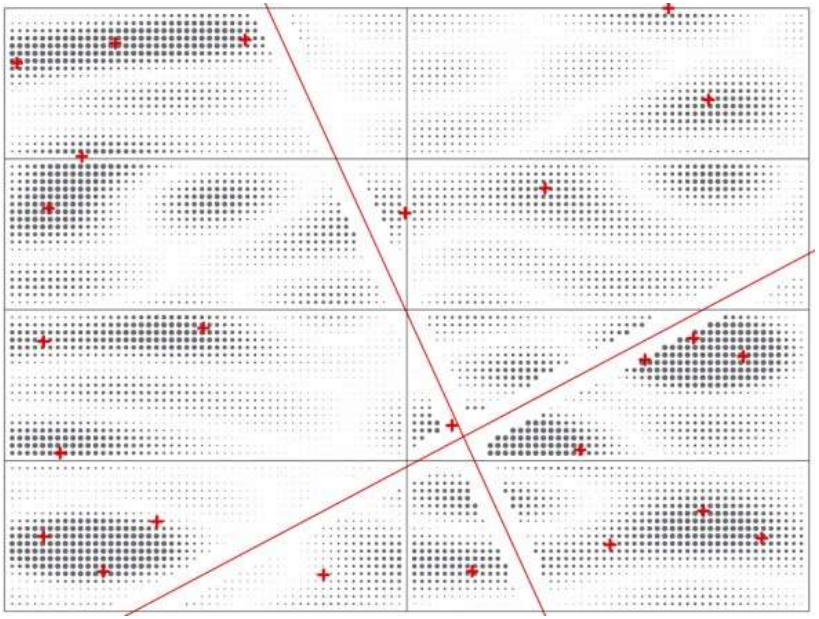


Marble Fairbanks, Toni Stabile Student Center

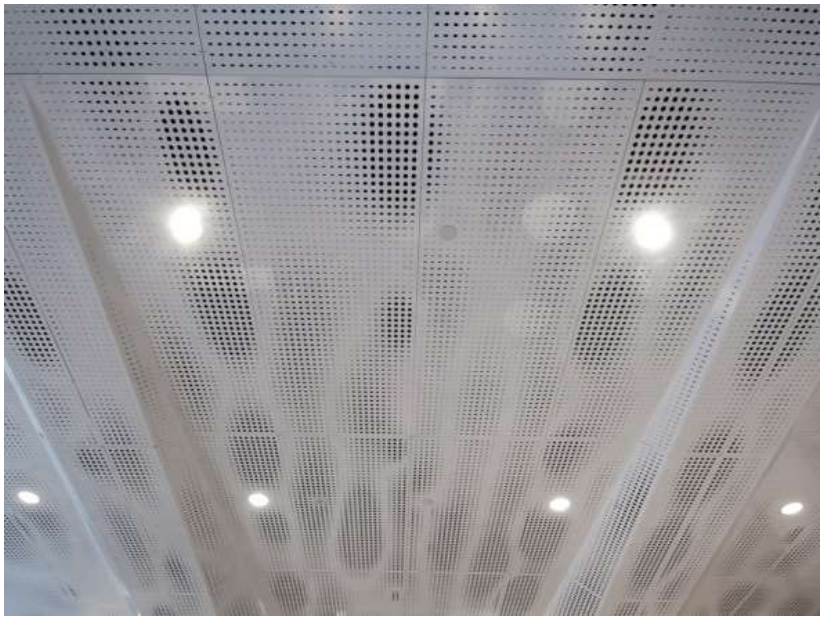
Performative Wall System: application of scale



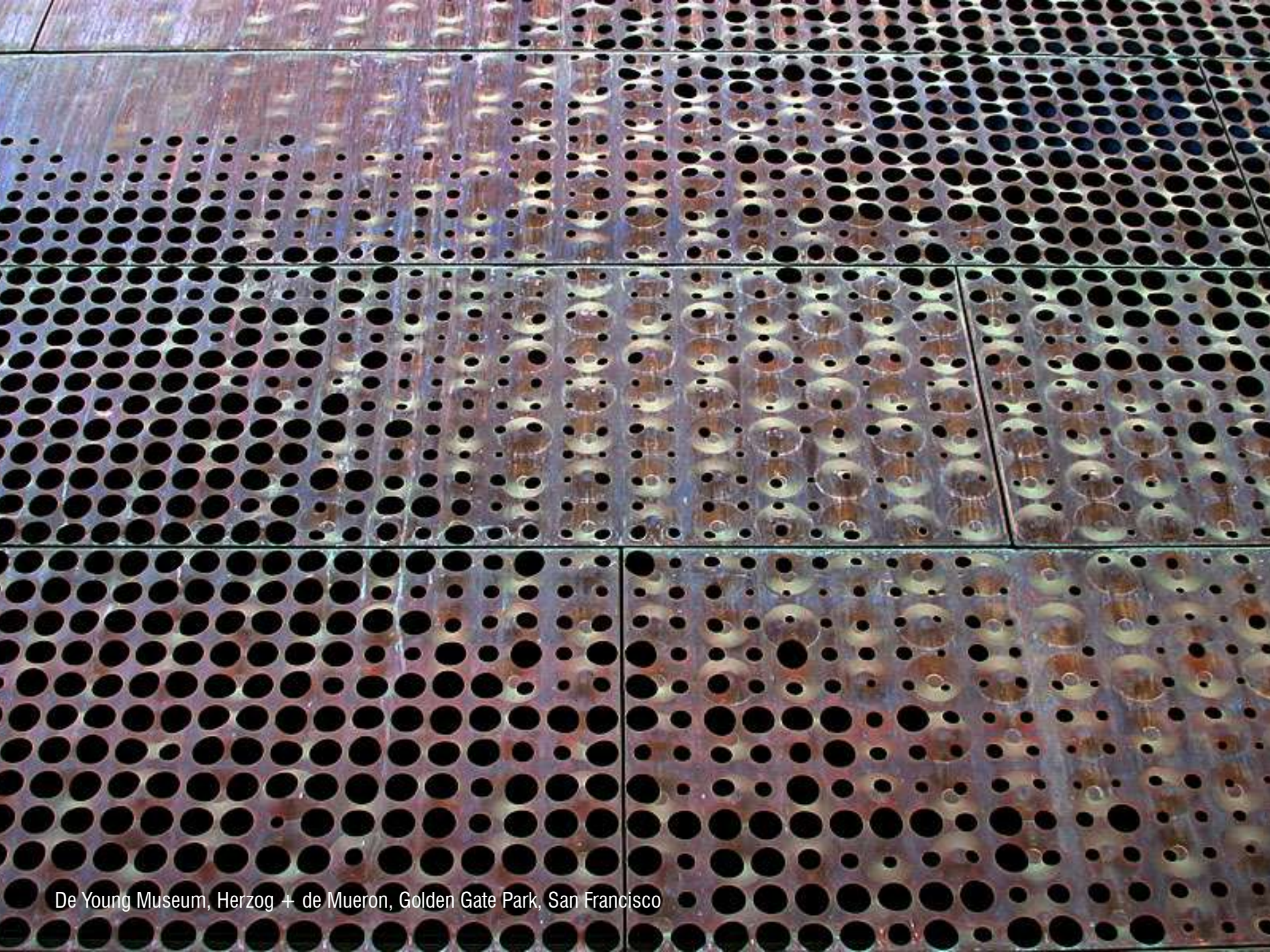
Perforations intensify at attractor locations



Pattern adjusts to panel joints & bend lines



De Young Museum, Herzog + de Mueron, Golden Gate Park, San Francisco



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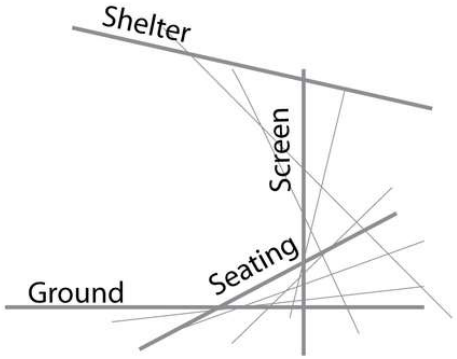
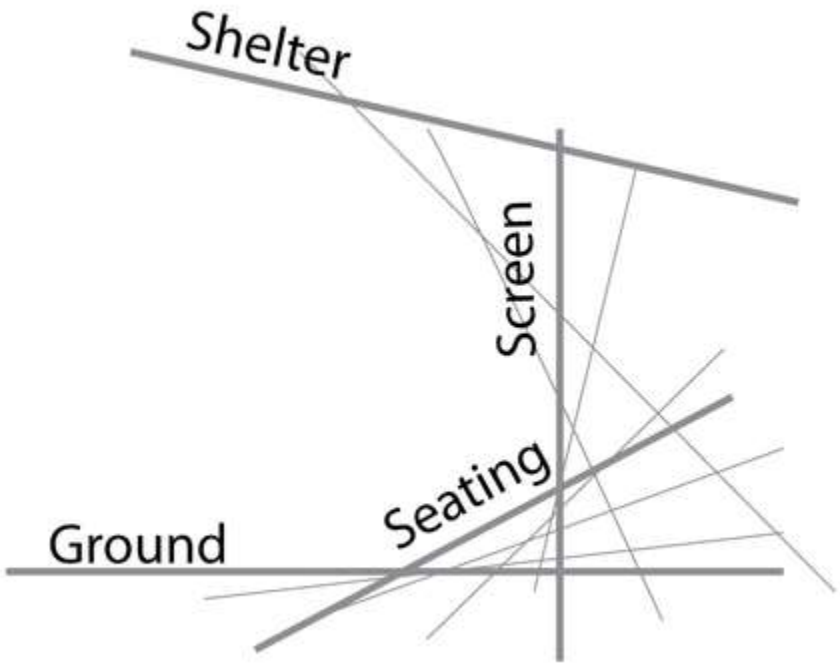
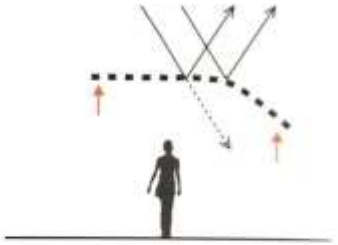


Dunescape, by SHoP Architects, Queens, NY


Shelter
Screen
Seating
Ground



Method

Method (of building a system):

1. **Purpose**, Two-word Title (Affect)
2. **Location (Environment)**: Identify existing forces
3. **Design Intent**: 5+ conditions of affect (Timeline?). Qualitative (feeling, ideas, intent). Quantitative (measurements, numbers)
4. **Material and Construction Method**: Folding, Stacking, Contouring and Sectioning
5. **Generative Diagrams**: unit/material/operation
6. **Multiple diagrams may come together**
7. **"Dumb" 3D Model (Analog to Digital)**: test at human scale. Illustrator. Vray.

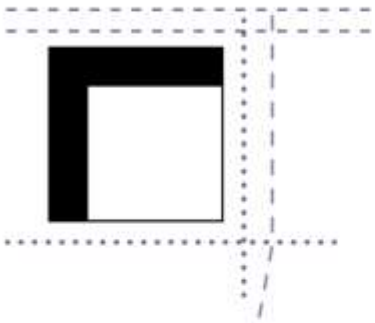
MODULATED ENCLOSURE

Create a wall enclosure that attenuates inward and outward views and sunlight to maximize the variability of the light needed for optimal conditions for plants and humans.

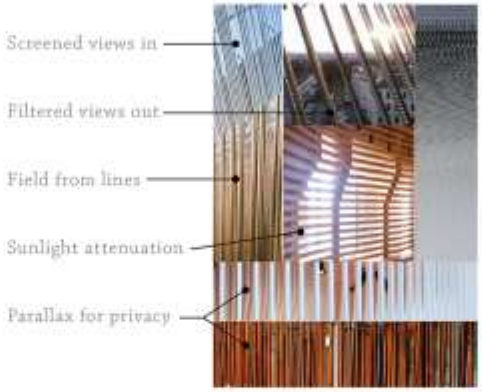
ADAM OSWALD • ARCH 610 • WINTER 2012 • SPERANZA

CONCEPT CONTEXT

TRANSIT HUB

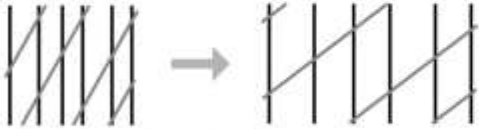


CATALOG



MATERIAL ASSEMBLY

Facade will utilize a second, outer skin to house the performative system. Intent will be understood in three ways: being in a space looking out; being outside looking in to a filtered space; moving past a screen (parallax effect).



UNIT/GRID

Tubes or sticks layered vertically and at one diagonal angle. Spacing is random within a certain range. System operation: stretch spacing between vertical louvers; diagonal angle adjusts (flattens) as spacing increases.

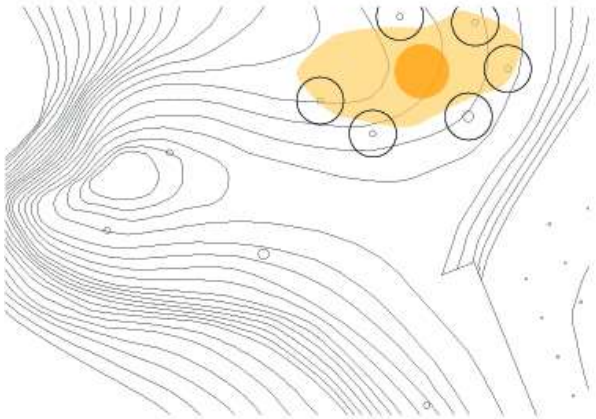
SCALE SYSTEM

Tiling involves reflections and rotations to achieve more general "field lines" patterns.

FIRESIDE FRIENDSHIP

LOCATION:

THIS SEATING AREA WILL SURROUND A FIRE LOCATED IN SECLUDED AREA THAT RESTS BELOW THE CANOPY OF A DENSE CLUSTER OF DOUGLAS FIR TREES. THIS LOCATION WAS CHOSEN FOR THE BUILDING OF THE FIREPIT AND SEATING AREA BECAUSE IT A UNIQUE PART OF THE SITE THAT FEELS SECLUDED. THE AREA WORKS WELL TO ALLOW FRIENDS TO LEAVE THERE WORLDS BEHIND THEM AND CHAT AMONGST THE WARMTH OF THE FIRE AND THE SECURITY OF THE TREES, BUT IT ALSO WORKS WELL TO ALLOW A PERSON TO GO OUTSIDE AND HAVE SOLITUDE IN THE MASS OF THE TOWERING TREES.



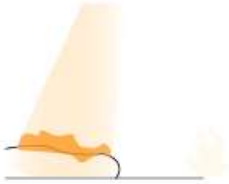
DESIGN INTENT:

THIS SEATING AREA WILL ACCOMPANY VARIOUS DEGREES OF SOCIALIZING. AT NIGHT TIME, FRIENDS CAN SIT WITH EACH OTHER CLOSER TO THE FIRE. IF ONE WANTS TO SEE THE STARS IN THE SKY WITHOUT THE GLARE FROM THE FIRE, THE BENCH WILL DIP AWAY FROM THE FIRE AND ITS BACK WILL RECLINE TO MAKE LOOKING UP INTO THE SKY EASIER. DURING THE DAY, ONE CAN LAY BACK ON THE BENCH TO BATH IN THE SUN WHEN THE SUN IS HIGH ENOUGH TO REACH INTO THE CLEARING IN THE SUMMER, OR ONE CAN TAKE A BOOK OUT TO READ. IF IT IS RAINING THE BACK OF THE BENCH WILL CURVE UP TO PROVIDE SHELTER. THE BENCH WILL CIRCLE AROUND THE FIRE PIT AND WILL UNDULATE TOWARDS AND AWAY FROM THE FIRE TO ALLOW THE DIFFERENT EXPERIENCES JUST DESCRIBED. IT WILL BE BIG ENOUGH TO ALLO SEVERAL PEOPLE TO LAY BACK AND SIT, SO PEOPLE CAN HAVE THESE EXPERIENCES EITHER IN SOLITUDE OR WITH EACH OTHER.

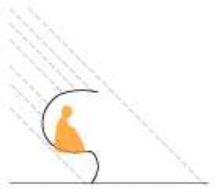
STANDING

SITTING

SUNBATHING/STARGAZING



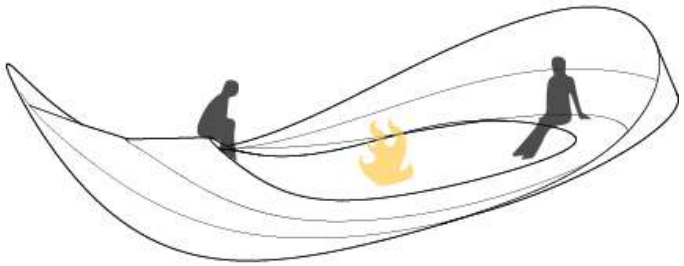
LYING DOWN



PROTECTION FROM RAIN

MATERIAL & CONSTRUCTION METHOD:

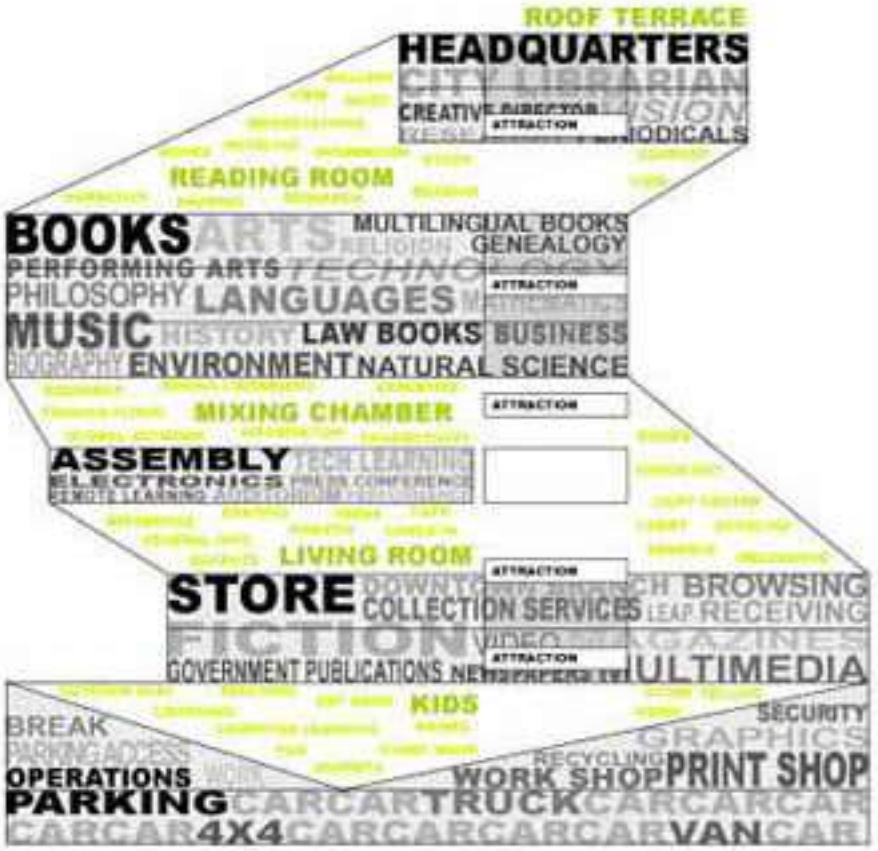
BENDING & CONTOURING VARIED TONES OF WOOD STRIPS TO CREATE VARIED EXPERIENCES IN THE BENCH

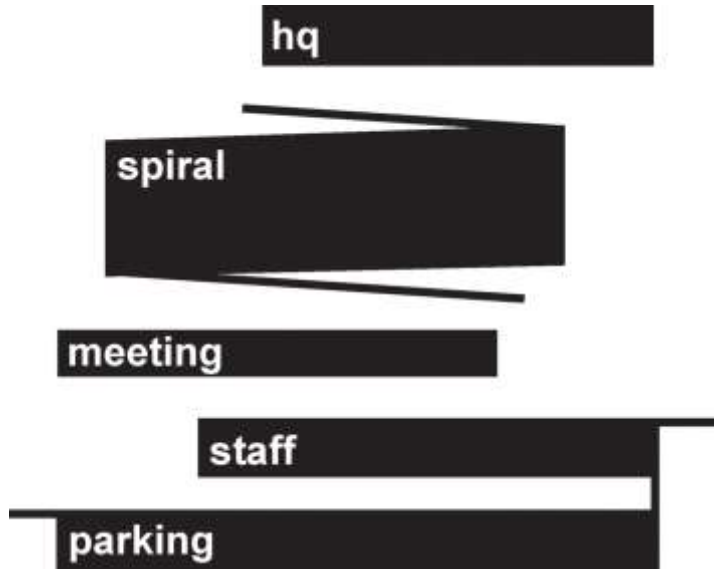


NOAH ROESLER
EXERCISE 7A
ARCH 222
5/19/2014

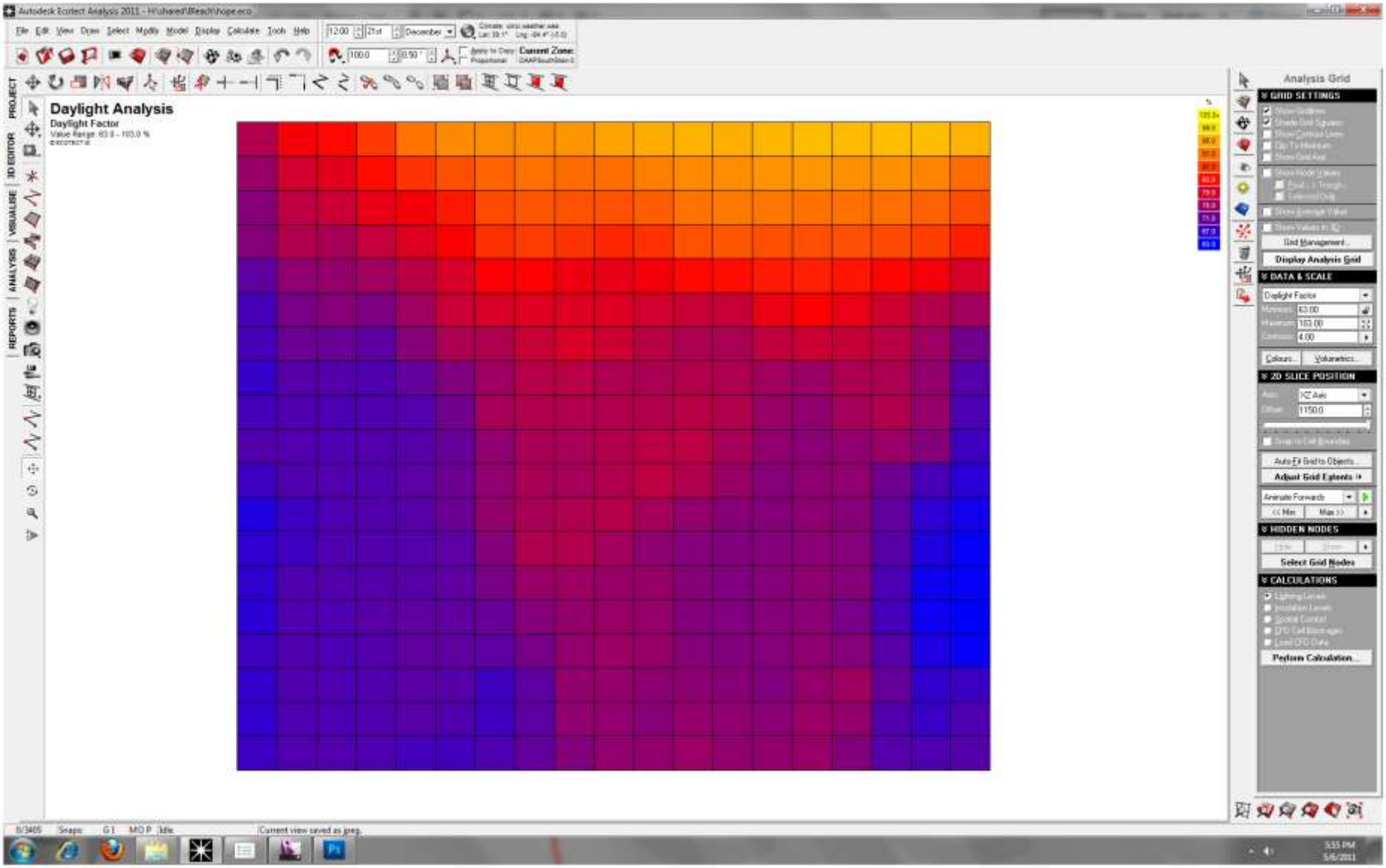
External Force
Program + Environment

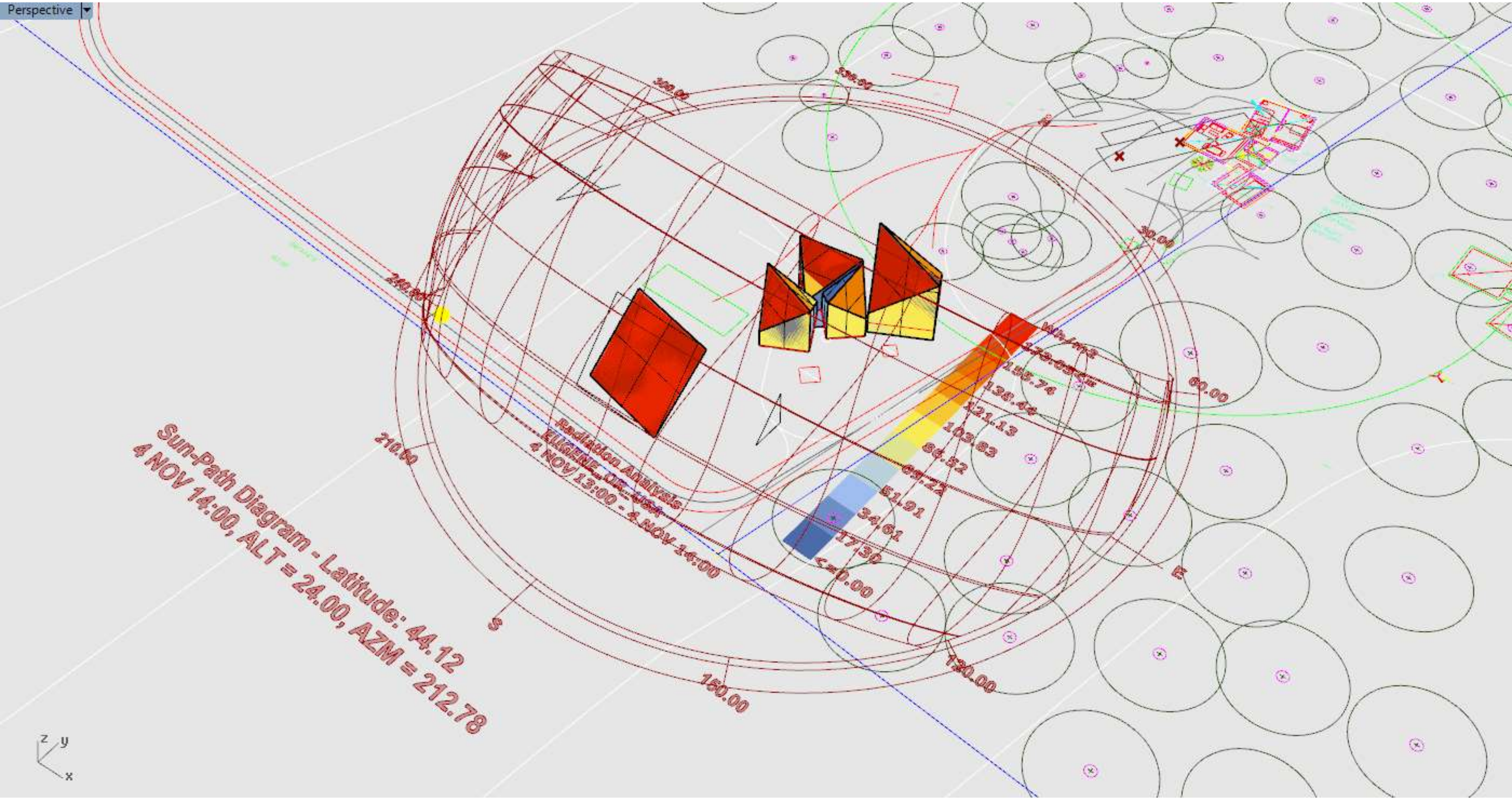
Program
(internal)


ROOF TERRACE
HEADQUARTERS
CREATIVE
ATTRACTION
READING ROOM
BOOKS
MULTILINGUAL BOOKS
GENEALOGY
PERFORMING ARTS
PHILOSOPHY
LANGUAGES
ATTRACTION
MUSIC
LAW BOOKS
BUSINESS
ENVIRONMENT
NATURAL SCIENCE
MIXING CHAMBER
ATTRACTION
ASSEMBLY
ELECTRONICS
LIVING ROOM
ATTRACTION
STORE
COLLECTION SERVICES
BROWSING
RECEIVING
ATTRACTION
GOVERNMENT PUBLICATIONS
KIDS
SECURITY
BREAK
RECYCLING
OPERATIONS
WORK SHOP
PRINT SHOP
PARKING
TRUCK
4X4
VAN


hq
spiral
meeting
staff
parking

Environment
(external)


Autodesk Ecotect Analysis 2011 - H:\shared\UReach\hope.eco
File Edit View Draw Select Modify Model Display Calculate Tools Help
PROJECT
3D EDITOR
VISUALISE
ANALYSIS
REPORTS
Daylight Analysis
Daylight Factor
Analysis Grid
GRID SETTINGS
Grid Management...
Display Analysis Grid
DATA & SCALE
Daylight Factor
Colours...
Volumetrics...
2D SLICE POSITION
Auto-Fit Grid to Objects...
Adjust Grid Extents
Animate Forwards
HIDDEN NODES
Select Grid Nodes
CALCULATIONS
Perform Calculation...
Current view saved as peg.



Perspective
Sun-Path Diagram - Latitude: 44.12
4 NOV 14:00, ALT = 24.00, AZM = 212.78
Radiation Analysis
4 NOV 13:00 - 4 NOV 16:00
155.74
138.44
121.13
103.83
86.52
69.22
51.91
34.61
17.30
<=0.00
300.00
330.00
30.00
60.00
240.00
210.00
180.00
150.00
S
E

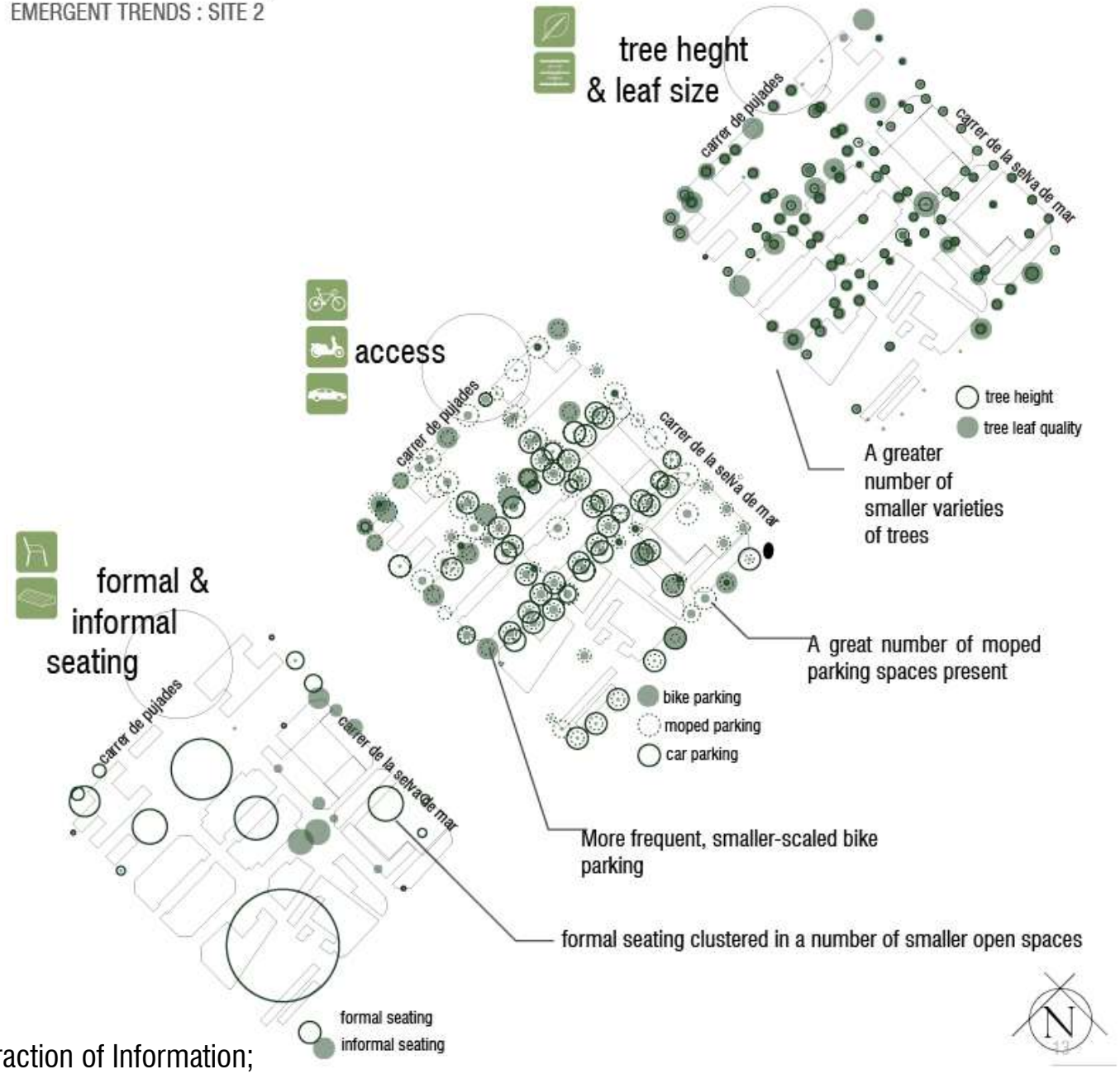

Photoshop image prep

Example

1. **Purpose**, Two-word Title (Affect)
2. **Location (Environment)**: Identify existing forces
3. **Design Intent**: 5+ conditions of affect (Timeline?). Qualitative (feeling, ideas, intent). Quantitative (measurements, numbers)
4. **Material and Construction Method**: Folding, Stacking, Contouring and Sectioning
5. **Generative Diagrams**: unit/material/operation
6. **Multiple diagrams may come together**
7. **"Dumb" 3D Model (Analog to Digital)**: test at human scale. Illustrator. Vray.

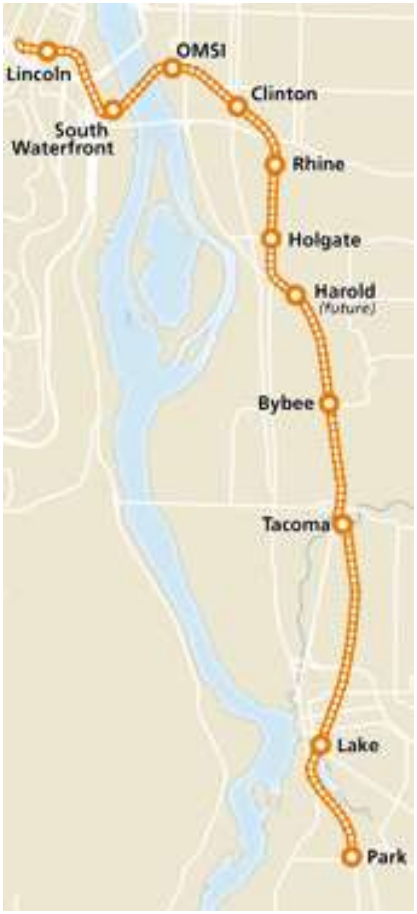
Indicator Analysis

EMERGENT TRENDS : SITE 2



1) **Systematic** Abstraction of Information;

Approach



Indicator	Human Interaction	Open Facade	Street Buffer	Safety
Description	This indicator measures the quality of the setback and its potential for human interaction to take place within this space.	This indicator measures the percentage of openings on the facade of the building or at the beginning of activity.	This indicator measures the amount of elements which make up the street to sidewalk buffer zone.	This indicator measures the amount of surveillance present on the street scape.

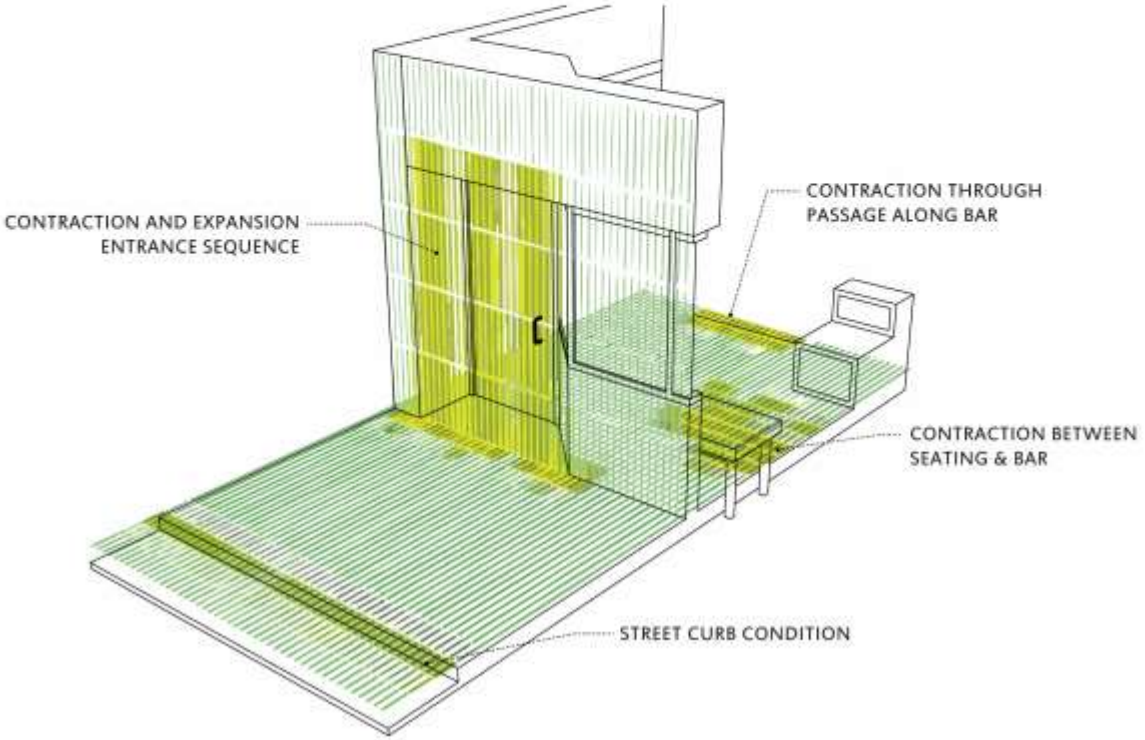
Successful Area

While there are many aspects and elements that go into creating a third space, the interaction between the third space and its urban approach is vital to establishing its quality and activeness. The quality of the streetscape and the third spaces are both improved by the effectiveness of each other. Measuring both of these categories and laying them over one another displays graphically that an active third space is directly related to the activity present along the streetscape. This tool has taken measurements at existing geo-locations and does not measure the entire fabric of a street. However, the amount of data points measured sufficiently represents the overall quality of the streetscape.

DATA ANALYSIS: EXPANSION & CONTRACTION

DIVISION ST. SOUTH FACING ELEVATION: GENIE'S CAFE

INTERIOR ARCHITECTURE:
EXPANSION & CONTRACTION

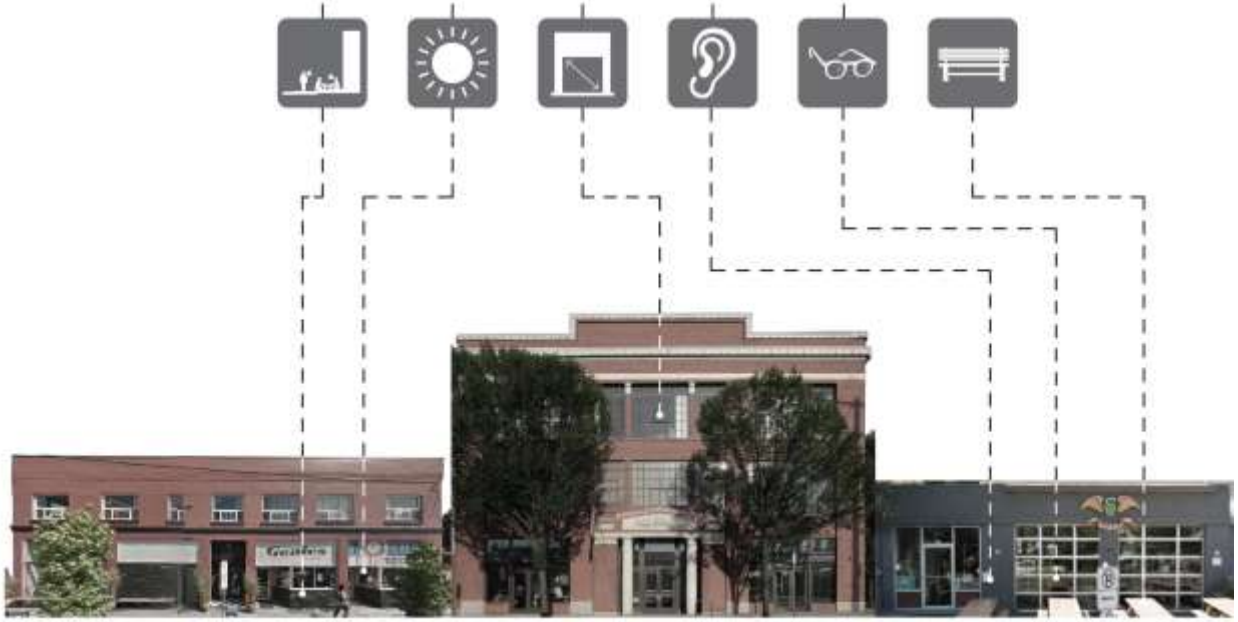


DATA ANALYSIS: FACADE TRANSPARENCY

DIVISION ST. SOUTH FACING ELEVATION: GENIE'S CAFE

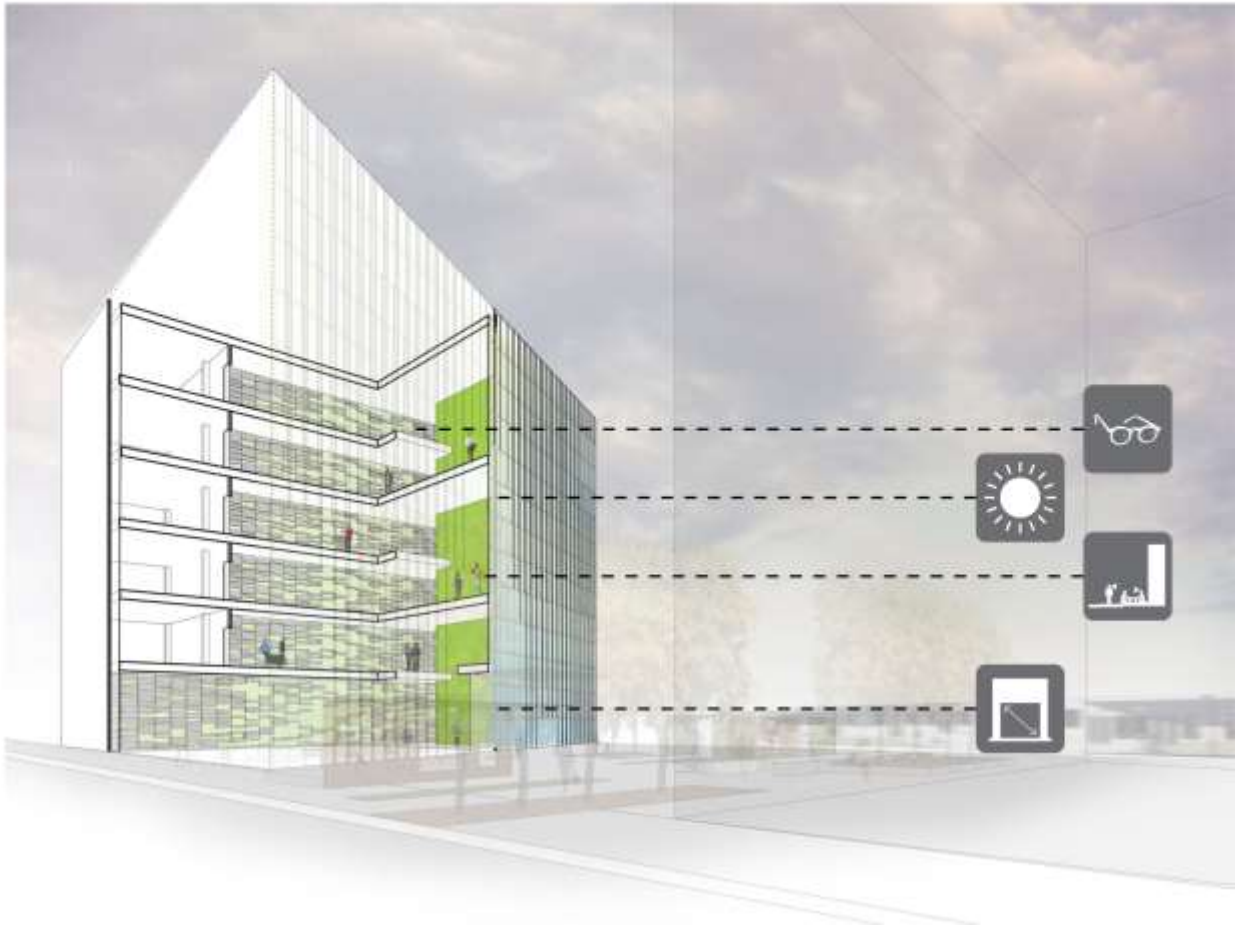
Elevation Study

Interior Elevation



Division Street Elevations

Sectional Perspective



…3D Print

for final studio presentation

1:1 mockup

Media Final Event