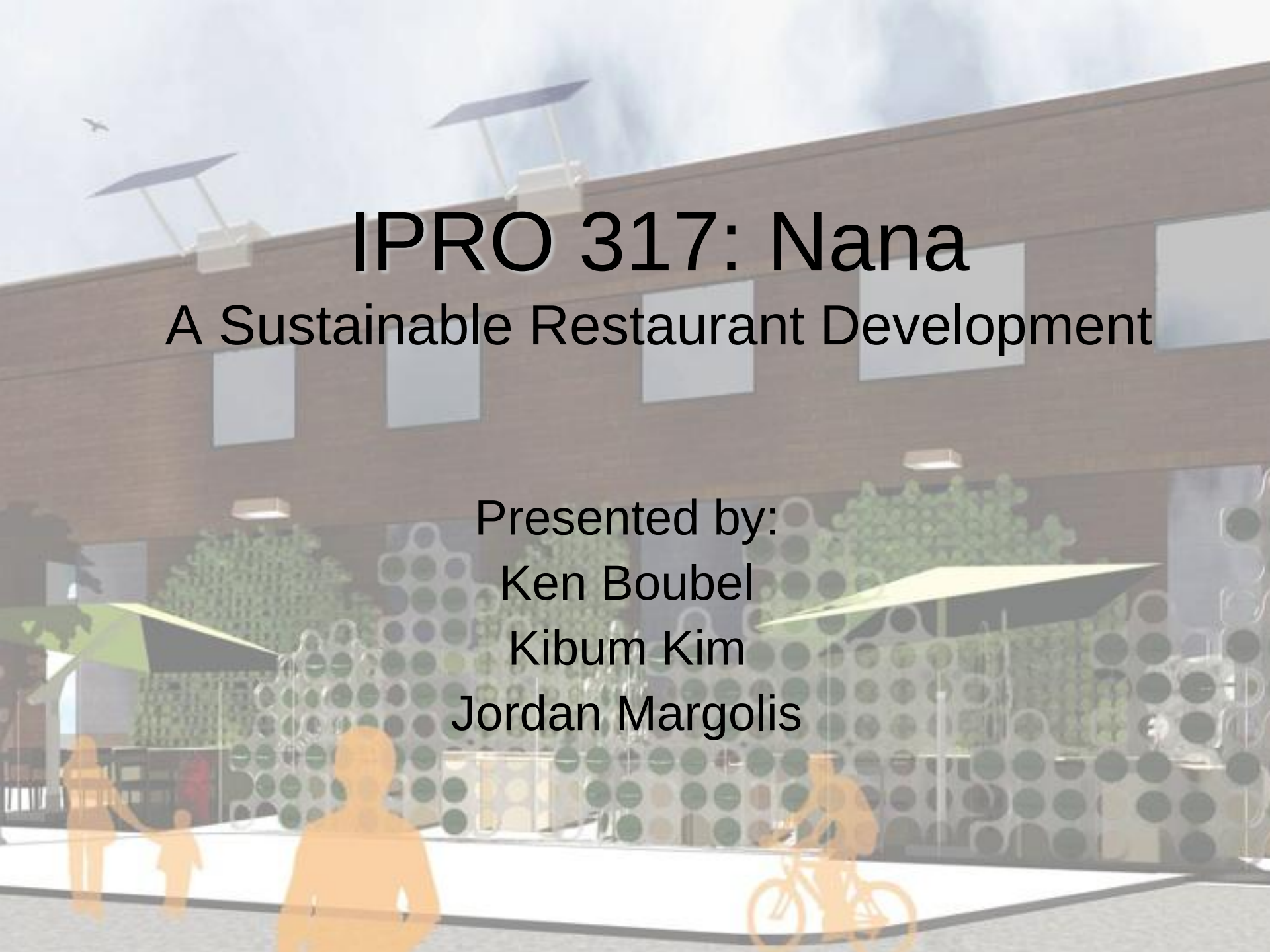


IPRO 317: Nana

A Sustainable Restaurant Development

Presented by:

Ken Boubel

Kibum Kim

Jordan Margolis

Nana Organic

- Building Renovation
- 3267 S Halsted St.
  - Bridgeport
- All organic food
- Opened August 2009

Inside Look: Nana Organic

Mission Statement

- To conduct innovative, effective marketing within a 1 mile radius of Nana, increasing awareness to the general public while becoming environmentally friendly, sustainable and eventually significantly increasing the number of customers to enjoy the distinct Nana organic experience.

IPRO Organization

Business	Kenneth Boubel (Group Leader, Subgroup Leader) Seth Ellsworth Bushra Hussaini Matthew Kavicky
Environmental	Jordan Margolis (Group Leader, Subgroup Leader) James Mellom Jessica Roth Sasha Bajzek
Building	Kibum Kim (Subgroup Leader) Ray DeBoth Hye Sun Jeong Keo-Jin Jin Natalia Klusek Sang Yun Lee Sukmin Lee Tianshu Qi Joong Geun Yun

Business Subgroup: Research

- Newspaper advertising
  - TechNews
    - Ads from $72-$288
  - Chicago Tribune
    - Once a week- $200
- Radio Advertising
  - Average cost for 30 second spot: $362
- Social media marketing
- Local demographics
- Grants and other funding
- Online directories and reviews
  - Research, feedback and implementation

Feedback: Areas To Improve

- Time to wait for table/ food
- Poor Service
- Unable to accommodate large crowds
- Mediocre food
- Over priced for extremely SMALL portions
  - Both juices and meals

NOTE: Research Conducted mid February

1. http://www.yelp.com/biz/nana-chicago
2. http://chicago.metromix.com/restaurants/american/nana-bridgeport-sox/814747/content

Feedback: Positives

March 7: “Organic, locally focused, this little place has got a mission, and it's doing it, and doing it well.”

March 26: “was so incredibly impressed by this gem amid an otherwise barren area. The staff was incredible and gave great suggestions and was attentive to our needs.”

March 26: “I've been here a couple more times since my initial review, and my opinion only keeps getting more and more positive.”

March 27: “Wow and wow. Amazing! They were good in September, but now they are great! The food has improved tenfold!”

April 12: “I COMMEND them on their concept: family owned, ONLY humanely raised animals, no hormones or antibodies, no genetically modified mutant garbage, not even added coloring. they define ALL-NATURAL. I trust eating there better than from my own fridge”

1. http://www.yelp.com/biz/nana-chicago

Business Subgroup: Projects

- Student coupon
- Student / faculty survey
- On campus presentation
- Economic analysis of expansions
  - Dinner
  - Increased indoor dining
  - Outdoor café
- Text messaging notifications

Coupon

College Coupon – 10% Off!

Come to Nana for 10% off one breakfast or lunch item! For menu and additional information, visit www.nanaorganic.com.

To receive discount, please turn in this coupon and present school ID.

Valid on Mondays and Tuesdays 9:00 A.M. to 3:00 P.M.
Street Address: 3267 S. Halsted (Halsted St. at 33rd St)
Phone Number: 312-929-2486
Expires 3/30/2010

nana

Economic Analysis: Outdoor Café

40 Additional Seats

Annual Benefits/Costs	Outdoor Café/ Patio Cash Flows					
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Income	-	$89,600	$89,600	$89,600	$89,600	$89,600
Worker Costs	-	($40,320)	($40,320)	($40,320)	($40,320)	($40,320)
Additional Business Expenses	-	($8,000)	($8,000)	($8,000)	($8,000)	($8,000)
Permit costs	-	($2,000)	($2,000)	($2,000)	($2,000)	($2,000)
Net Sum =	**($20,000)**	**$39,280**	**$39,280**	**$39,280**	**$39,280**	**$39,280**

Internal Rate of Return (IRR) = 196 %

Economic Analysis: Indoor Dining

40 Additional Seats

Annual Benefits/Costs	Indoor Dining Expansion Cash Flows					
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Income	-	$89,600	$89,600	$89,600	$89,600	$89,600
Worker Costs	-	($26,880)	($26,880)	($26,880)	($26,880)	($26,880)
Additional Business Expenses	-	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)
Net Sum =	**($40,000)**	**$52,720**	**$52,720**	**$52,720**	**$52,720**	**$52,720**

Internal Rate of Return (IRR) = 130 %

Environmental Subgroup

Our goal is to determine several different environmentally friendly and green solutions to Nana's everyday problems, including:

- Harsh chemical cleansers
- Cardboard waste
- Food waste
- Vegetable oil waste
- Rainwater collection
- Green walls and partitions

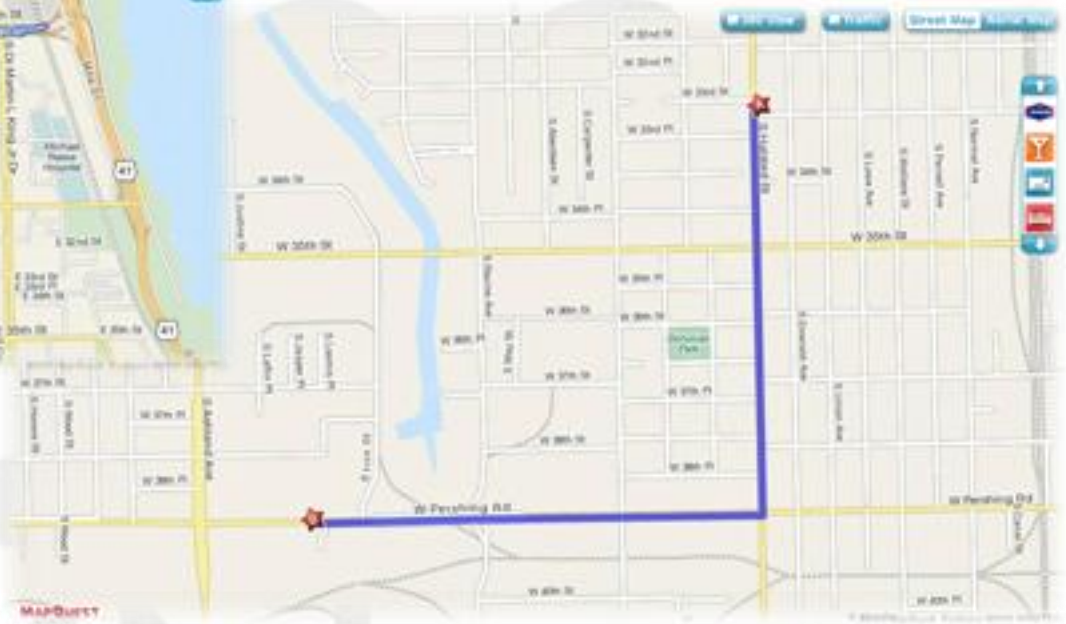
Cleanser Analysis

Cleaner Genre	Current Cleaner	Cost / oz.	Recommended Cleaner	Cost / oz.
All-Purpose	Ecolab G.P. Liquid	$0.15	Sunshine Makers Simple Green Concentrate[1]	$0.07
Bathroom	Ecolab Kemsan	$0.26	Canberra Corp. Husky 325[1]	$0.10
Degreaser	Ecolab Degreaser	$0.30	The Clean Environment Co. PH Neutral	$0.11
Floor	Ecolab Wash ‘N Walk	$0.40	Amrep Misty Neutra Clean	$0.10
Oven	Ecolab Husky	$0.40	The Clean Environment Co. Non-Toxic Cleaner	$0.18
Toilet Bowl	Palmolive Disinfectant Bowl Cleaner	$0.16	The Clean Environment Co. No-Dye Cleaner	$0.14
Window	Ecolab Windex	$0.26	Rochester Midland Corp. Enviro Care[1]	$0.10

Cardboard Waste Solutions

Above:1752 S. Clark St, 2.1 Miles from Nana. Open 7 Days a Week, Daylight hours

Below:1424 W. Pershing Rd, 1.59 Miles from Nana. Open 7 Days a Week, Daylight hours



Composting

Earthmaker Composter

- Composting allows Nana to utilize their waste
- Renewable energy for their new green features
- Placed on Nana rooftop
- 124 gallon capacity
- $249.00

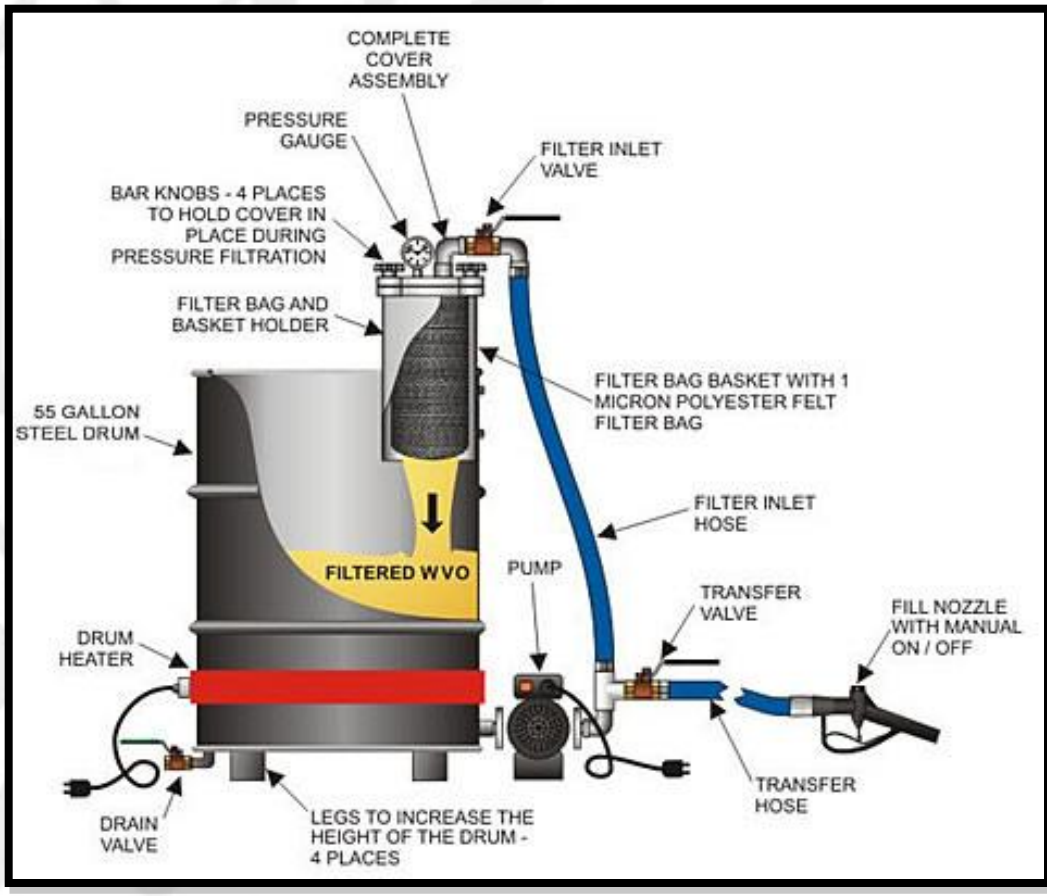
Waste Vegetable Oil Reuse

-Waste Vegetable Oil (WVO) can be filtered and reused to fuel diesel vehicles.

-Needs 1-2 weeks to filter contaminants.

-Vehicle must be converted in order to properly burn WVO.

Filtration Unit



Waste Vegetable Oil Conversion

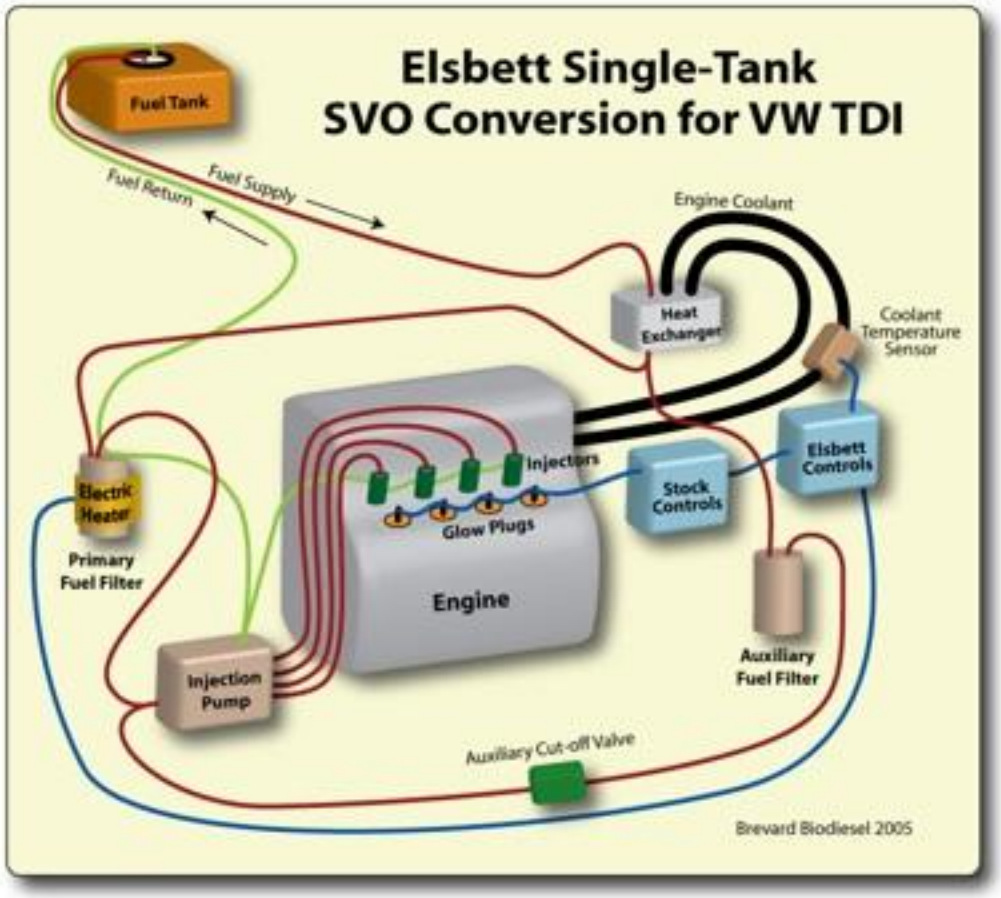
-Elsbett Tank Systems

One Tank System (chosen)
-Utilizes one tank.

-Can operate on just WVO.

Two Tank System:
-Switches between diesel tank and WVO tank.

-Necessary to switch over while idling to avoid overheating engine.



Waste Vegetable Oil Feasability

-Subject Vehicle: 2010 Volkswagen Jetta Wagon, TDI

-Local Diesel Fuel Price:
(2-17-10, 3400 Milwaukee Ave, Gas Depot): $2.89/gallon

UPFRONT COSTS

-Elsbett Conversion Kit	$1,139.00
-Install (8hrs at $95)	$760.00
-Filtration (drum/unit)	$240.00
TOTAL UPFRONT COST	**$2,139.00**
5% Contingency	$106.95
TOTAL WITH CONTINGENCY	**$2,245.95**

TIME OF REPAYMENT

-Gallons of Diesel Fuel Used Weekly 14.5gal
-14.5 gallons at $2.89= $41.91 spent weekly
-Time of Repayment (54 weeks)
-Savings- YEAR 2 (104 weeks) **$2112.69**

Rainwater Harvesting

- **<u>Rain Catcher Barrel</u>**
- Annual average precipitation for Chicago is 38 inches.
- Averaging 10 inches of rain over a spring and summer on Nana's roof yields 8,160 gallons of water
- Used to water outdoor seating area plants
- 54 gallon capacity
- $139.00

Woolly Pockets

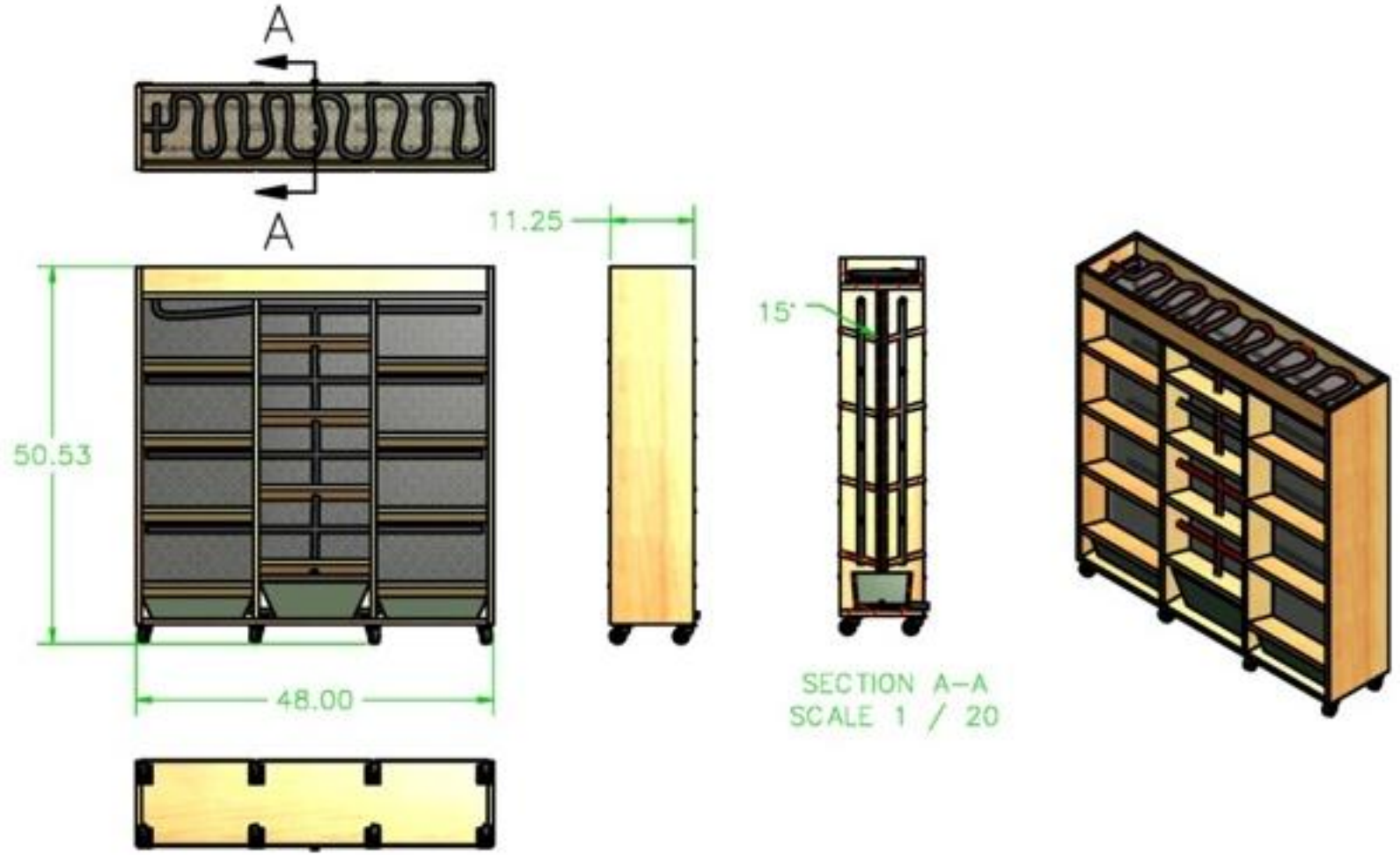
-Woolly Pockets are a flexible, breathable, and modular solution to gardening containers.

-Indoor or outdoor use

-Built-in moisture barrier

-Lightweight: easy to use, move and store.

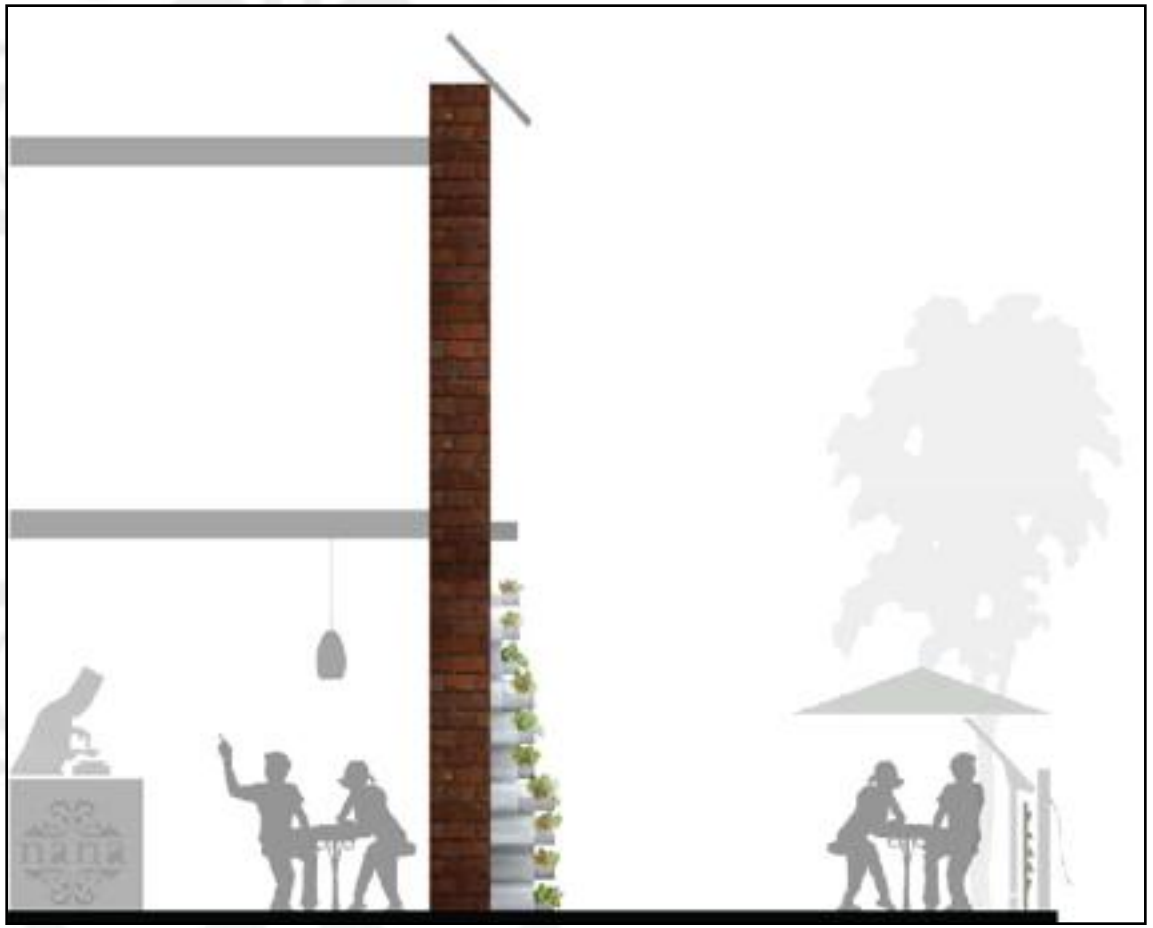
Vertical Gardening Partition



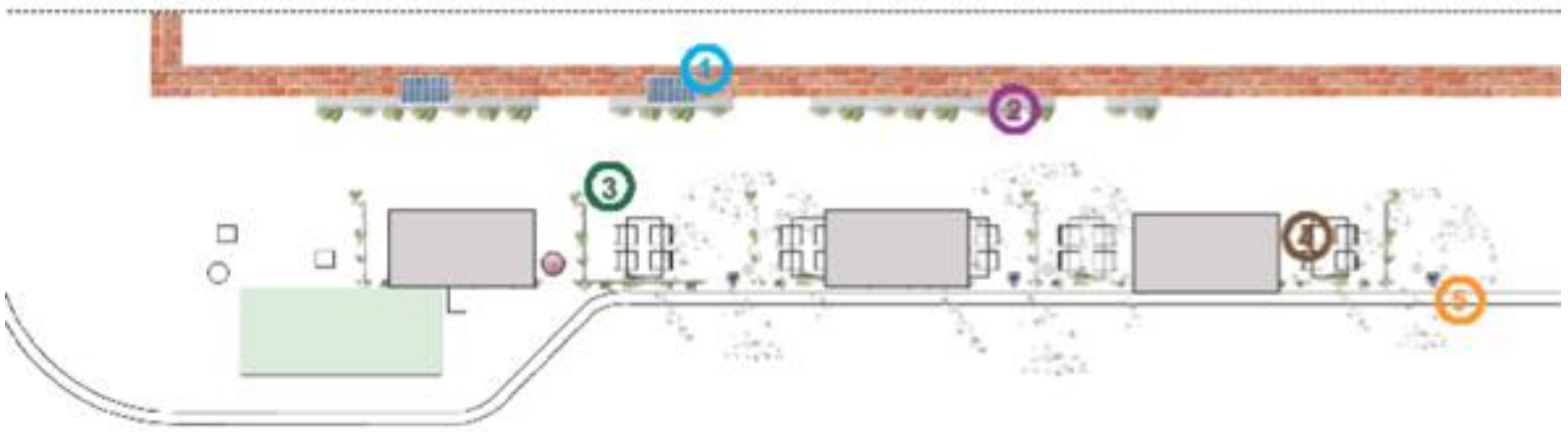
Building Subgroup

Building Group Goals

- Provide building insulation via a vertical garden (attached to the façade)
- Propose a (shaded) outdoor seating café (to advertise and maximize profits)
- Install solar panels on the building's upper façade, providing light/heat to the outdoor café
- Propose electrical charge (car) stations

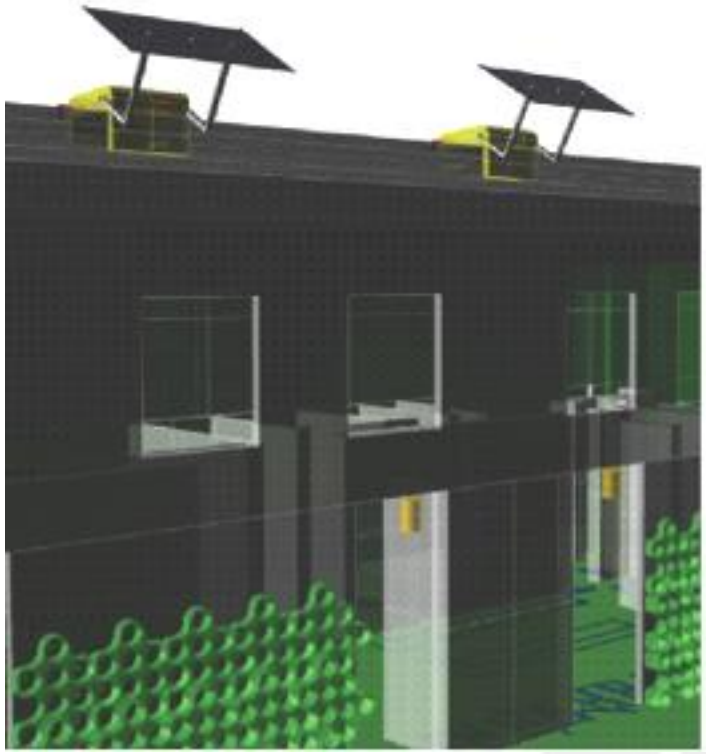


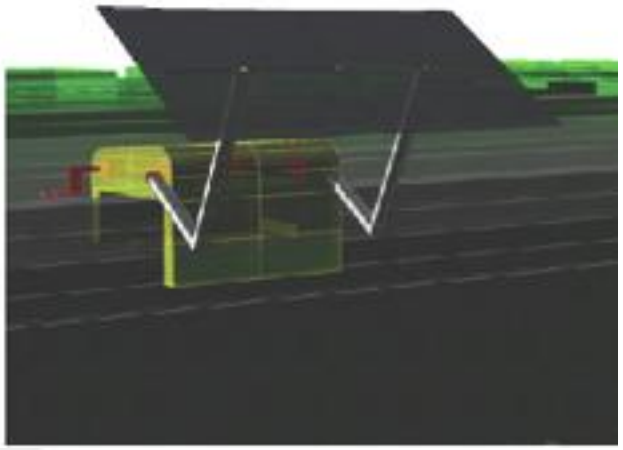
Outdoor Seating Plan



1. SOLAR PANEL
2. GREEN GARDEN WALL
3. PARTITION WALL
4. MOVING SHADING
5. ELEC CHARGE POINT

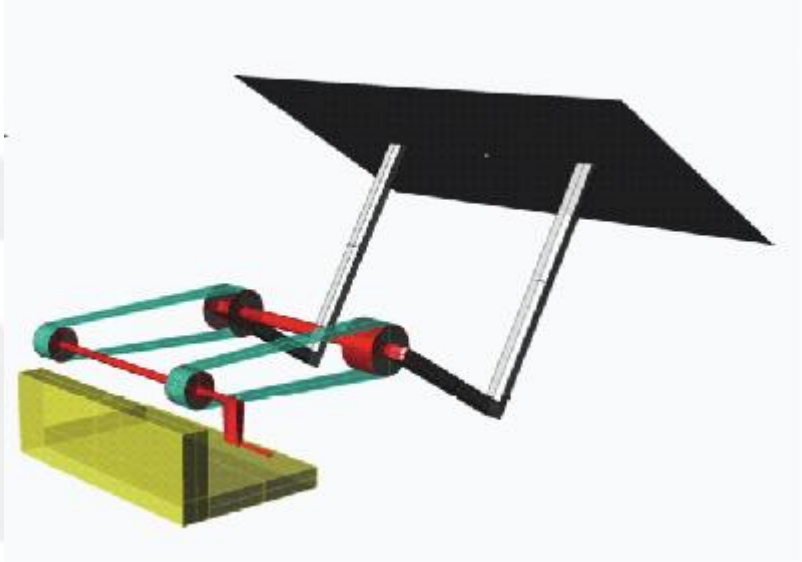
Solar Panel





The solar panel system is self installed which provides the electricity for the lighting fixtures.

Solar Panel Detail



The angle of the solar panel can be adjusted to yield maximum power output. The support system is mounted along the edge of the roof.

Total weight =118.123kg, Total Cost = $100

Solar Panel Cost Analysis

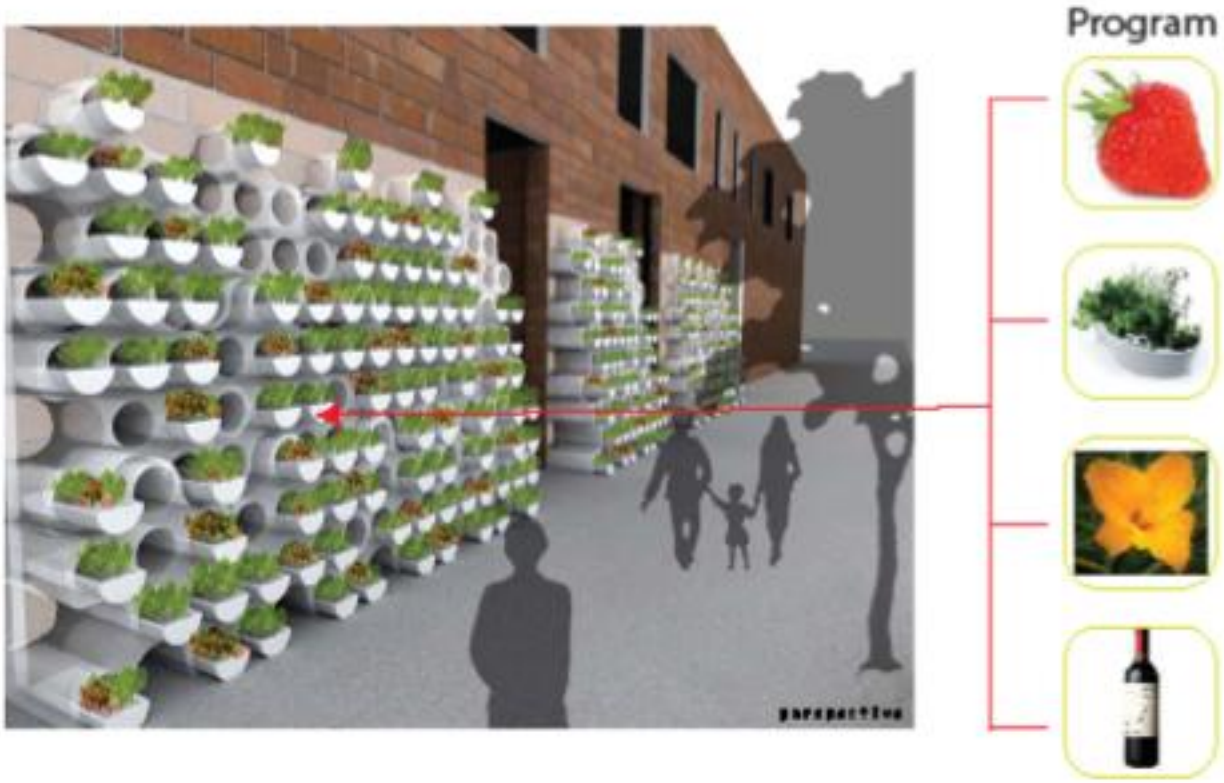
Number of Solar Cells	Output/hour (Wh)	Ave. Sun Hours (Chicago)	Elec. Loss from Inverter	Daily Output (Wh)
72	108	3.14hrs	< or = 13%	295.03

Item	Cost (USD)
Solar Cells	109.95
Inverter	99.99
SLA Battery	79.95
Charge Controller	20.50
TOTAL	310.39

The cells are 3 × 6 inches in size and are rated at 3 amps. Each cell produces 1/2 Volt. One Solar Cell can produce 3 Amps × 1/2 Volt which equals 1.5Watts.

The solar cells are arranged as 6 units in a row and 12 units in a column. The size is 36 × 36 in. that is around $9ft^2$ in area.

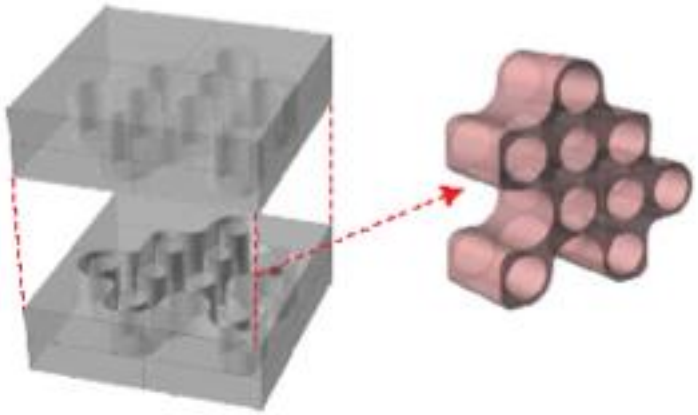
Green Garden Wall



This proposal of vertical garden will acts as not only funtional aspect to minimize heat loss and gain as a insulation, but also it will works as asthetic value to give strong identity as leading organic restaurant.

Green Garden Wall Detail

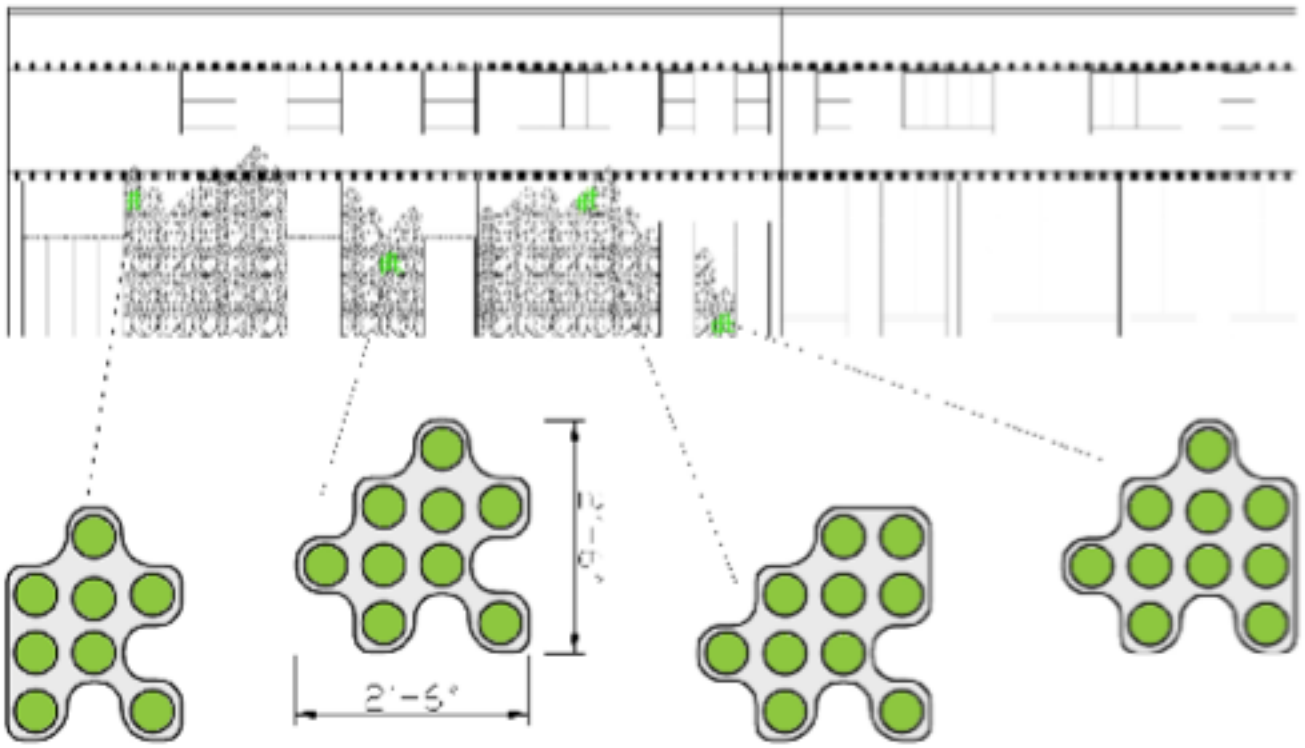
Semi-Rigid Plastic 4gal = 180 $
One module = 2gal
Cost of one module = 90 $



Semi-Rigid Plastic

Molding casting allows to reuse form works as many as you can.
Additionally, the casting time is short (30 min)

Green Garden Wall Module



The planter wall is composed of 4 modules with slightly different puzzle forms. The overall size of each module is 2'6" X 2'6" with holes of 6"diameter for planters.

Green Garden Wall Insulation

	Before Green Wall Installation	After Green Wall Installation
Theoretical Heat Loss, Q (kWh/month)	505	151
Cost ($/month)	33	10

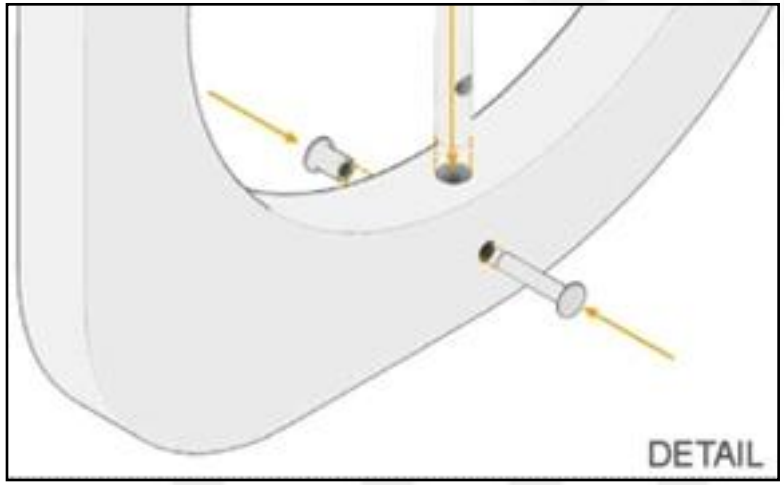
Main Assumptions:

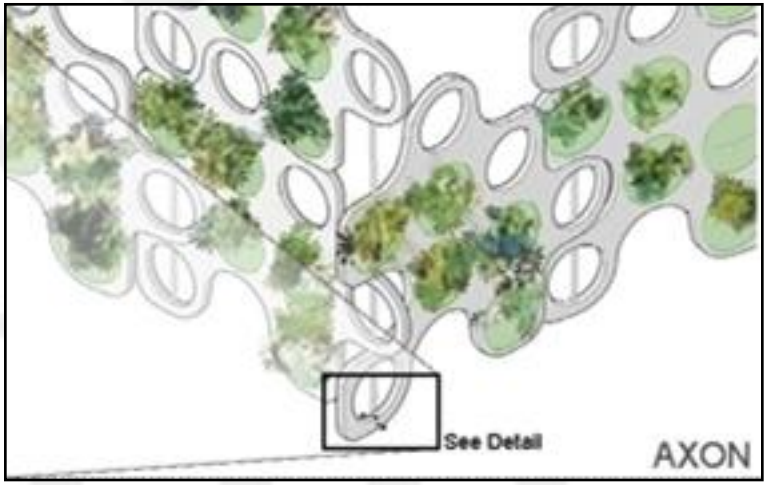
1. Heat transfer rate changes only at the south wall (green wall).
2. The air temperature in and outside remains constant, and heat transfer is steady.
3. Mainly, heat transfers during the business hours (8am to 3pm).
4. Air hardly circulates, and it stakes in the nine holes of the green wall module.

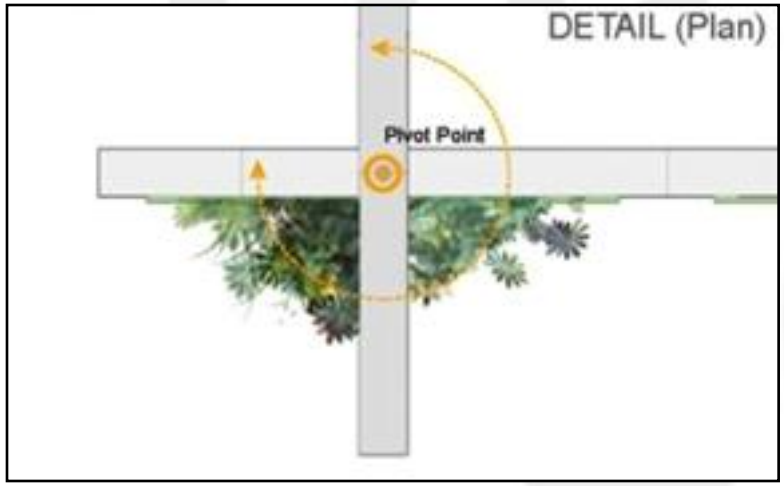
Partition Wall

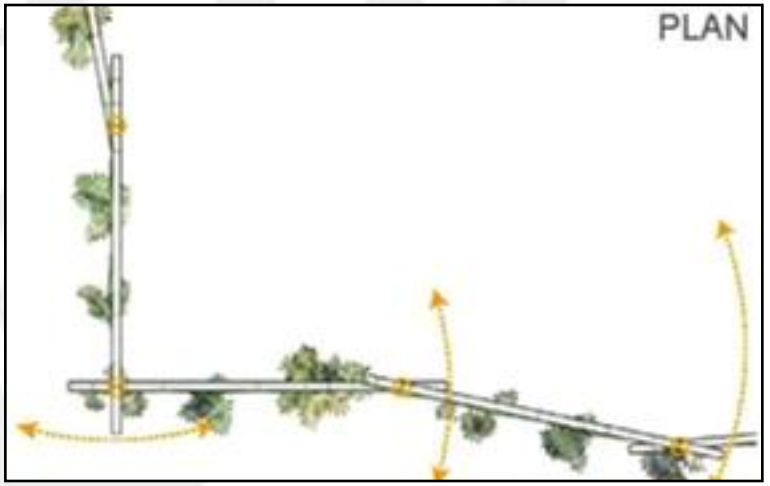
The partition wall works like a screen, with felt pockets (Wooly Pockets®) covering alternate openings, each filled with succulent plants

Partition Wall Detail

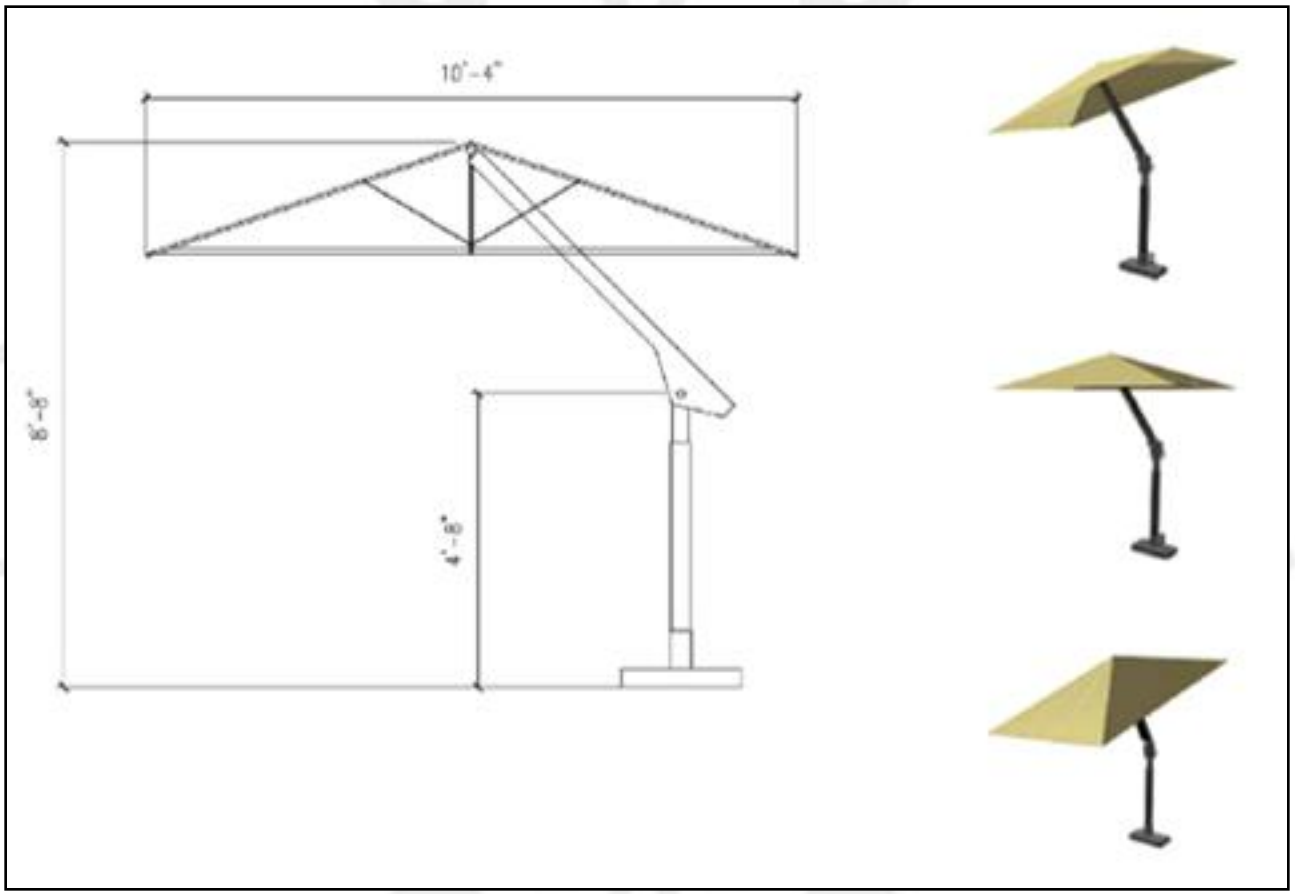






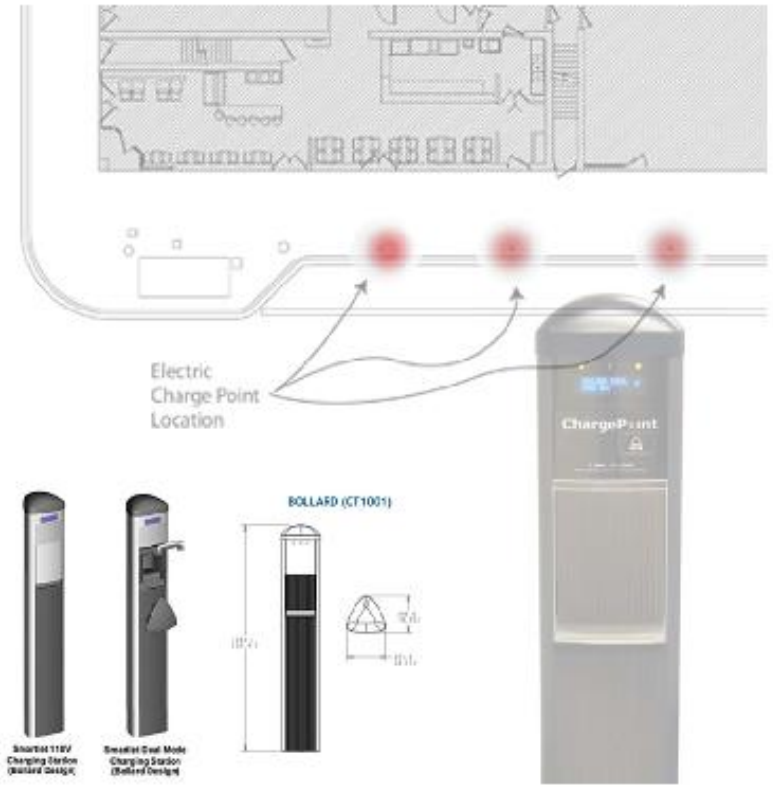


Moving Shading



The shading device for the outdoor café can change its height and angle according to different sun angles throughout the day

Electric Charge Point



Payment Method : RFID reader rented for customer
Credit card
Tax credit : 50% of the installation cost
Total Cost : 1000 USD

Conclusions

How do we relate?

Business, Environmental & Building groups

- Building and Environmental relationship
- Economic Analysis of projects
- Advertising potential
- Marketability

Difficulties and Successes

- Difficulties
  - Client interaction
  - Compiling group efforts
- Successes
  - Realistic business experience
  - End result:
    - Three subgroups learned to work as one team

Fall 2010 Recommendations

Business Subgroup

- Analyze survey results and marketing strategies
- Economic Analysis of future projects
- Host On Campus Presentation
- Website Review
- Organic “Competitors” (pros and cons)
- Delivery Options (breakfast/lunch)
- Text Messaging Alerts

Fall 2010 Recommendations

Environmental Subgroup

- Build Vertical Garden Partitions
- Install WVO system for company vehicle
- Investigate/Feasibility study of more efficient appliances/systems
- Home made energy efficiency upgrades/installs

Fall 2010 Recommendations

Building Subgroup

- Analyze roof solutions/structural conversion feasibility study
- Planning of additional spaces and code requirements for those changes

A Special Thanks To:

-Omar & Christian Solis (Owners of Nana)

-Professor Nancy Hamill

-IIT IPRO Staff