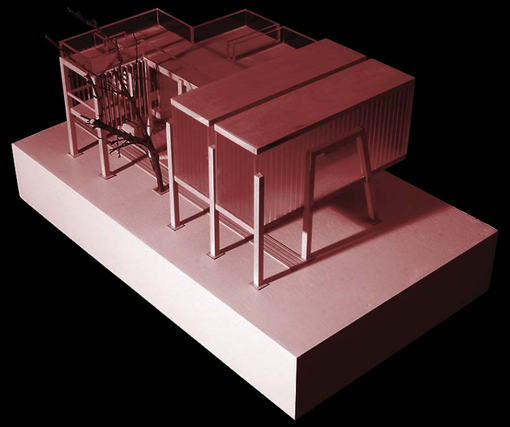
PORTFOLIO [2010-2013]

Bill Myhren

INTENT



Bill Myhren is an Engineer in Training with a Bachelor of Science Degree in Architectural Engineering and a Minor in Mechanical Engineering from the University of Colorado at Boulder with approximately two years of combined experience in the field. He is currently shifting from his engineering career path to obtain a Master's Degree in Architecture and will graduate from the M.Arch program at the University of Colorado at Denver in May, 2013. He feels that combining these two fields is essential as engineering and architecture should have equal balance in a good design. His work experience and education allow him to diversify and further develop his skills as both an engineer and as an intern architect with the goal of being able to perform tasks related to both fields with his focus being on architecture.

CONTENTS

PHOTO CREDIT: JOEY PRUETT

RESUME | Bill Myhren E.I.T., LEED GA

email: wmyhren@gmail.com | cell: 719-205-8105 | website: www.billmyhren.com

WORK

CU Denver Laser Lab
August 2012 - May 2013 — Denver, CO

Laser Lab Monitor

- Monitored laser scheduling and performed both routine and repair maintenance on Universal Laser Systems laser cutting machines.

Facility Engineering Associates
June 2008 - November 2009 — Lakewood, CO

Staff Engineer

- Designed, assisted with bidding, load tested, and performed annual certifications of fall protection systems including both standard and custom-designed components.
- Performed site observations on building exteriors using swing stages and bosun's chairs.
- Conducted research and wrote white papers including how to conduct lighting level measurement and another regarding Fan Wall Technology™ mechanical systems.
- Traveled out of state regularly for both short-term trips as well as trips lasting up to one month.
- Conducted GPS surveys and assessments of underground utilities for the National Park Service.

The Farnsworth Group
Summer 2006 - June 2008 (intermittent) — Colorado Springs, CO

Intern

- Participated in commissioning and functional testing responsibilities including site visits, preparing site observation reports, and meeting with clients.
- Assisted in the development and testing of web-based commissioning tools.
- Analyzed contractor submittals to ensure LEED certification requirements were met.

Camp Lincoln for Boys
Summer 2005 — Lake Hubert, MN

Windsurfing Activity Director, Counselor

- Created lesson plans, assembled and maintained equipment, and taught a variety of courses related to windsurfing.

Adirondack Chair Construction
Summer 2003 — Monument, CO

Owner and Operator

- Designed and manufactured chairs from redwood lumber.
- Improved my knowledge of manufacturing and assembly processes.

EDUCATION

The University of Colorado at Denver
August 2010 - May 2013 — Denver, CO

Master's Degree . Architecture

- Working toward earning a Master's Degree in Architecture. Scheduled to graduate in May, 2013.

The University of Colorado at Boulder
August 2003 - May 2008 — Denver, CO

Bachelor of Science . Architectural Engineering | Minor . Mechanical Engineering

- Graduated in May, 2008 with a Bachelor of Science degree in Architectural Engineering with an emphasis in structures as well a minor in Mechanical Engineering

COURSEWORK & SKILLS

Coursework

Advanced Architecture Studios, Calculus III, Differential Equations, Physics III, Materials, Mechanics of Solids, Dynamics, Thermodynamics, Fluid Mechanics and Heat Transfer, Building Construction, Steel Design, Reinforced Concrete Design, Cost Engineering, Electrical Systems, Illumination, and Plane Surveying.

Programs

Autodesk AutoCAD, Rhino, Maxwell Render, Adobe Creative Suite (Photoshop, Lightroom, Illustrator, InDesign, Dreamweaver, Premier Pro), and Microsoft Office.

INTEREST & AWARDS

Professional & Personal

Boy Scouts (earned Eagle Scout Award), American Institute of Architecture Students member, Design Build Institute of America, SCUBA diving, windsurfing, wakeboarding, sailing, camping, skiing, travel, photography, The Navigators, volunteering (Sun Valley West Condo Association, Vice President 2010-2013, Whiz Kids tutoring, and construction-related missions trips to Juarez, Mexico and Mandeville, Jamaica).

ARISTA WINERY

STUDIO IV . SPRING 2012
INSTRUCTOR: SCOTT LAWRENCE

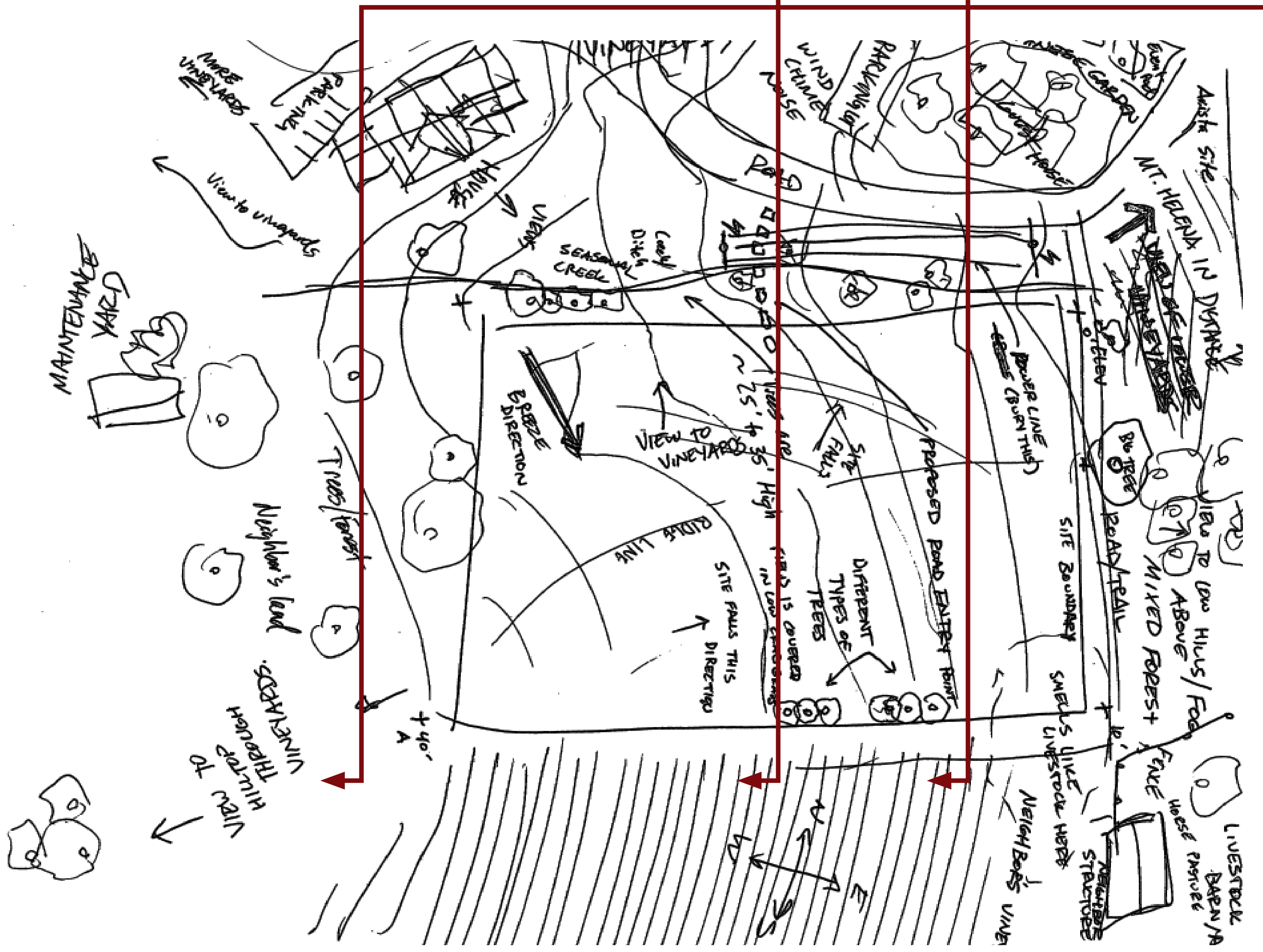
ter-roir

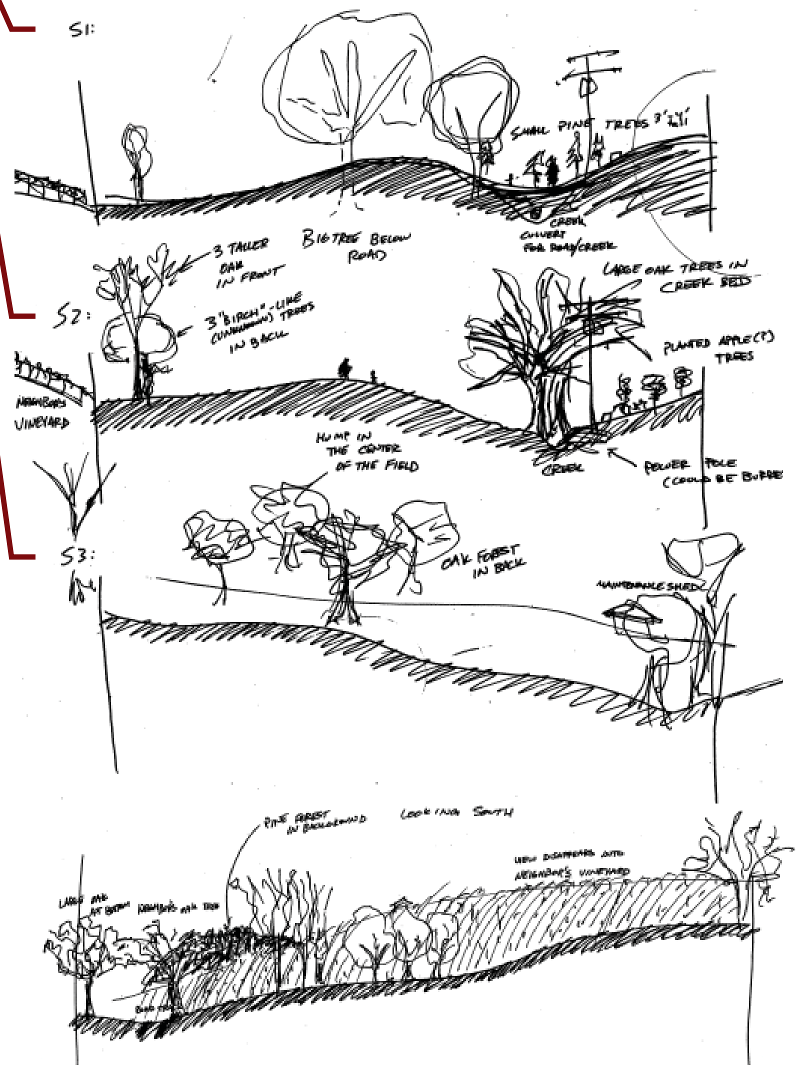
[ter-wahr; French ter-war]

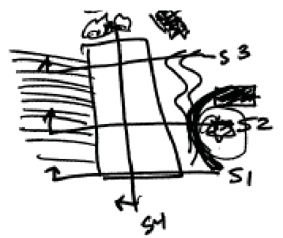
the **environmental conditions**, especially soil and climate, in which grapes are grown and that give a wine its unique flavor and aroma: the high quality of the region's terroir.[1]

This winery was designed to emphasize the expression of "terroir" in wine created by the Arista Winery located in the Russian River Valley, California. After a thorough study of terroir, as well as by visiting the actual site in the Russian River Valley, this studio produced wineries that responded to factors influencing terroir to reinforce all of the positive qualities of the wines and of the location of the Arista Winery.

1. definition from http://dictionary.reference.com/browse/terroir

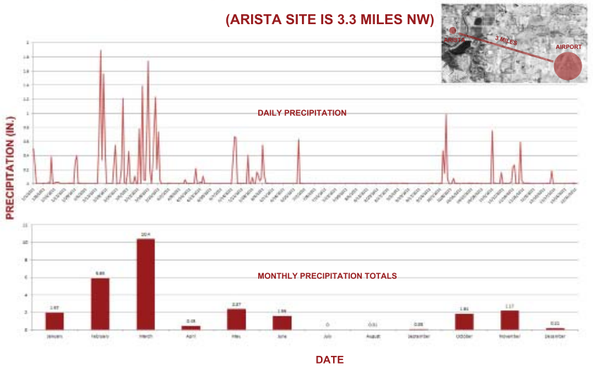

MAINTENANCE YARD
SEASONAL CREEK
BREEZE DIRECTION
VIEW TO VINEYARDS
SITE BOUNDARY
PROPOSED ROAD/ENTRY POINT
MT. HELENA IN DISTANCE
MIXED FOREST
ROAD
SITE FALLS THIS DIRECTION
DIFFERENT TYPES OF TREES
NEIGHBORS VINEYARD
LIVESTOCK BARN/PASTURE


S1:
S2:
S3:
SMALL PINE TREES
BIG TREE BELOW ROAD
LARGE OAK TREES IN CREEK BED
OAK FOREST IN BACK
LOOKING SOUTH


S3
S2
S1
S4

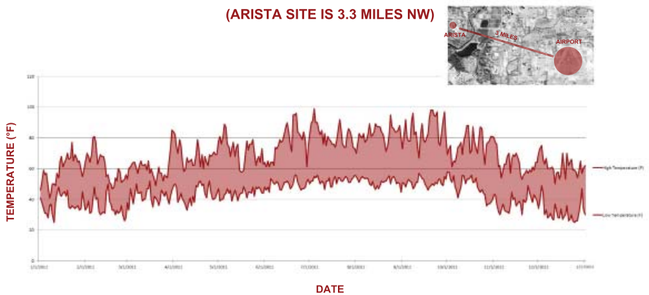
2011 PRECIPITATION DATA FOR SONOMA COUNTY AIRPORT

(ARISTA SITE IS 3.3 MILES NW)

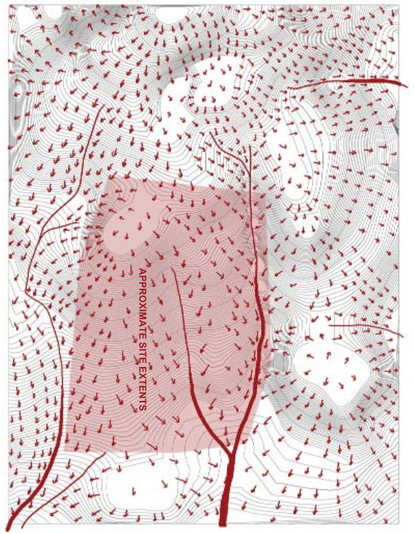


2011 TEMPERATURE DATA FOR SONOMA COUNTY AIPORT

(ARISTA SITE IS 3.3 MILES NW)



DRAINAGE DIAGRAM
SCALE: 1" = 100'

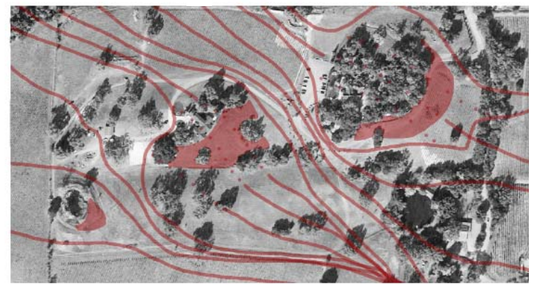


FOG INFILTRATION LEVELS
SCALE: 1/128" = 1'-0"

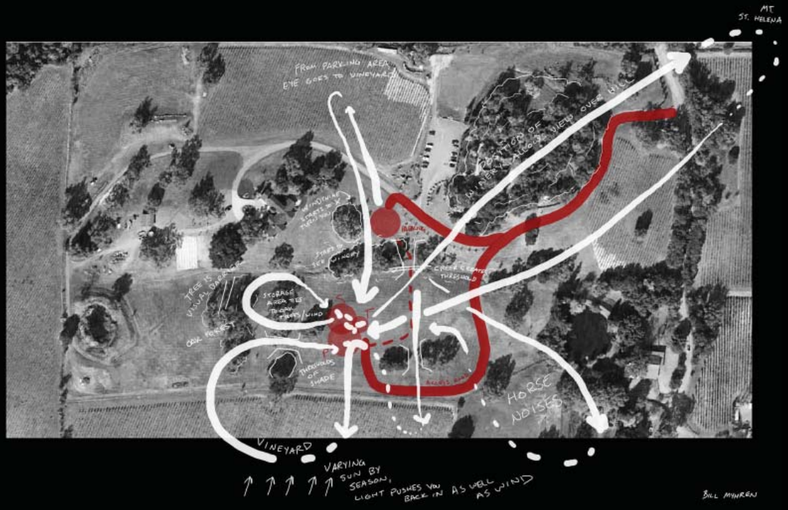
SITE VIEWS PLAN DIAGRAM
SCALE: 1/128" = 1'-0"

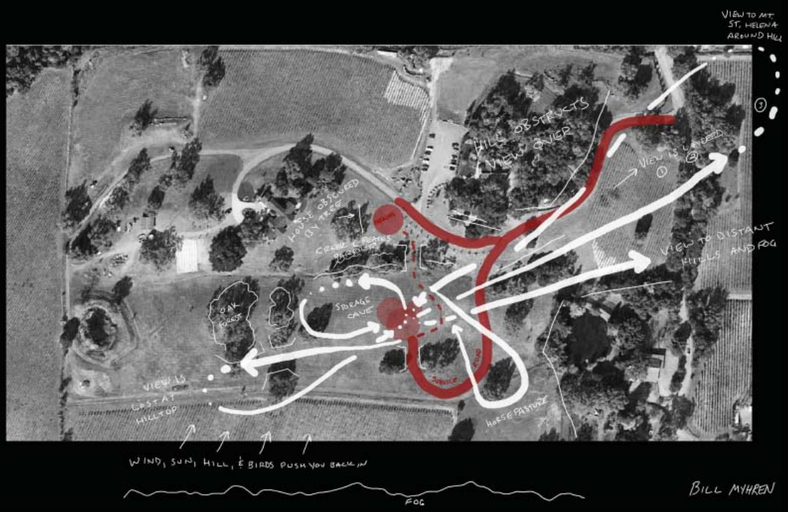
NOISE DIAGRAM
SCALE: 1/128" = 1'-0"

WIND FROM NW CHANNELED BY QUEENS PEAK AND BLACK MOUNTAIN (OBSERVED DURING VALLEY HEATING)

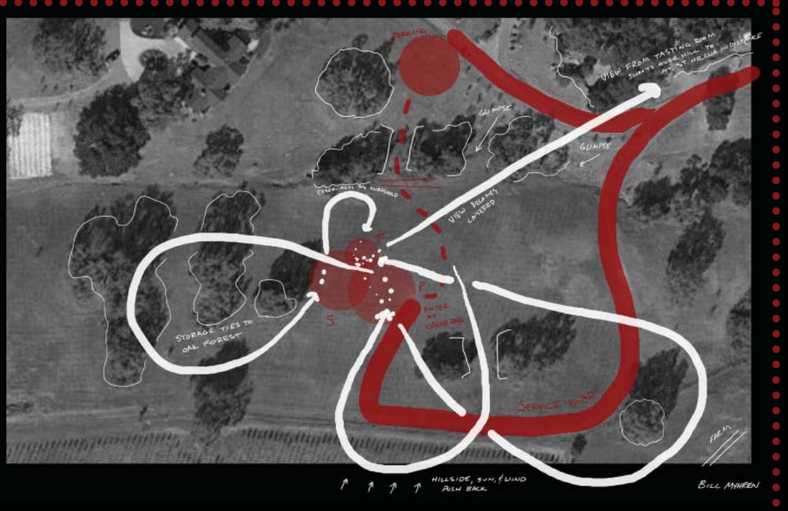


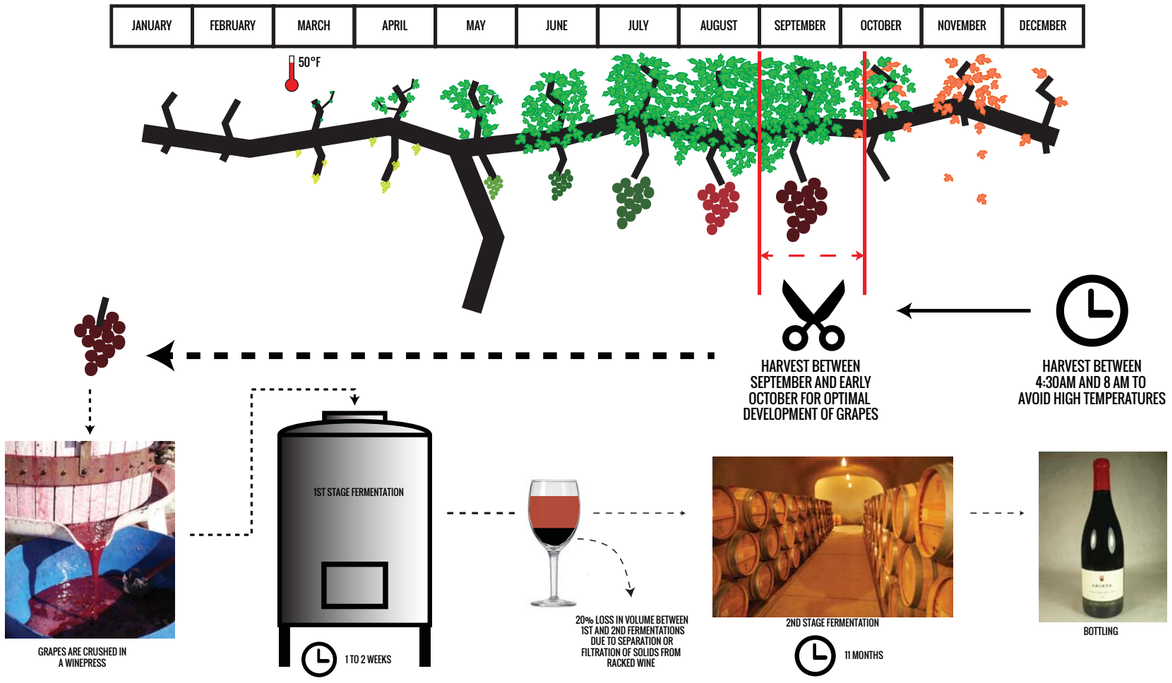
OBSERVED WIND DIAGRAM
SCALE: 1/128" = 1'-0"

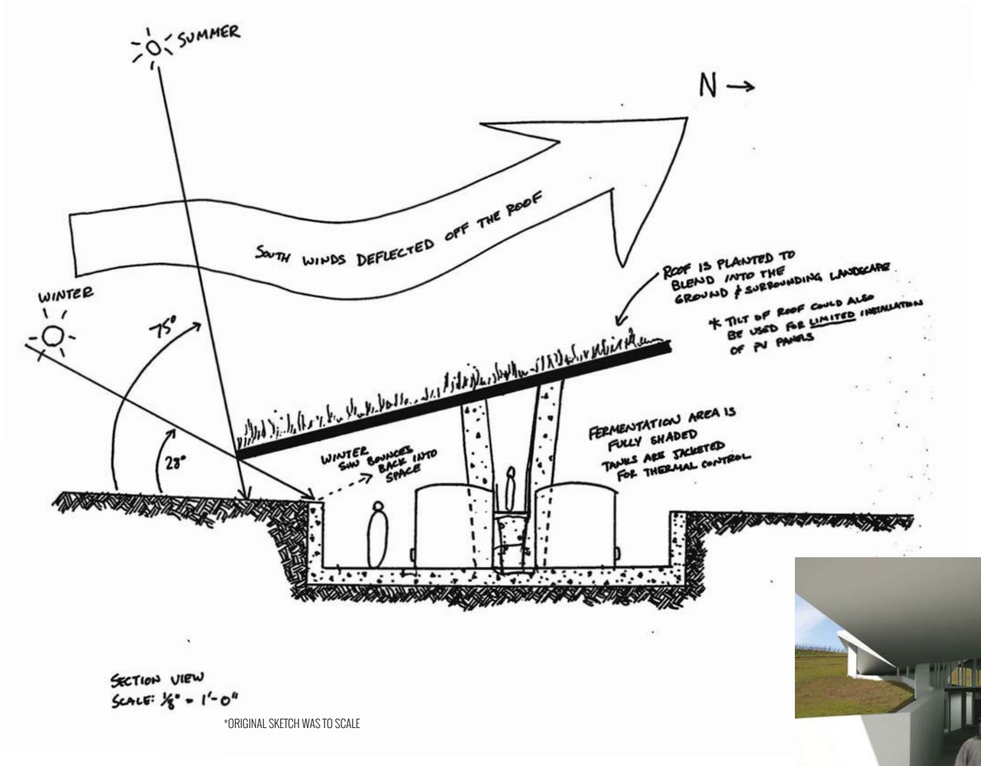

MT. ST. HELENA
FROM PARKING AREA EYE GOES TO VINEYARD
HORSE NOISES
VINEYARD
VARYING SUN BY SEASON, LIGHT PUSHES YOU BACK IN AS WELL AS WIND
BILL MYHREN

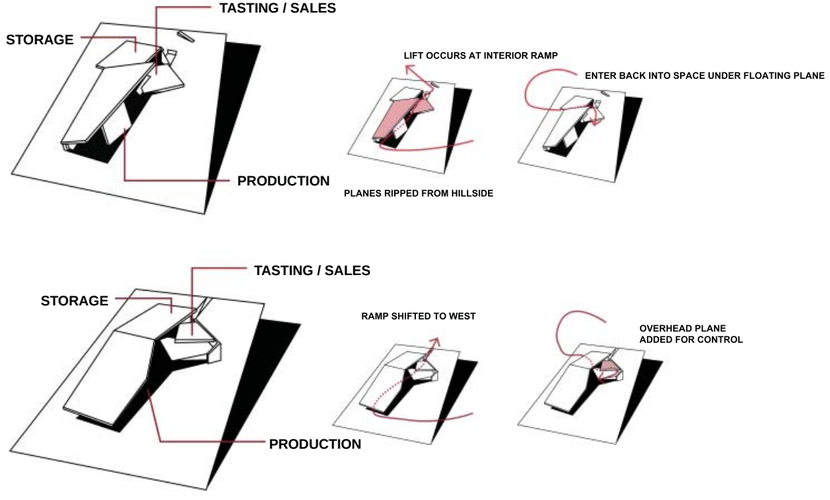

VIEW TO MT. ST. HELENA AROUND HILL
HILL OBSTRUCTS VIEW OF RIVER
VIEW TO DISTANT HILLS AND FOG
STORAGE CAVE
VIEW IS LAST AT HILLTOP
HORSE PADDOCK
WIND, SUN, HILL, & BIRDS PUSH YOU BACK IN
FOG
BILL MYHREN

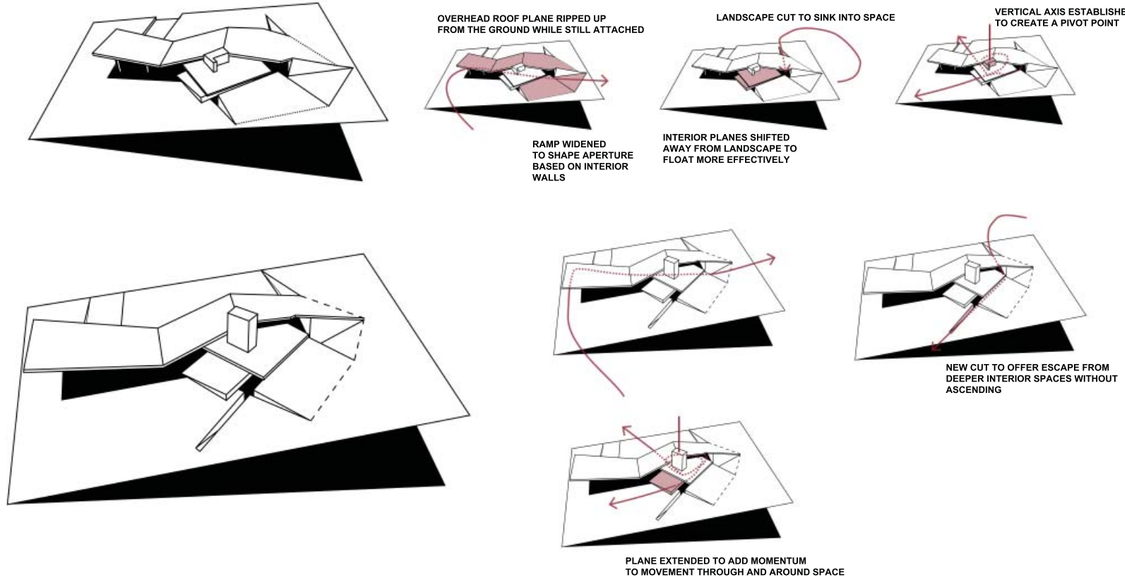

HOUSE IS OBSCURED
CEDER PARKING THICKET
VIEW SLOPES OFF TO RIVER FOR SEVERAL
BAD ONES AT FRONT DOOR
OAK FOREST
HILL & SUN PUSHES YOU BACK
BILL MYHREN

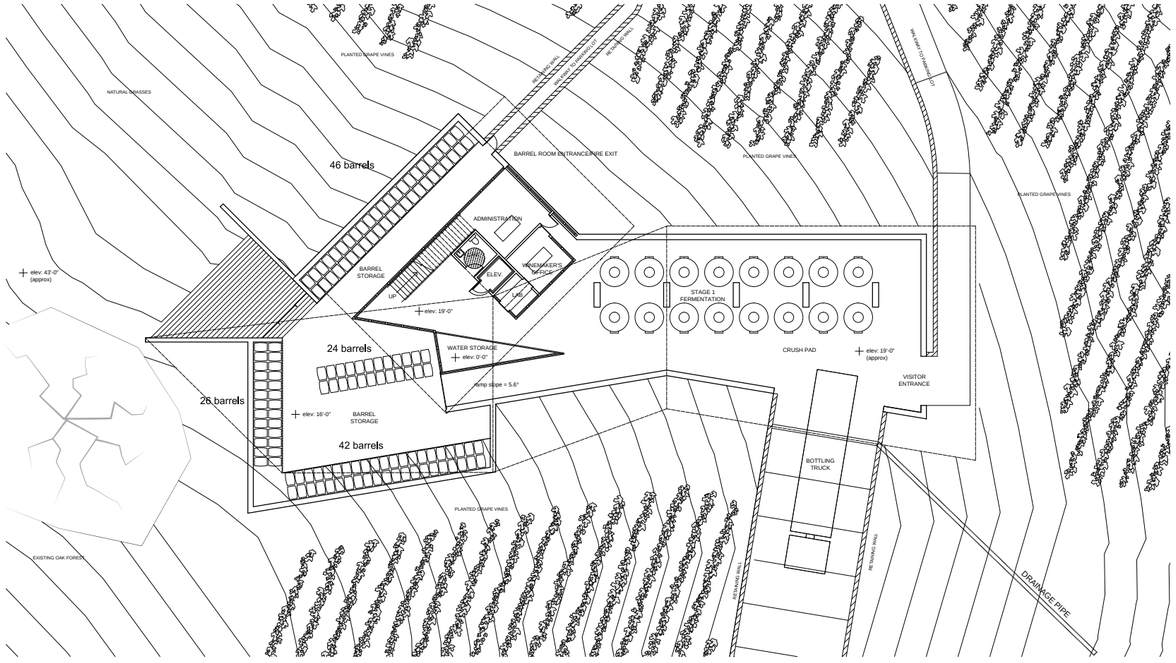

GLIMPSE
GLIMPSE
VIEW BEHIND CANOPY
STORAGE TIES TO OAK FOREST
SERVICE ROAD
HILLSIDE, SUN, & WIND PUSH BACK
BILL MYHREN


JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
50°F
HARVEST BETWEEN SEPTEMBER AND EARLY OCTOBER FOR OPTIMAL DEVELOPMENT OF GRAPES
HARVEST BETWEEN 4:30AM AND 8 AM TO AVOID HIGH TEMPERATURES
GRAPES ARE CRUSHED IN A WINEPRESS
1ST STAGE FERMENTATION
1 TO 2 WEEKS
20% LOSS IN VOLUME BETWEEN 1ST AND 2ND FERMENTATIONS DUE TO SEPARATION OR FILTRATION OF SOLIDS FROM RACKED WINE
2ND STAGE FERMENTATION
11 MONTHS
BOTTLING


SUMMER
N
SOUTH WINDS DEFLECTED OFF THE ROOF
ROOF IS PLANTED TO BLEND INTO THE GROUND & SURROUNDING LANDSCAPE
* TILT OF ROOF COULD ALSO BE USED FOR LIMITED INSTALLATION OF PV PANELS
WINTER
75°
28°
WINTER SUN BOUNCES BACK INTO SPACE
FERMENTATION AREA IS FULLY SHADED
TANKS ARE JACKETED FOR THERMAL CONTROL
SECTION VIEW
SCALE: 1/8" = 1'-0"
*ORIGINAL SKETCH WAS TO SCALE

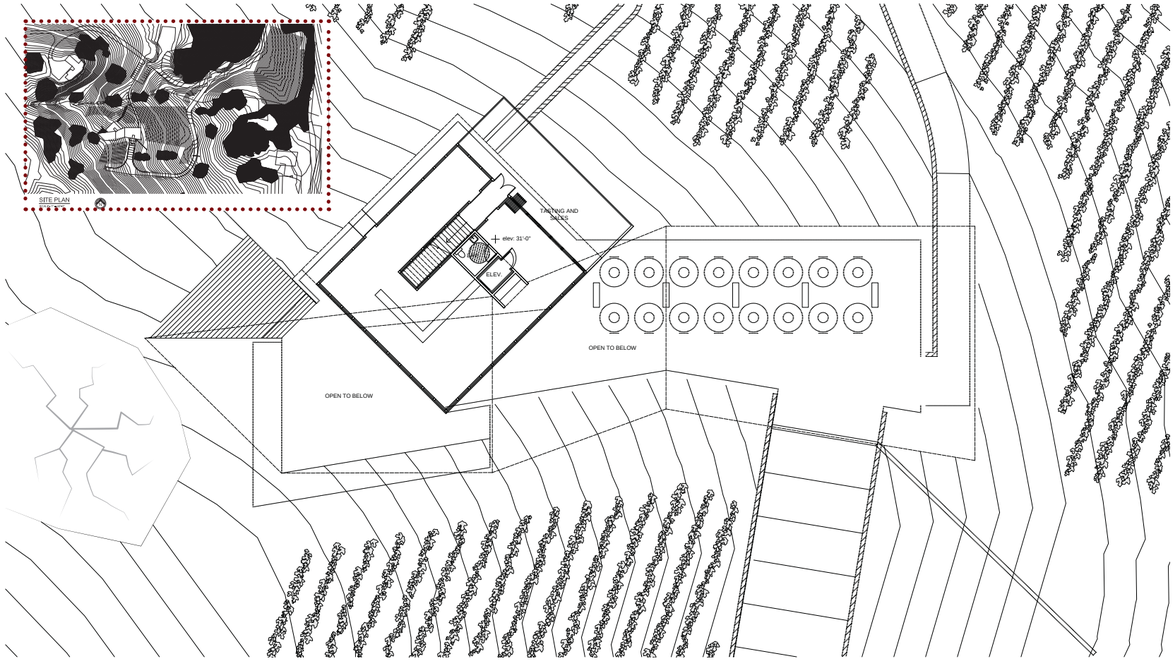

TASTING / SALES
STORAGE
PRODUCTION
LIFT OCCURS AT INTERIOR RAMP
ENTER BACK INTO SPACE UNDER FLOATING PLANE
PLANES RIPPED FROM HILLSIDE
TASTING / SALES
STORAGE
PRODUCTION
RAMP SHIFTED TO WEST
OVERHEAD PLANE
ADDED FOR CONTROL


OVERHEAD ROOF PLANE RIPPED UP
FROM THE GROUND WHILE STILL ATTACHED
LANDSCAPE CUT TO SINK INTO SPACE
VERTICAL AXIS ESTABLISHED
TO CREATE A PIVOT POINT
RAMP WIDENED
TO SHAPE APERTURE
BASED ON INTERIOR
WALLS
INTERIOR PLANES SHIFTED
AWAY FROM LANDSCAPE TO
FLOAT MORE EFFECTIVELY
NEW CUT TO OFFER ESCAPE FROM
DEEPER INTERIOR SPACES WITHOUT
ASCENDING
PLANE EXTENDED TO ADD MOMENTUM
TO MOVEMENT THROUGH AND AROUND SPACE



1ST LEVEL PLAN

SCALE: 1/8" = 1'-0"



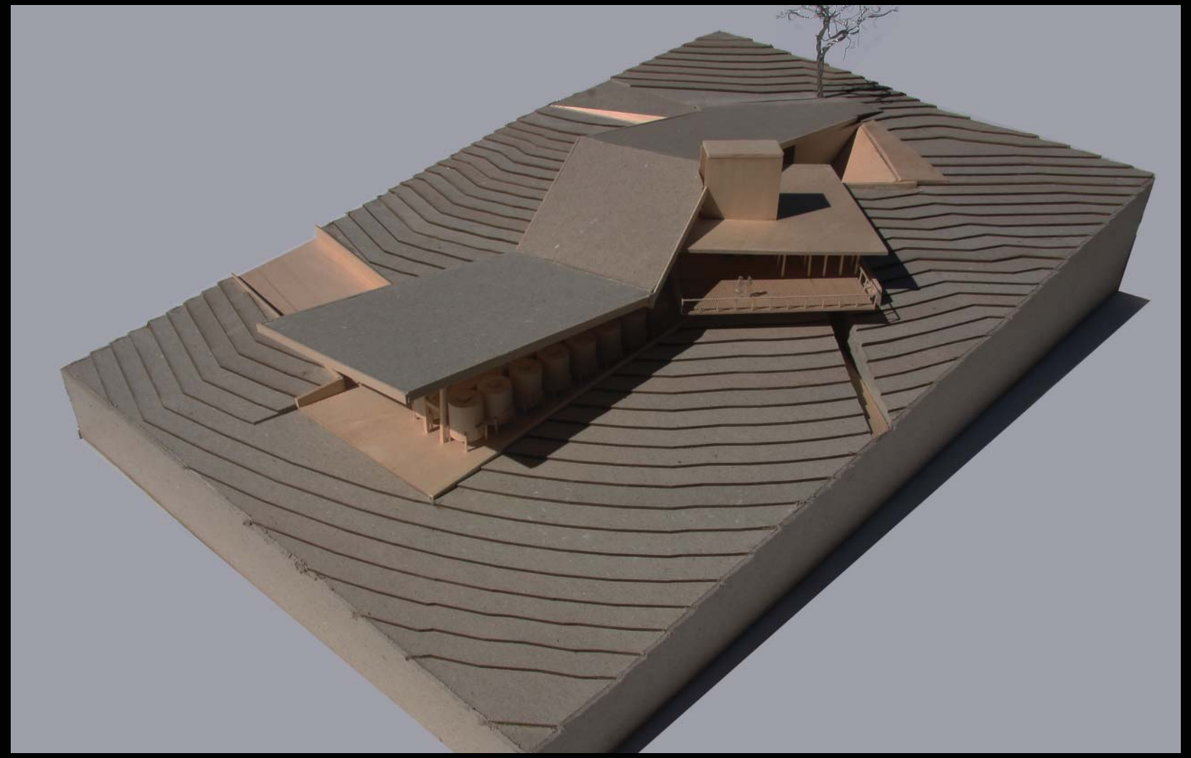
2ND LEVEL PLAN

SCALE: 1/8" = 1'-0"

*PLANS SHOWN ARE NOT AT THE ANNOTATED SCALE

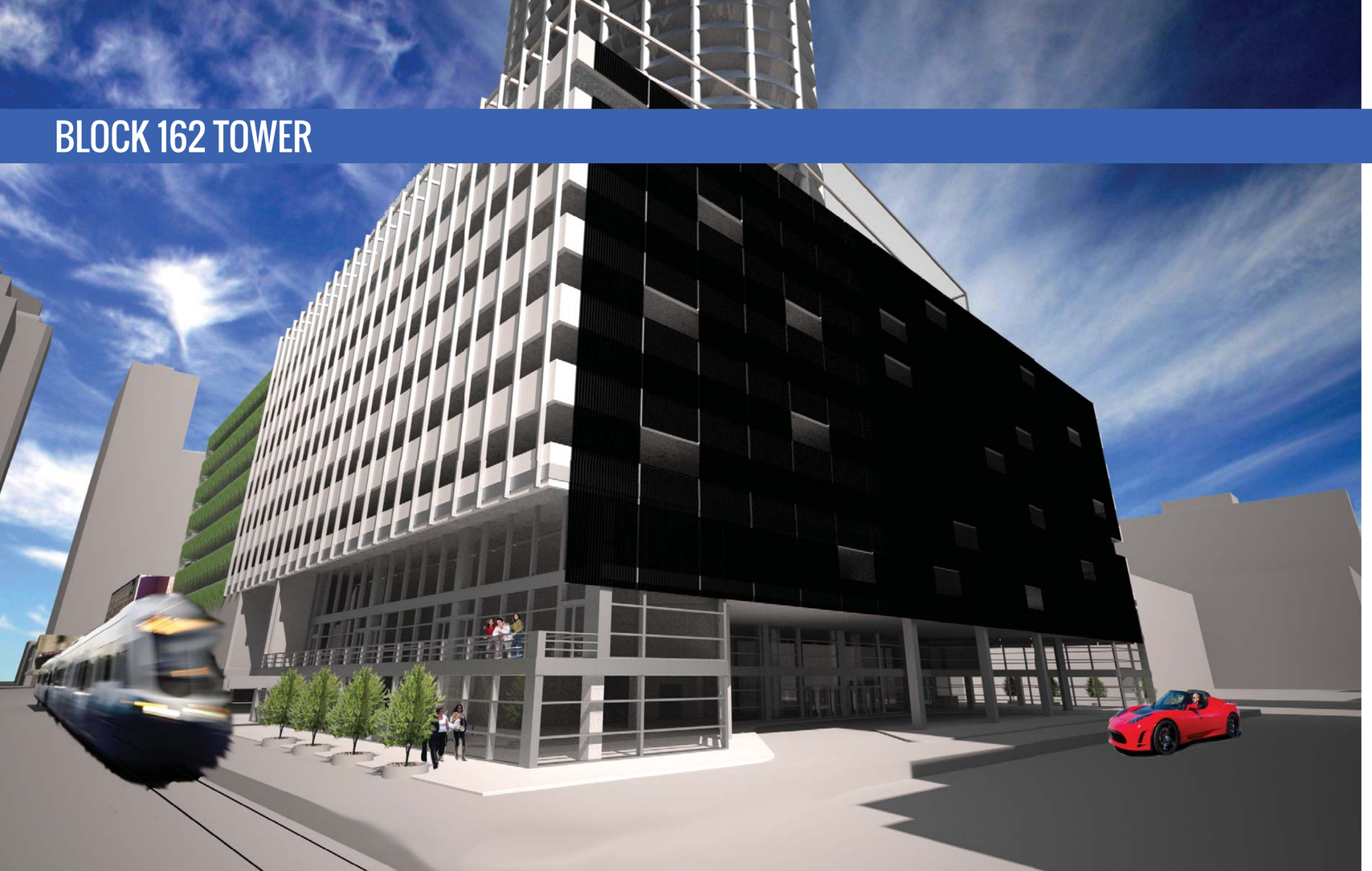
PHOTO CREDIT: TOR JORFALD

CRUSH PAD AND 1ST STAGE FERMENTATION



BLOCK 162 TOWER

STUDIO III . FALL 2011
INSTRUCTOR: OSMAN ATTMAN

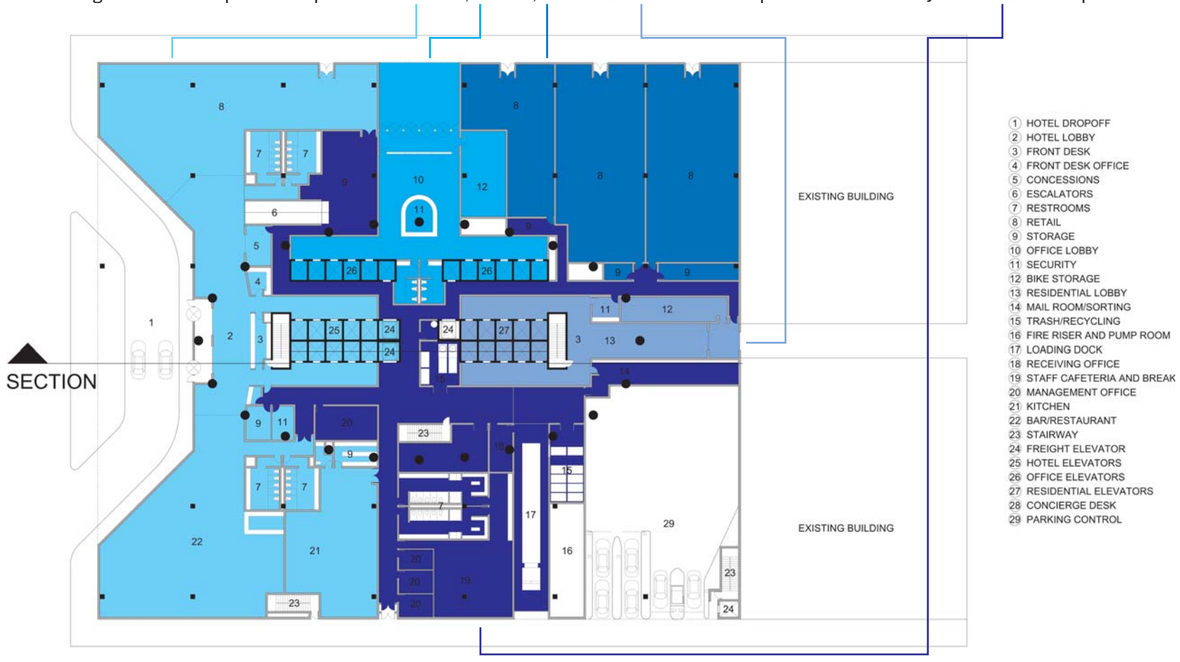


1100 FEET

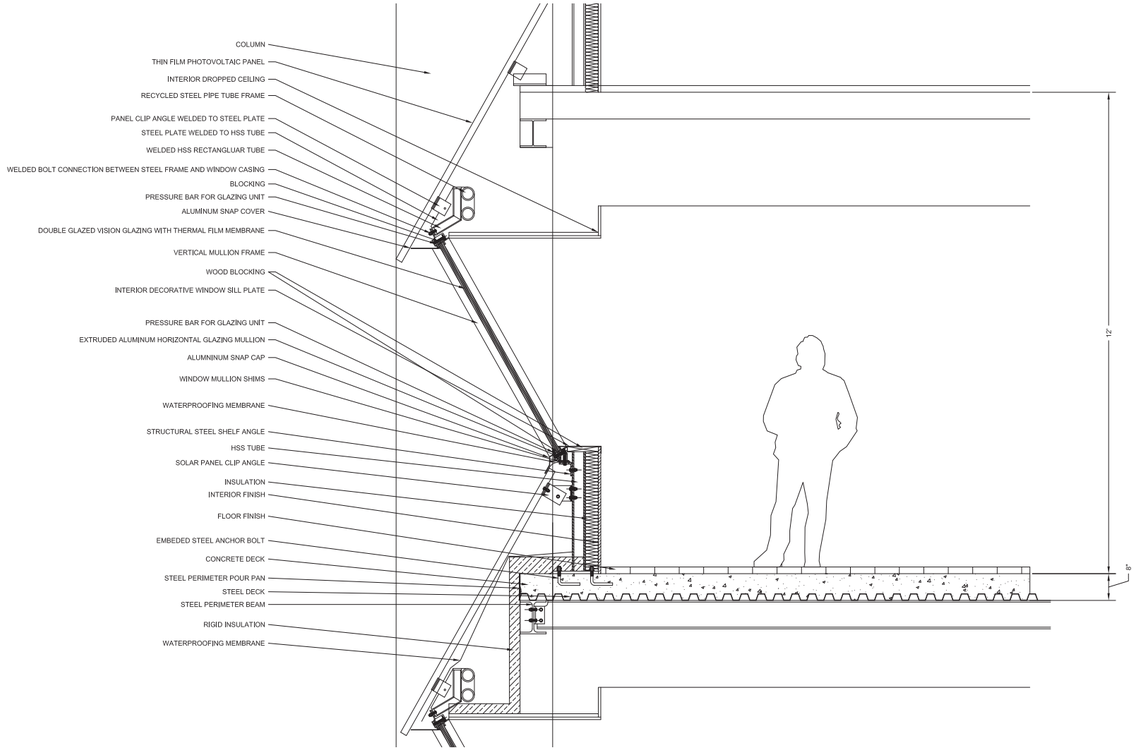
Denver lacks a true skyscraper. The goal of this studio was to create a mixed-use, 1M+ SF, LEED certified tower to be located in the heart of downtown on an almost empty lot.

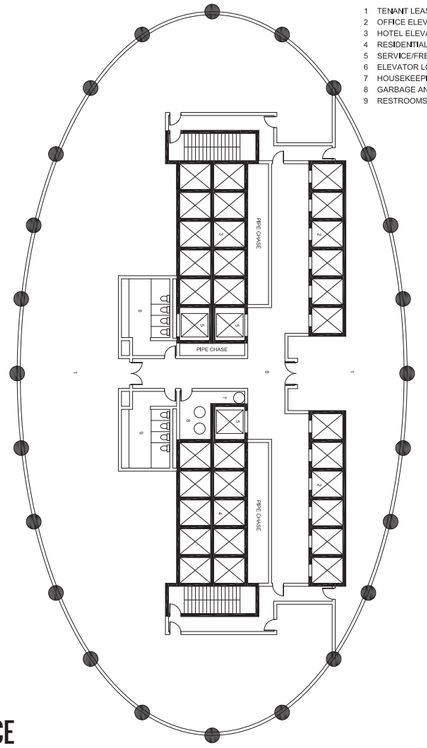
The basic program was to provide street-level amenities and shopping, parking, office space, hotel space, and residential units. Challenges included analysis and separation of the circulation for the different uses and also to develop an adaptable floorplate.

In a multi-use high-rise, separation of circulation through the resolution of the plan provides privacy as well as an increased level of security for the building. The main floor plan was separated into HOTEL, OFFICE, RETAIL and RESIDENTIAL spaces all connected by hidden SERVICE spaces.



1. HOTEL DROPOFF
2. HOTEL LOBBY
3. FRONT DESK
4. FRONT DESK OFFICE
5. CONCESSIONS
6. ESCALATORS
7. RESTROOMS
8. RETAIL
9. STORAGE
10. OFFICE LOBBY
11. SECURITY
12. BIKE STORAGE
13. RESIDENTIAL LOBBY
14. MAIL ROOM/SORTING
15. TRASH/RECYCLING
16. FIRE RISER AND PUMP ROOM
17. LOADING DOCK
18. RECEIVING OFFICE
19. STAFF CAFETERIA AND BREAK
20. MANAGEMENT OFFICE
21. KITCHEN
22. BAR/RESTAURANT
23. STAIRWAY
24. FREIGHT ELEVATOR
25. HOTEL ELEVATORS
26. OFFICE ELEVATORS
27. RESIDENTIAL ELEVATORS
28. CONCIERGE DESK
29. PARKING CONTROL

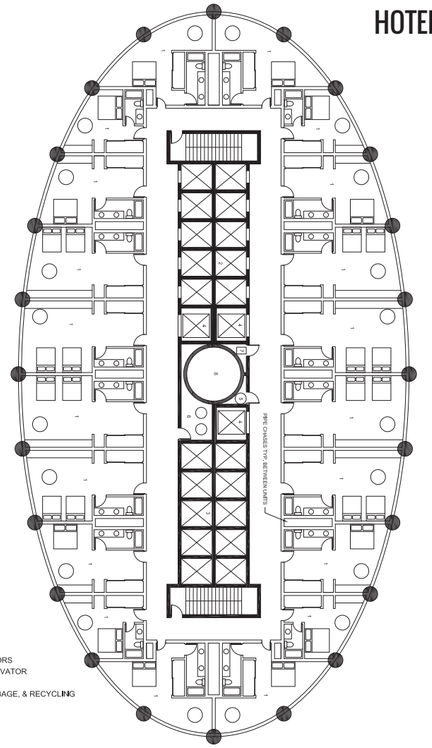




1 TENANT LEASE SPACE
2 OFFICE ELEVATORS
3 HOTEL ELEVATORS
4 RESIDENTIAL ELEVATORS
5 SERVICE/FREIGHT ELEVATOR
6 ELEVATOR LOBBY
7 HOUSEKEEPING AND LAUNDRY CHUTE
8 GARBAGE AND RECYCLING CHUTES
9 RESTROOMS

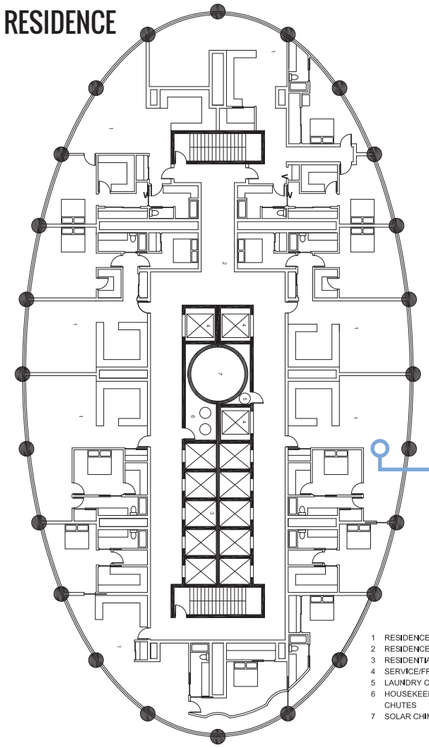
OFFICE

HOTEL

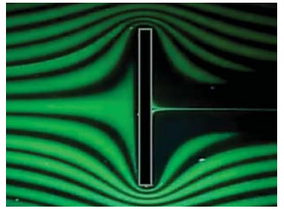


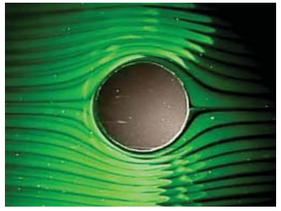
1 HOTEL ROOMS
2 HOTEL ELEVATORS
3 RESIDENTIAL ELEVATORS
4 SERVICE/FREIGHT ELEVATOR
5 LAUNDRY CHUTE
6 HOUSEKEEPING, GARBAGE, & RECYCLING CHUTES
7 VENDING AND ICE
8 SOLAR CHIMNEY

RESIDENCE



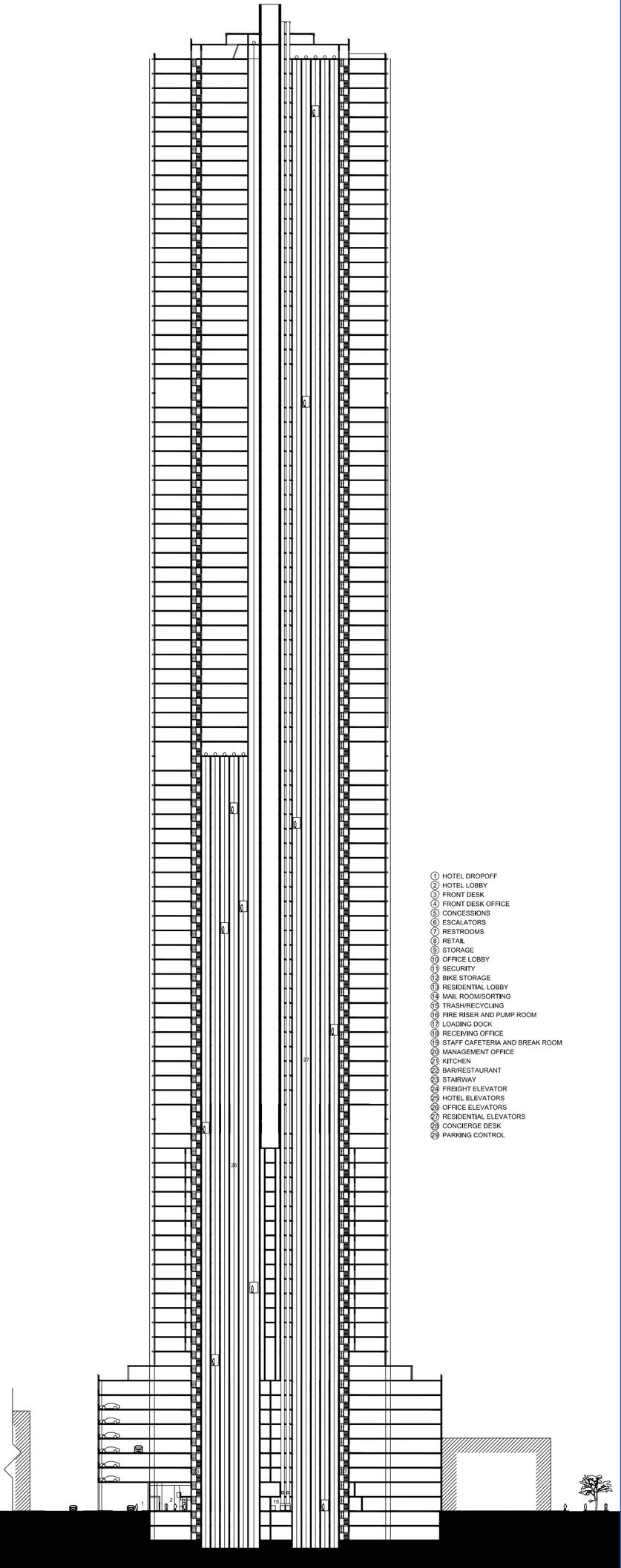
1 RESIDENCES
2 RESIDENCE ELEVATORS
3 RESIDENTIAL ELEVATORS
4 SERVICE/FREIGHT ELEVATOR
5 LAUNDRY CHUTE
6 HOUSEKEEPING, GARBAGE, & RECYCLING CHUTES
7 SOLAR CHIMNEY





The tower plan is shaped as an ellipse to increase the structural stability and performance of the building by reducing wind loads.

Residential Unit



1. HOTEL DROPOFF
2. HOTEL LOBBY
3. FRONT DESK
4. FRONT DESK OFFICE
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6. ESCALATORS
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9. STORAGE
10. OFFICE LOBBY
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13. RESIDENTIAL LOBBY
14. MAIL ROOM/SORTING
15. TRASH/RECYCLING
16. FIRE RISER AND PUMP ROOM
17. LOADING DOCK
18. RECEIVING OFFICE
19. STAFF CAFETERIA AND BREAK ROOM
20. MANAGEMENT OFFICE
21. KITCHEN
22. BAR/RESTAURANT
23. STAIRWAY
24. FREIGHT ELEVATOR
25. HOTEL ELEVATORS
26. OFFICE ELEVATORS
27. RESIDENTIAL ELEVATORS
28. CONCIERGE DESK
29. PARKING CONTROL

TECNICO MAYA

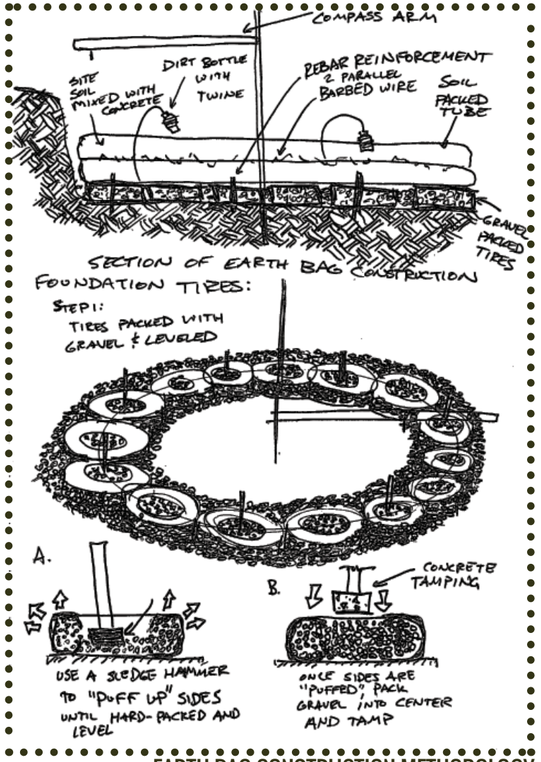
CONSTRUCTION IN DESIGN BUILD . SPRING 2012
INSTRUCTOR: PHIL GALLEGOS

2 WEEKS IN GUATEMALA

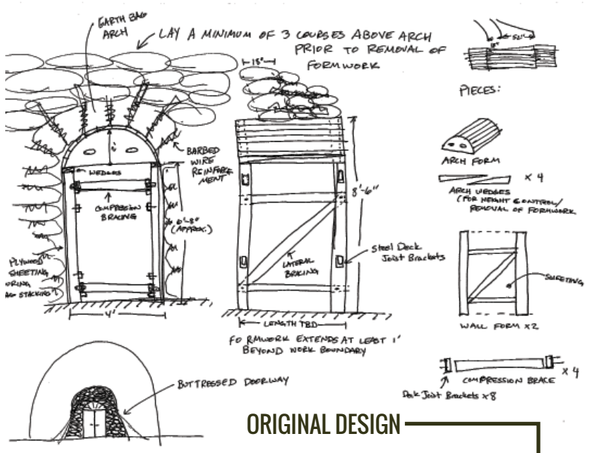
The design-build process overlaps the design and construction phases and often combines the responsibilities under a single entity reducing the building schedule. It is an ideal delivery method in situations where changes are frequent and decisions or adjustments have to be made quickly.

This earth bag guard house was constructed at the Tecnico Maya school site in Comalapa, Guatemala.

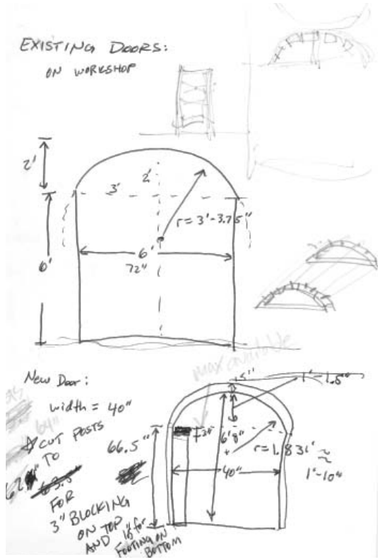
My contribution was to both provide manual labor to the project as well as to oversee the design and construction of the doorway framework using less than ideal materials and tools.



EARTH BAG CONSTRUCTION METHODOLOGY



ORIGINAL DESIGN



FIELD ADJUSTMENTS

ASSEMBLY

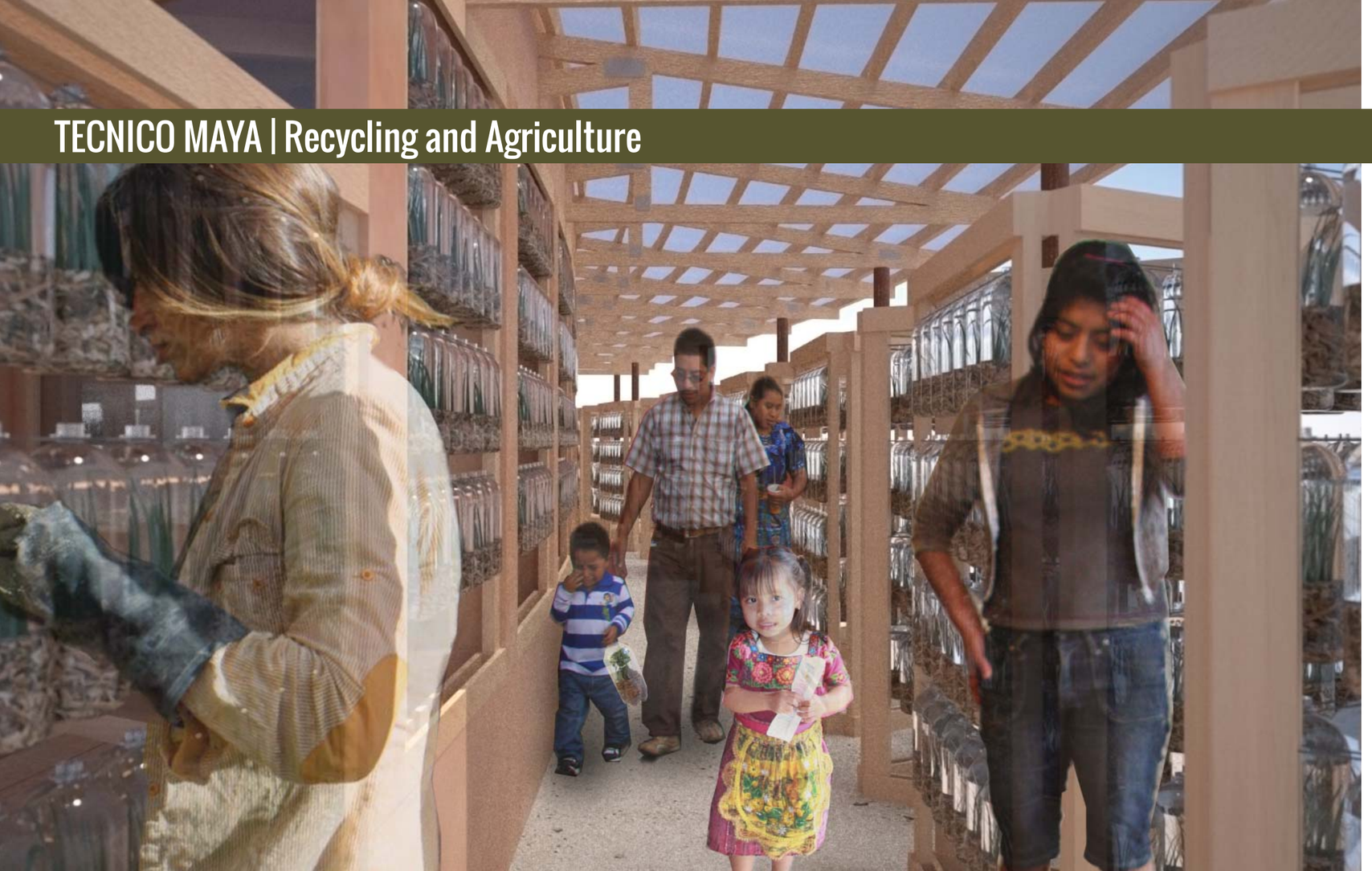
PLACED FOR USE

The doorway framework was designed to be re-usable and has since been duplicated and reused for multiple projects at the Tecnico Maya site...

*PHOTOS TAKEN BY VARIOUS STAFF MEMBERS OF LONG WAY HOME

TECNICO MAYA | Recycling and Agriculture

ADVANCED STUDIO . SPRING 2013
INSTRUCTOR: PHIL GALLEGOS



Bottles of Protein

My last studio found me once again involved with the Tecnico Maya school.

This time, the goal was far different from my previous two-week building project; to design a new facility for the site that would handle recycling.

Through research, I identified that 80% of Guatemalans suffer from malnutrition which is the sixth-worst performance in the world. As a result, I sought to reuse recycled plastic bottles to create a nursery for the purpose of extending the growing season and introducing new protein-rich crops such as peanuts or soybeans to the indigenous diet.

TECNICO MAYA | Protein Scarcity

WHY

The Centro de Reciclaje y la Expansión Agrícola (The Center for Recycling and Agricultural Expansion) which will be built at the Tecnico Maya site in Comalapa, Guatemala will serve as both a **RECYCLING CENTER FOR THE COMMUNITY** of Comalapa to reduce and reuse waste as well as maintain and provide a **NURSERY FOR EARLY GROWTH** of crops that will help to extend the growing season of the region while combating malnutrition of the indigenous population.

TRASH

Long Way Home has been recycling trash and discarded materials at the Tecnico Maya site for years. **DISCARDED TIRES** are turned into structural walls and embankments, bottles are filled with trash and used as infill for walls. Although this makes a small dent in the **TRASH THAT IS BURNED** in the local dump, a greater capacity is needed. By recycling materials, **BUILDING COSTS** can be reduced and less waste will be burned. the recycling center will act as a hub to collect, modify and clean (if needed) and redistribute these materials so that they may be put to better use.

A consequence of reusing trash is that contaminants are released into the ground. To **PROTECT THE SURROUNDING FARMS** and improve the **HEALTH** of the site, a **PHYTOREMEDIATION ZONE** will be created along the southern watershed zone for the site.

PROTEIN SCARCITY

CORN has **HISTORICALLY** been the primary **SOURCE** of food for the indigenous people of Guatemala. A combination of a lack of variety of the diet as well as the socio-economic position of rural families which rely on subsistance farming has lead **80% OF THE POPULATION OF GUATEMALA** to be **MALNOURISHED**. This is the 6th-worst performance in the world. The results of malnourishment can be varied, but often lead to developmental disabilities, stunted growth, and can even lead to death in extreme cases. The major nutrient that **LACKS IN THE DIET IS PROTEIN**.

The average adult needs about .37 grams of protein per pound of bodyweight. This means that a 150-pound adult will require 55 grams of protein per day to remain healthy.

SITE IS LOCATED IN COMALAPA, GUATEMALA

TURNING TRASH INTO FOOD:

Comalapa has essentially two seasons: a wet season and a dry season. This limits food production as crops require water to grow and irrigation on an agricultural scale is not currently available. By converting trash bottles into nursery bottles, the growing season can be extended and yield more food. Crops such as peanuts or soybeans could be started in bottles and then transplanted to finish growth.

It's simple to make a nursery bottle:

RINSE BOTTLE AND REMOVE LABEL

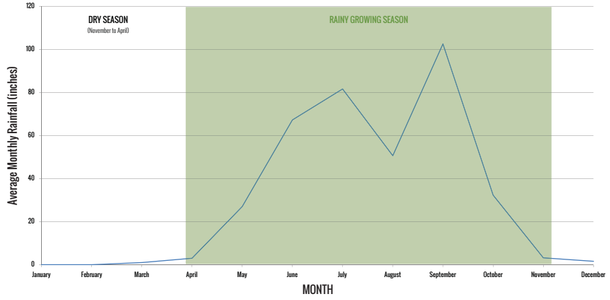
CUT BOTTLE, ADD SOIL, PLANT SEEDS

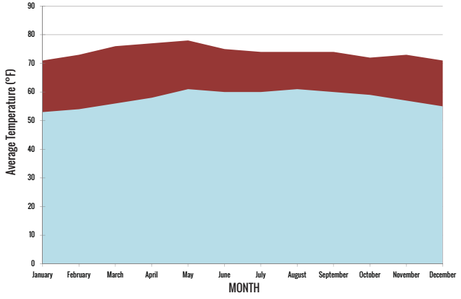
PLANT GROWS UNTIL TRANSPLANTED

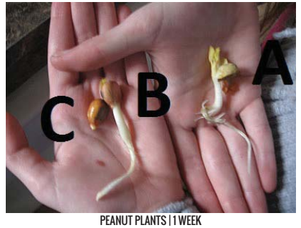
NURSERY WALLS:

The southern faces of the recycling center will be created by arrays of nursery bottles to create walls. Several thousand plants could be cultivated this way and then made available to the community. Showcasing the success of these walls would hopefully inspire residents of the community to create their own nursery walls and improve the variety of their food supply. If the growing season could be extended by a few months, the impact on overall food production would be staggering.

TECNICO MAYA | Agricultural Strategy







PEANUT PLANTS | 1 WEEK

PEANUT PLANTS | 10 DAYS

PEANUT PLANTS | 1 MONTH

PEANUT PLANTS ARE THEN TRANSPLANTED OUT OF BOTTLES AFTER APPROXIMATELY 1.5 MONTHS TO SOIL WHERE THEY WILL BECOME READY TO HARVEST AFTER A TOTAL OF 120-150 DAYS...

Source of peanut growth photos: http://almostunschoolers.blogspot.com/2012/02/peanut-plant-update-1-month.html

TECNICO MAYA | Potential Protein

INDIGENOUS

CORN
Protein: 4 grams per ear | 16g/cup

693

EGGS
Protein: 6 grams per egg | 24g/cup

VARIES*

=

100 ADULT DAILY PROTEIN SERVINGS PRODUCED BY 1 ACRE

INTRODUCED

PEANUTS (ROASTED)
Protein: 35g/cup

2,566

SOY BEANS (dried and roasted)
Protein: 68g/cup

2,329

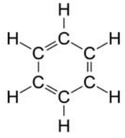
SUNFLOWER SEEDS
Protein: 24g/cup

624

TECNICO MAYA | Phytoremediation Plan

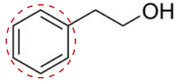
Geranium
(Geranium dissectum)

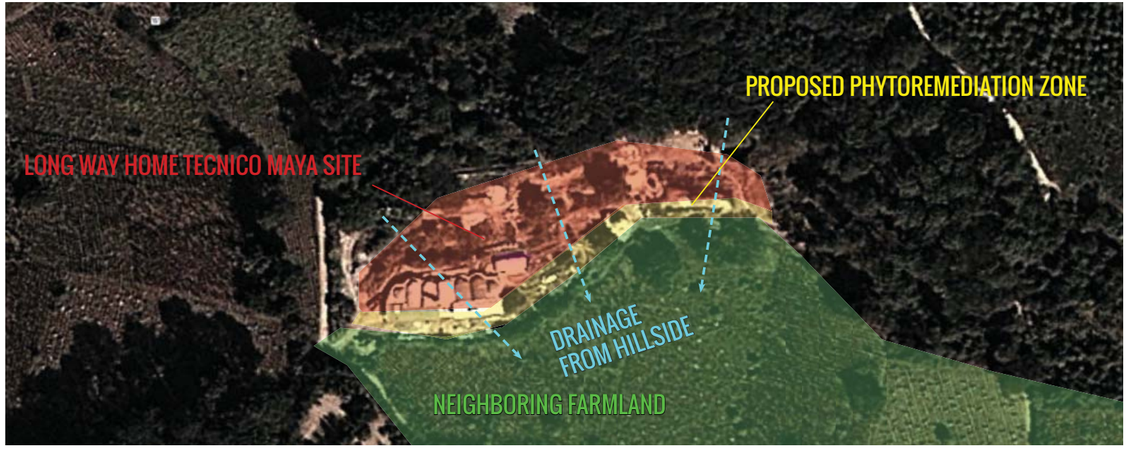
Benzene

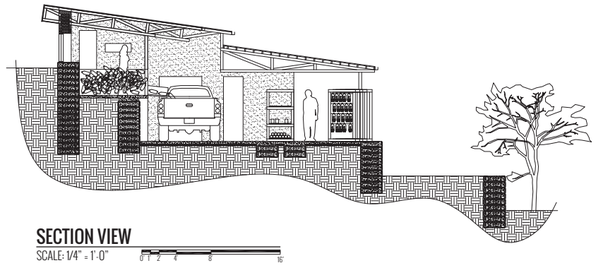


PHYTOREMEDIATION

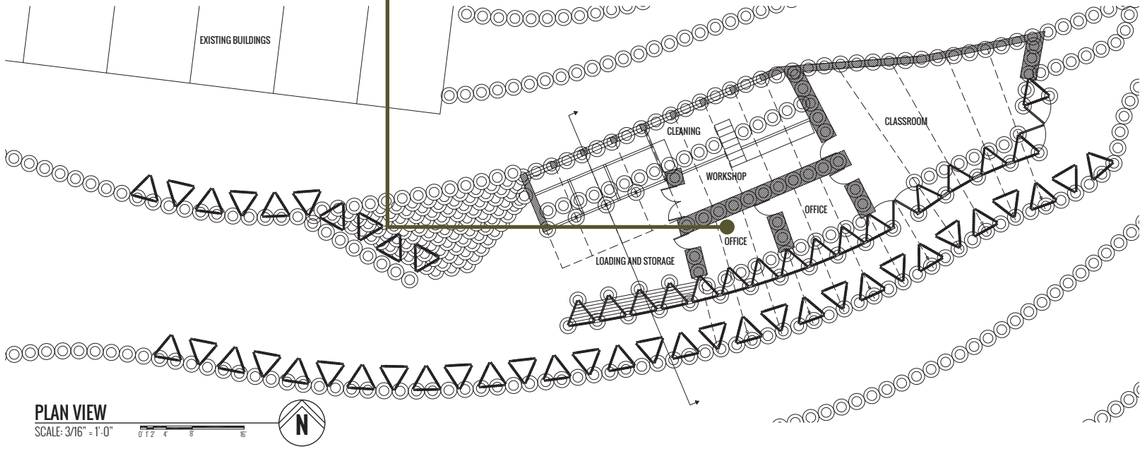
Phenethyl Alcohol







SECTION VIEW
SCALE: 1/4" = 1'-0"



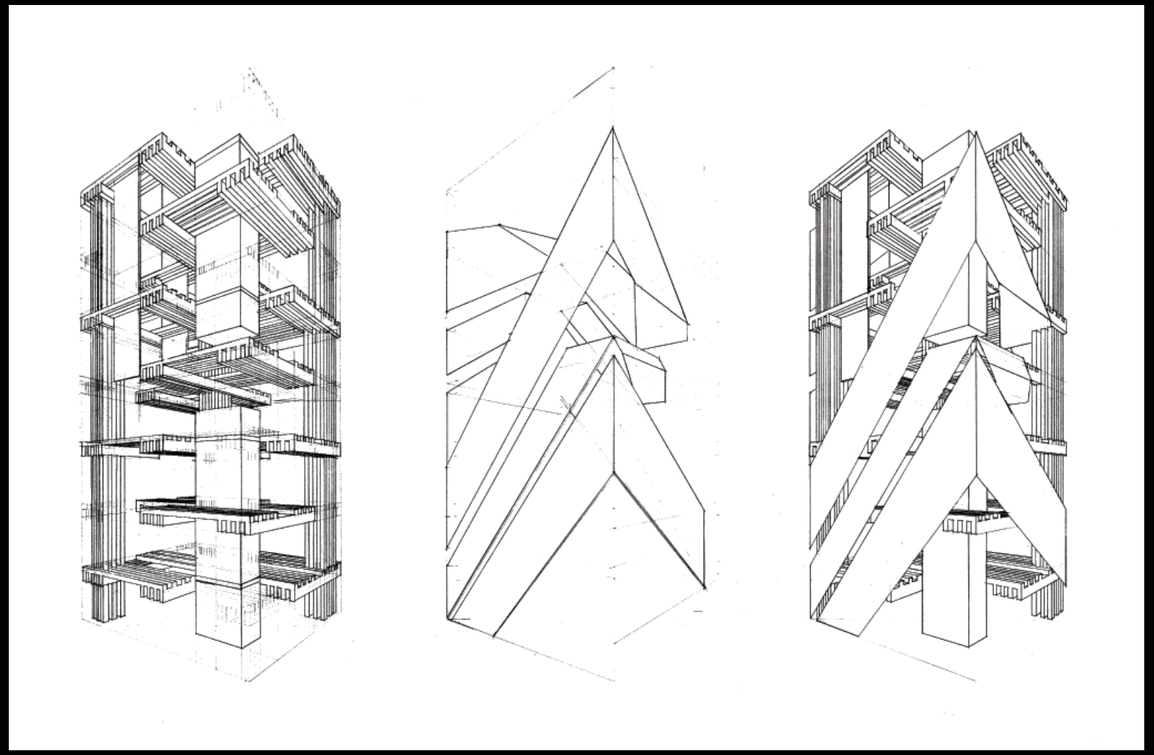
PLAN VIEW
SCALE: 3/16" = 1'-0"

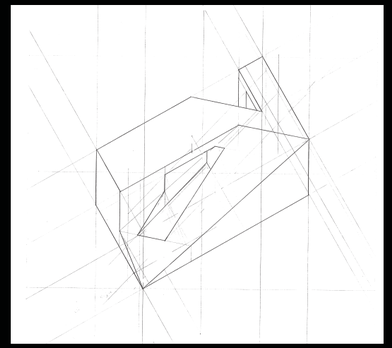
TECNICO MAYA | Kiosk Display

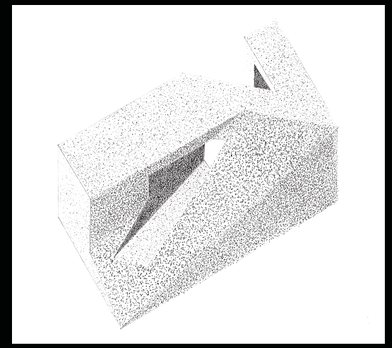
CHARCOAL AND INK

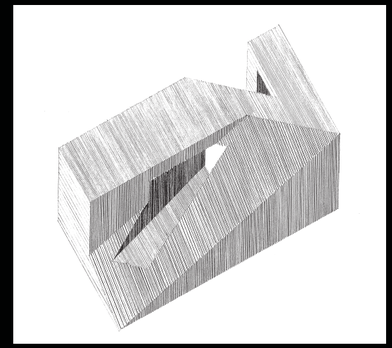
I have always maintained an appreciation for artwork. Over the last few years I have gained a better sense of how art can influence architecture. My engineering background has taught me an appreciation for proportionality, dimensionality, and detail, but my architecture training has given me a better sense of mood, texture, and materiality.

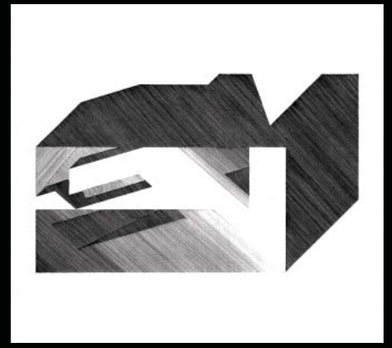
When expressing these ideas on paper, I usually prefer the neat line that is provided by using a pen because it makes me have to think about every line that I place. Expanding into other mediums such as charcoal and pencils has allowed me to loosen up my work and create drawings that are more natural through their imperfection.

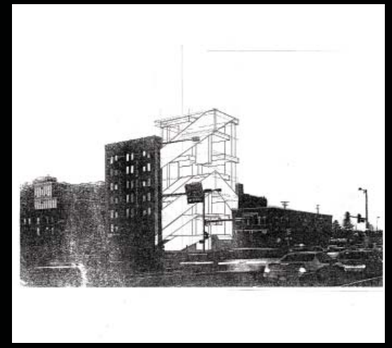


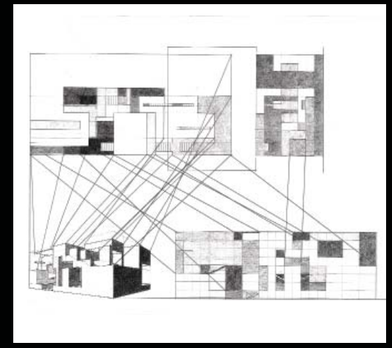






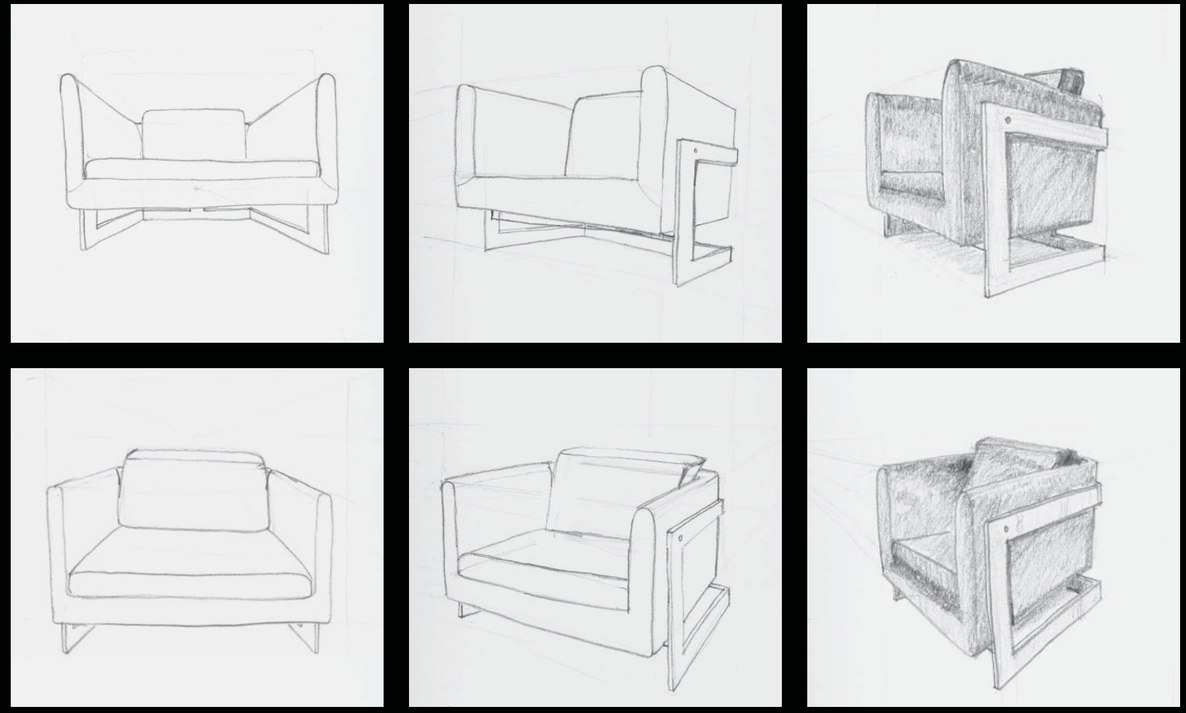






INTRODUCTION TO DRAWING . PATRICIA O'LEARY . FALL 2010

PIAZZA DEL POPOLO . HISTORY AND CONTEXT OF ROME . PHIL GALLEGOS & RANKO RUZIC . SUMMER 2011



CHAIR STUDIES . SKETCHING AS SEEING . RANKO RUZIC . FALL 2012

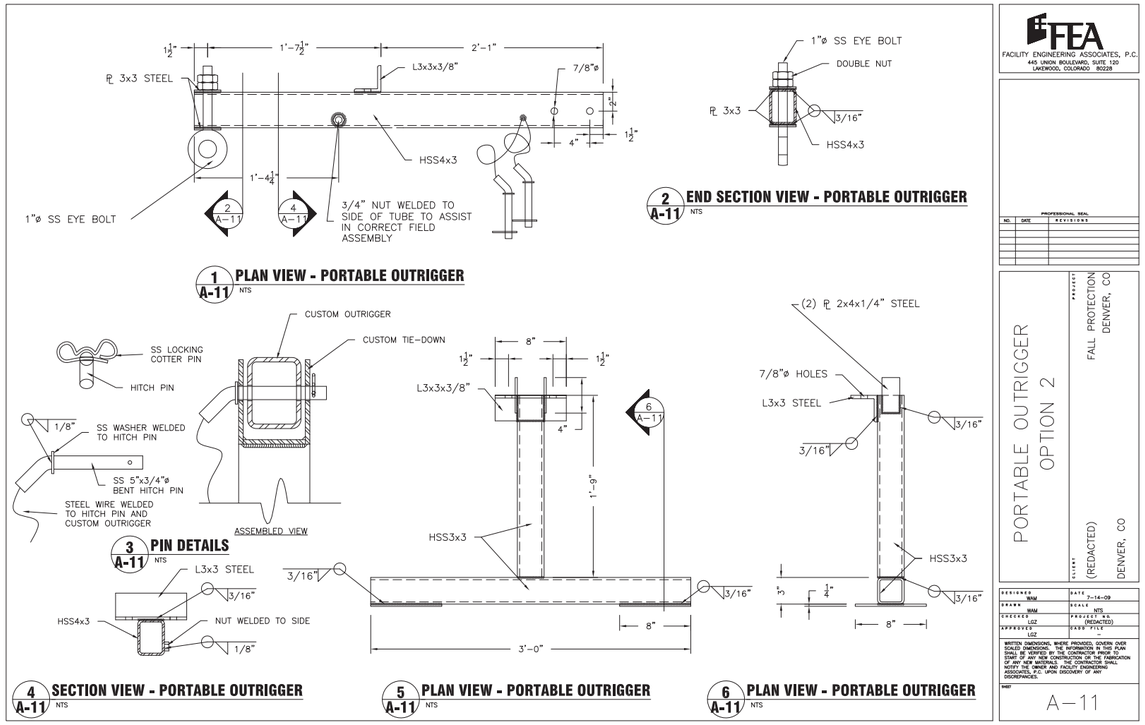
ENGINEERING WORK

SYMBIOTIC DESIGN

Combining my engineering background with my love for architecture gives me a unique and versatile approach to problem solving and design.

Traditionally, there has been a perceived (and in some cases very real) break between engineering and architecture. I hope to bridge that gap within projects with the goal of creating great architecture that is not in conflict with engineering. The two disciplines should function symbiotically.

I am not afraid to crawl through steam tunnels, rappel down the face of a building, or get my hands dirty. I like the variety of work and design that buildings and their maintenance require.



FACILITY ENGINEERING ASSOCIATES, P.C.
445 UNION BOULEVARD, SUITE 120
LAKEWOOD, COLORADO 80228

PROFESSIONAL SEAL

NO.	DATE	REVISIONS

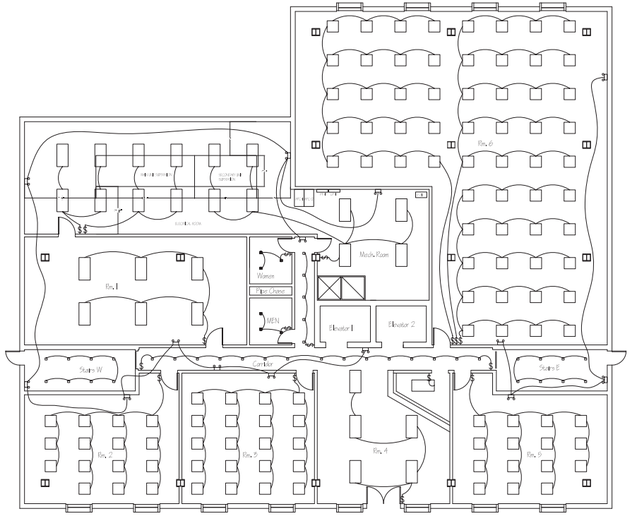
PORTABLE OUTRIGGER OPTION 2

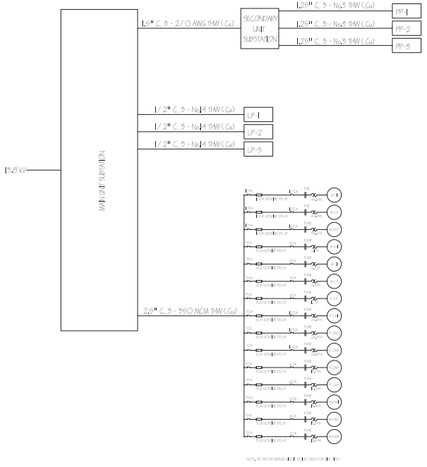
FALL PROTECTION
DENVER, CO
(REDACTED)
DENVER, CO

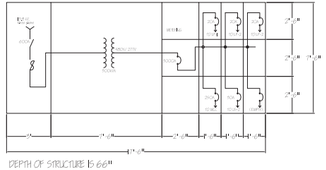
DESIGNED	DATE 7-14-09
DRAWN	SCALE NTS
CHECKED	PROJECT NO. (REDACTED)
APPROVED	ISSUE FILE

WRITTEN DIMENSIONS, WHERE PROVIDED, GOVERN OVER SCALED DIMENSIONS. ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO START OF ANY NEW CONSTRUCTION OR THE FABRICATION OF ANY ITEMS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND FACILITY ENGINEERING ASSOCIATES, P.C. UPON DISCOVERY OF ANY DISCREPANCIES.

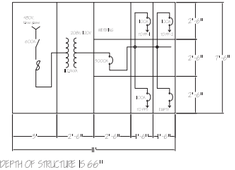
SHEET
A-11



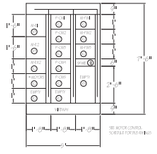




DEPTH OF STRUCTURE IS 66"
MAIN UNIT SUBSTATION, 15kV CLASS, 300kVA



DEPTH OF STRUCTURE IS 66"
SECONDARY UNIT SUBSTATION, 5kV CLASS, 112.5 kVA



DEPTH OF STRUCTURE IS 20"
MOTOR CONTROL CENTER

*USED WITH PERMISSION FROM FACILITY ENGINEERING ASSOCIATES

ELECTRICAL SYSTEMS FOR BUILDINGS . MONCEF KRARTI . SPRING 2007

THANK YOU

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