IPRO 311

IIT SUSTAINABILITY IMAGE AND BRANDING

PROBLEMS &OPPORTUNITIES

- Lack of knowledge of IIT's green initiatives already in place
- Existing problems with campus facilities which prevent us from being know as a "green" and innovative campus
- Build upon design projects developed in previous semesters
- Getting students involved

TEAM ORGANIZATION

Marketing and Branding Group

Members: Melissa Toops (Leader), Catherine Budzinski, Vinu Mohan and Gabriel Fontes de Faria

Solar Workstation Group

Members: Milanko Milesic (Leader), Nor Tanapura, Sacha Roubeni and John Kapecki.

Facilities Improvement Group

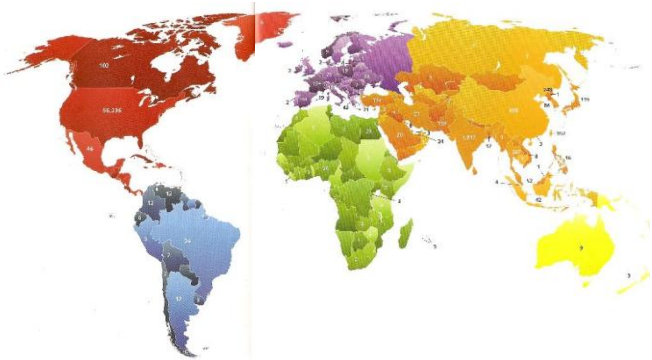
Members: Michael Chamales (Leader), Hyeran Um, Shawn Block and Justin Ma.

Marketing and Branding Group

Members: Melissa Toops, Catherine Budzinski,
Vinu Mohan and Gabriel Fontes de Faria

LOGO DESIGN COMPETITION

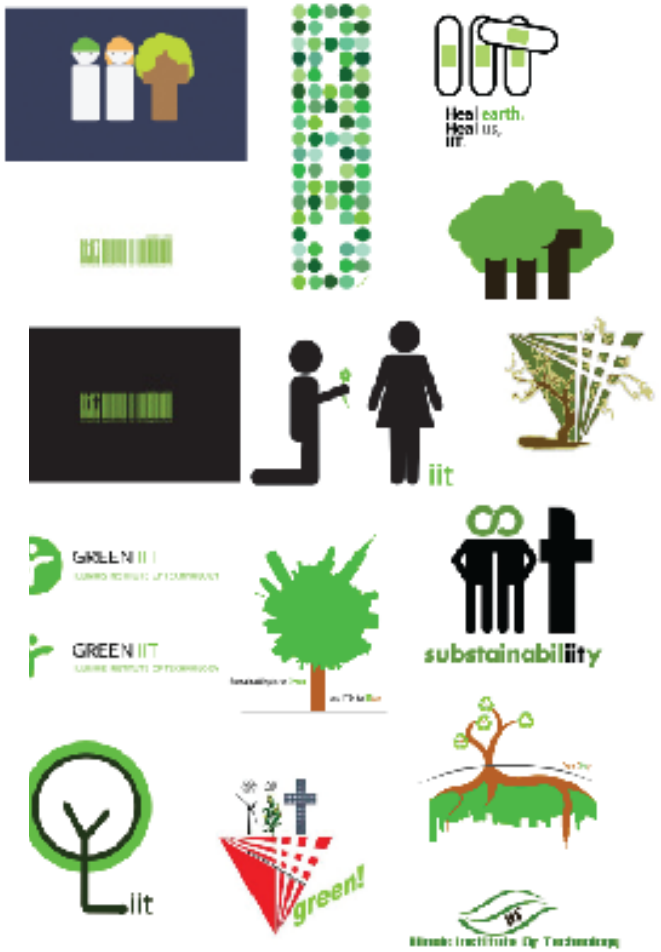
- **Logo Competition**
  - Getting students and staff involved in identifying how they see IIT as "green"
- **Logo design uses**
  - Worked with Admissions department to produce canvas shopping bags featuring the logo design created
    - Provides an opportunity to advertise IIT's stance in sustainability all over the world



LOGO DESIGN COMPETITION

- **Over 40 entries were submitted**
- **Winning logo portrays the process of greening IIT**

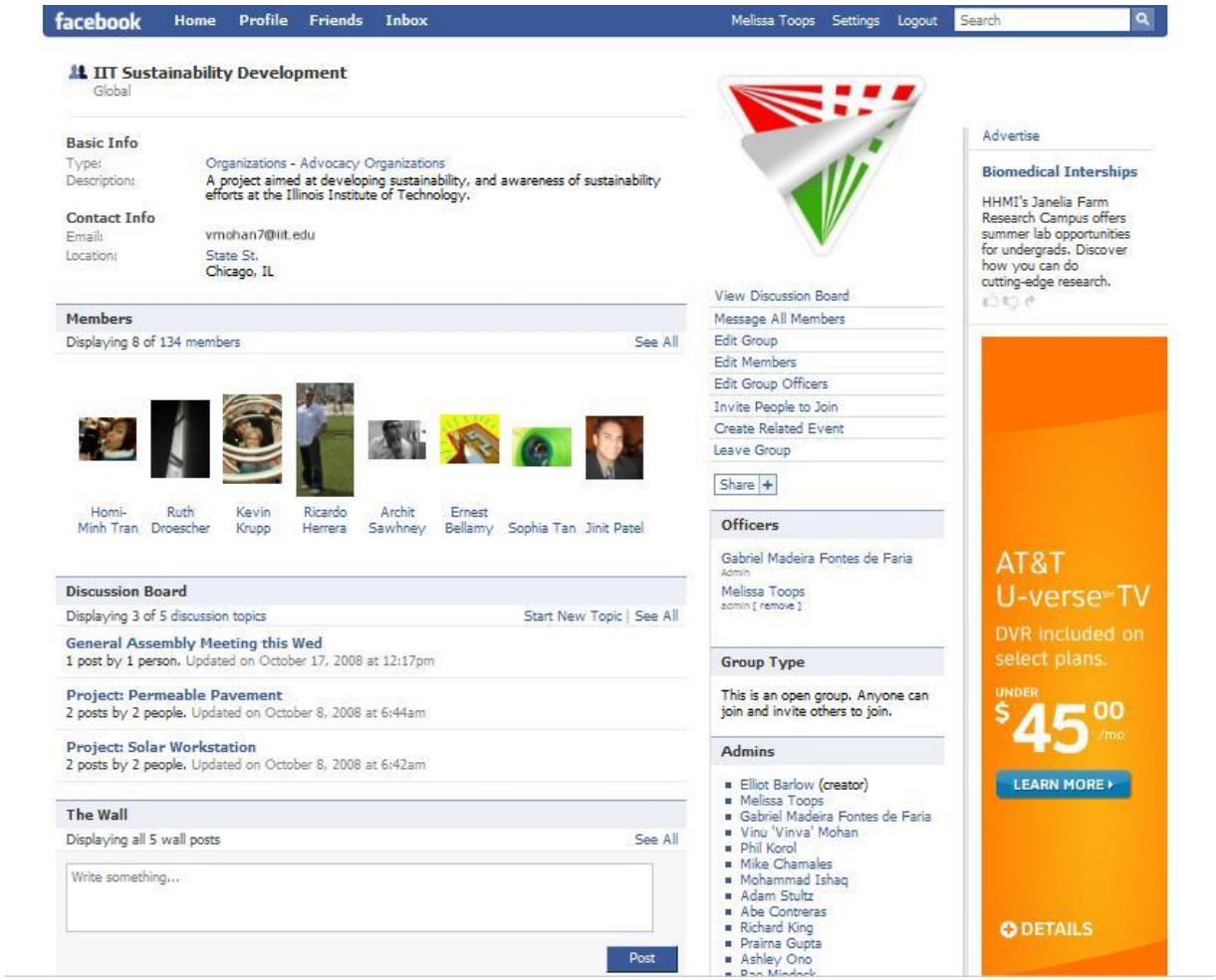
Winner Yeojin Jeon



SUSTAINABILITY LECTURE

- **Focused on sustainability as seen by different areas of expertise.**
- **3 speakers from different fields of study.**
- **70+ student/ faculty/staff turnout.**

AWARENESS STRATEGY



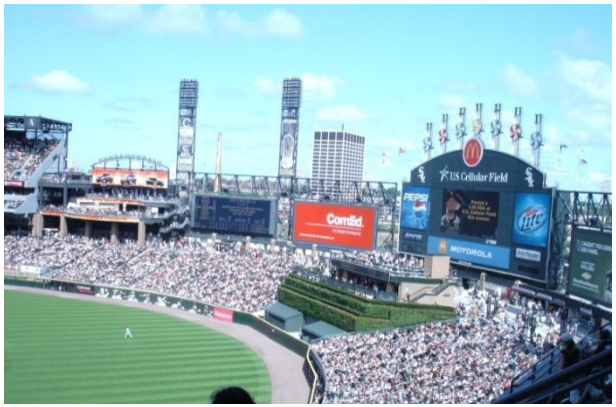
Facebook group:

- 134 members
- Used to publicize events
- Space for students to express their opinion

IIT SMOKESTACK

Currently:

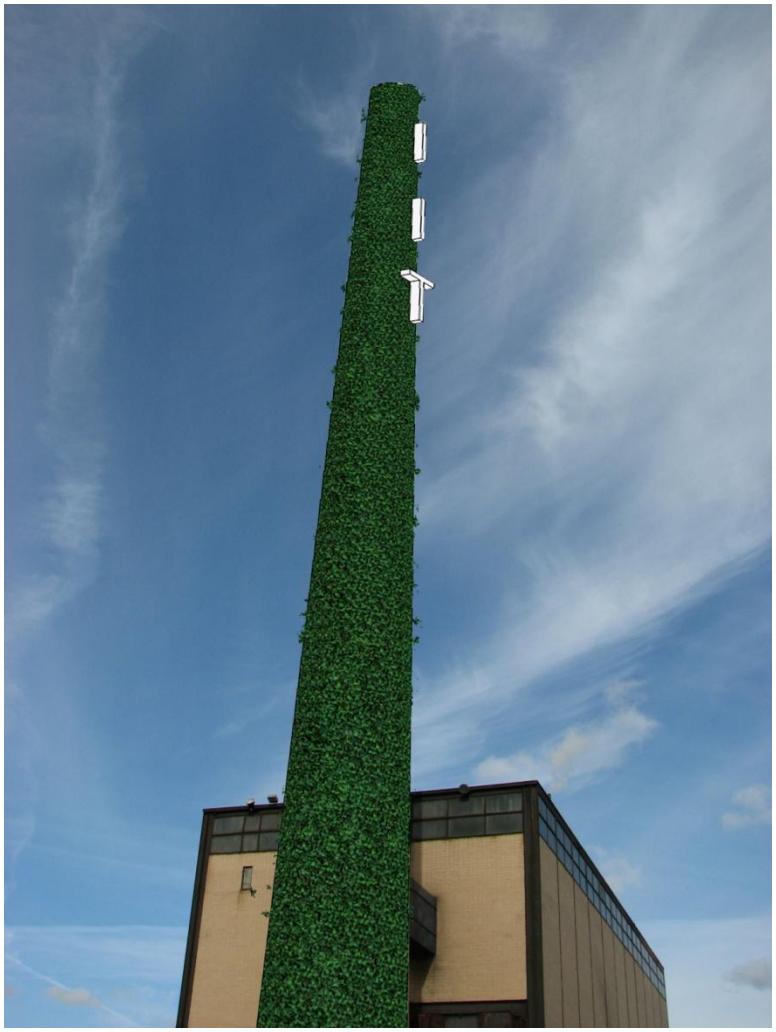
- No longer used to expel smoke
- Continues to give IIT a bad image
- Second tallest structure on campus
- Potential for green marketing sign



IIT SMOKESTACK

Proposal:

- Plant ivy to cover smokestack
- Glow-in-the-dark IIT letters



DAN RYAN EMBANKMENT

Currently:

- Visible from Red Line and Dan Ryan Expressway
- Not being used to its potential

DAN RYAN EMBANKMENT

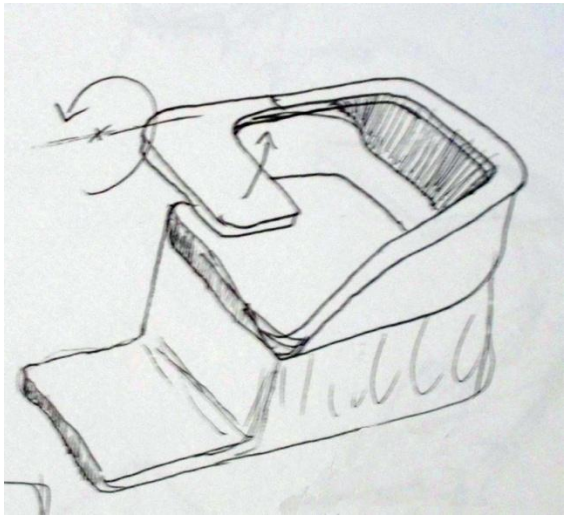
Proposal:

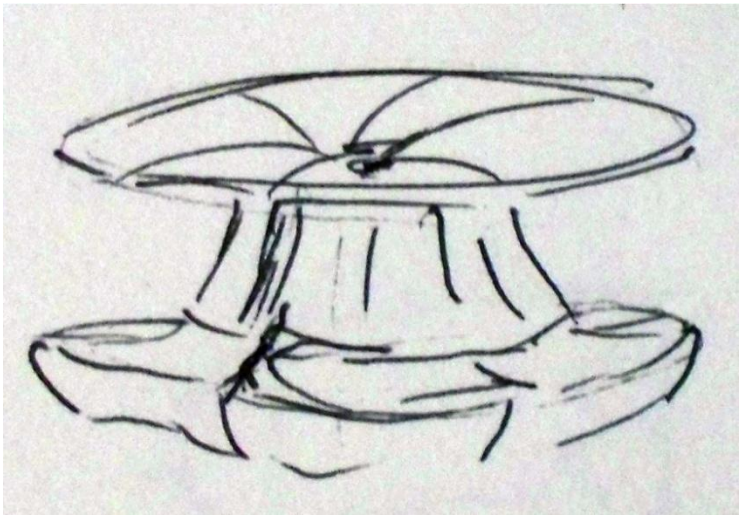
- IIT sign
- Landscaping of the embankment
- Flag on Main Building
- Solar-powered lighting

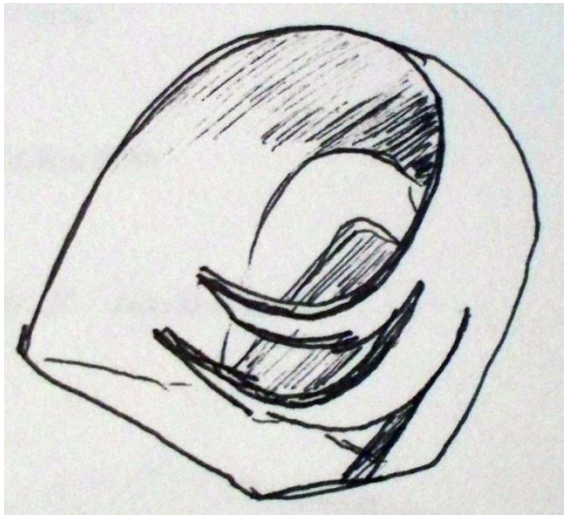
Solar Workstation Group

Members: Milanko Milesic (Leader), Sacha Roubeni,
Noravidhya Tanapura and John Kapecki.

DESIGN PROCESS



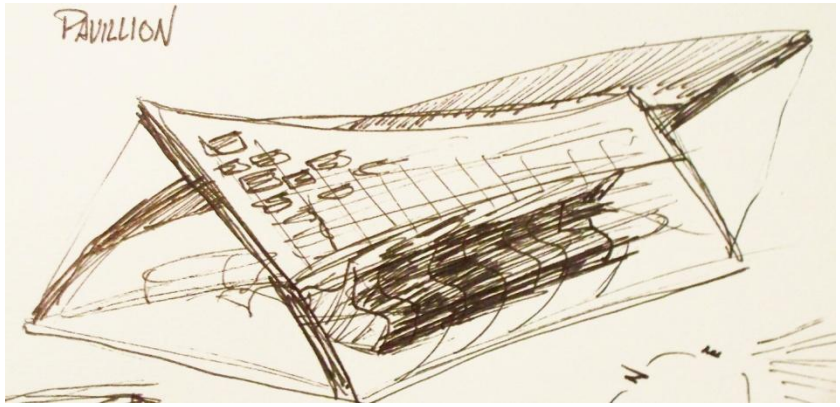


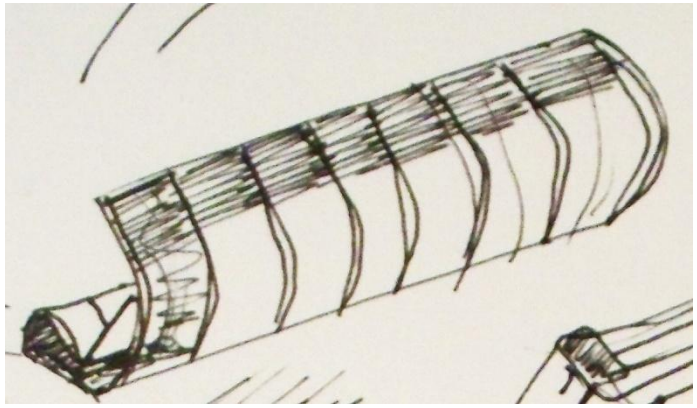


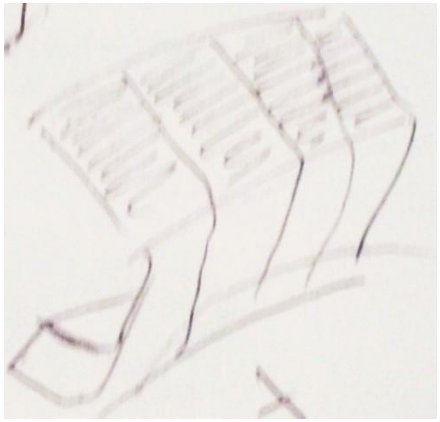
Goals

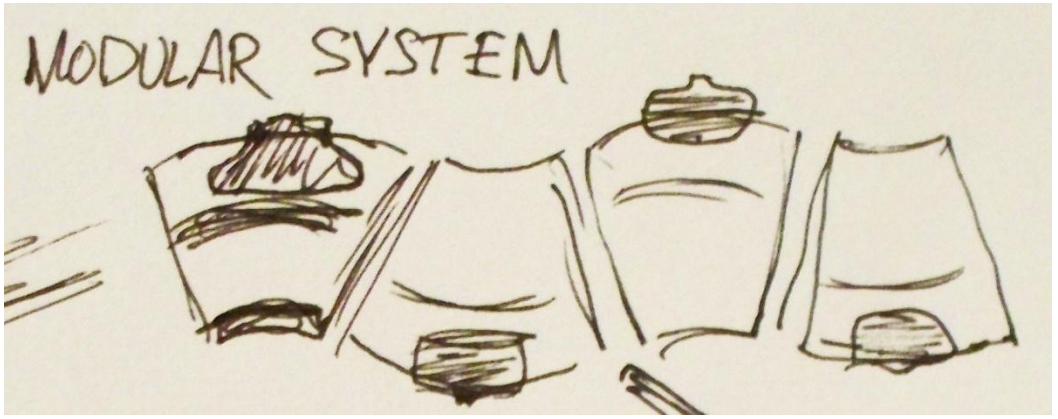
- Functional year-round by using it as a light sculpture at night and during winter
- Sustainability should show in design through use of light, recyclable materials
- Mobile and modular design, where each workstation is made for one person's use, but can be connected to others to form a bigger unit
- Marketability to other educational institutions
- All components part of a unified design

DESIGN PROCESS





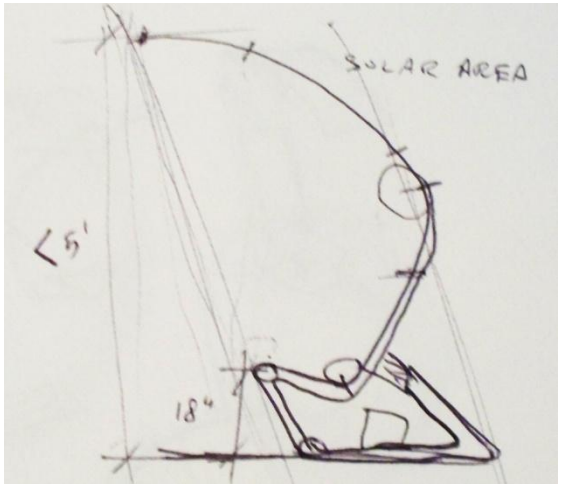


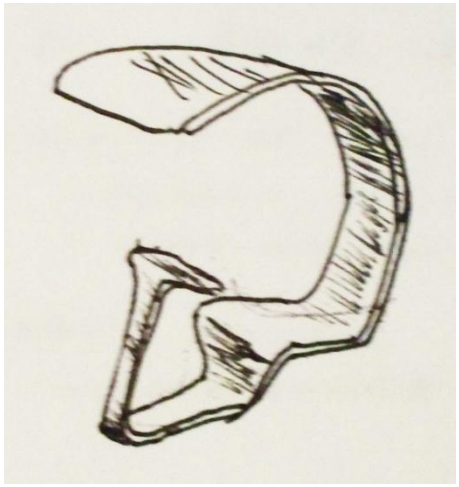


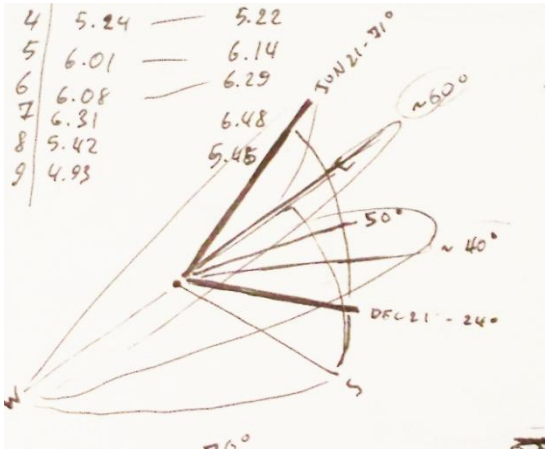
Modular Design

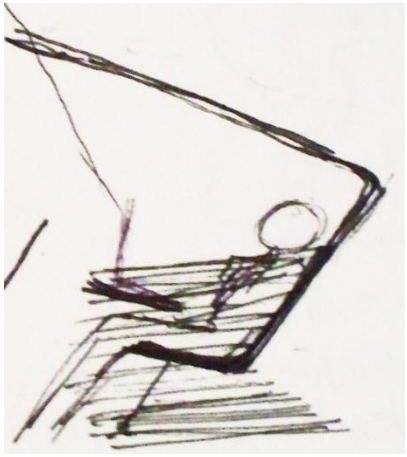
A multi-seat pavilion design was considered but was dropped in favor of a more practical modular design

DESIGN PROCESS









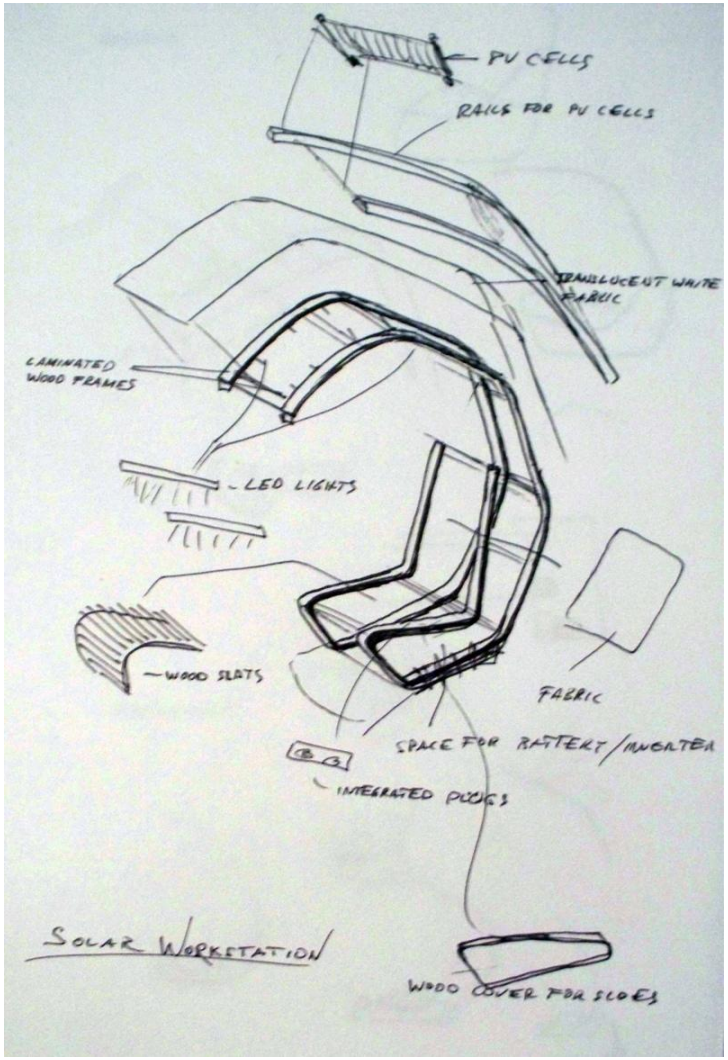
Form and Material

The form is derived from optimum solar angles for summer and winter conditions and ergonomic dimensions for user comfort

The materials of choice are wood for the structure and seating surface, and a waterproof, translucent fabric for the skin

All components are part of a fluid form that forms a connection between the sun and the user

REALIZATION



Form and Material

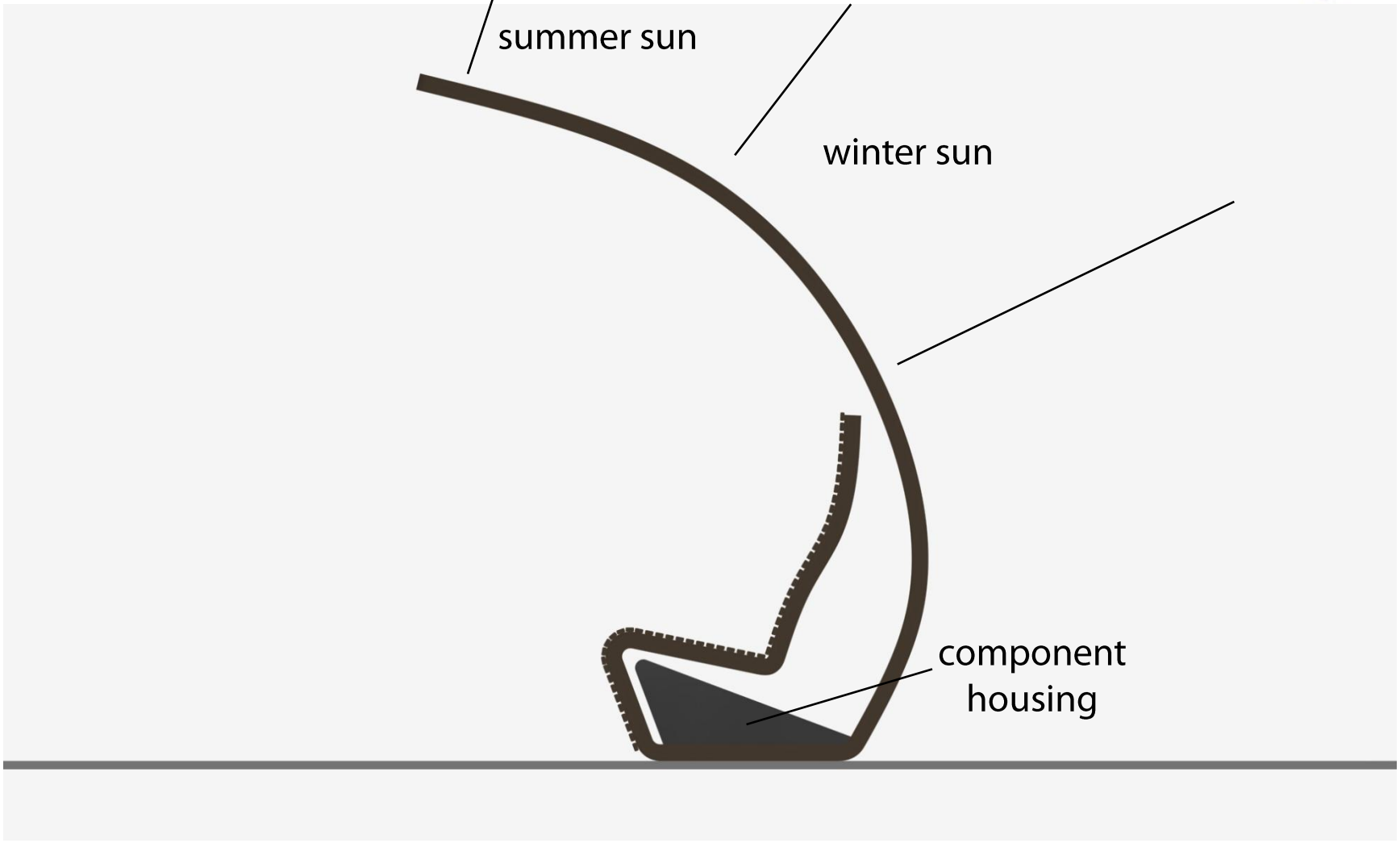
Obstacle - realization of design within budget restrictions

Solution - organize all components around a bent laminated wood frame to create one assembly to minimize cost associated with having separate assemblies for each component

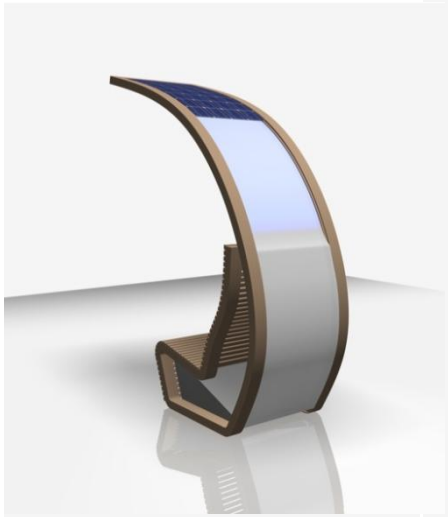
Most of the materials will have to be obtained from scraps to reduce overall cost

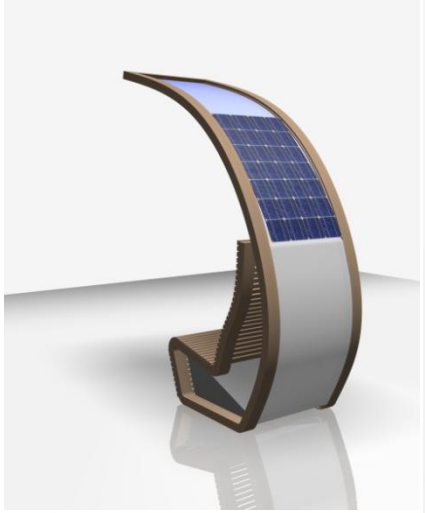
The upside - sustainable design!

REALIZATION



REALIZATION





BUILDING PROCESS

Creating the mold

The building process could be broken into two stages, fabrication of the mold and the building process of the chair.

The mold - was created two 4'x8' pieces of 5/8" thickness ply wood sheathing.

Between the layers of wood sheathing were 2"x 4" ply woods.

The two pieces of 4'x8' ply wood was then CNC to the shape of the chair that we had designed.

After that a piece of 2"x4" ply wood was inserted between the cut out where it creates the mold.

BUILDING PROCESS

Building the chair

Ash was then cut down to 1/16" strips.

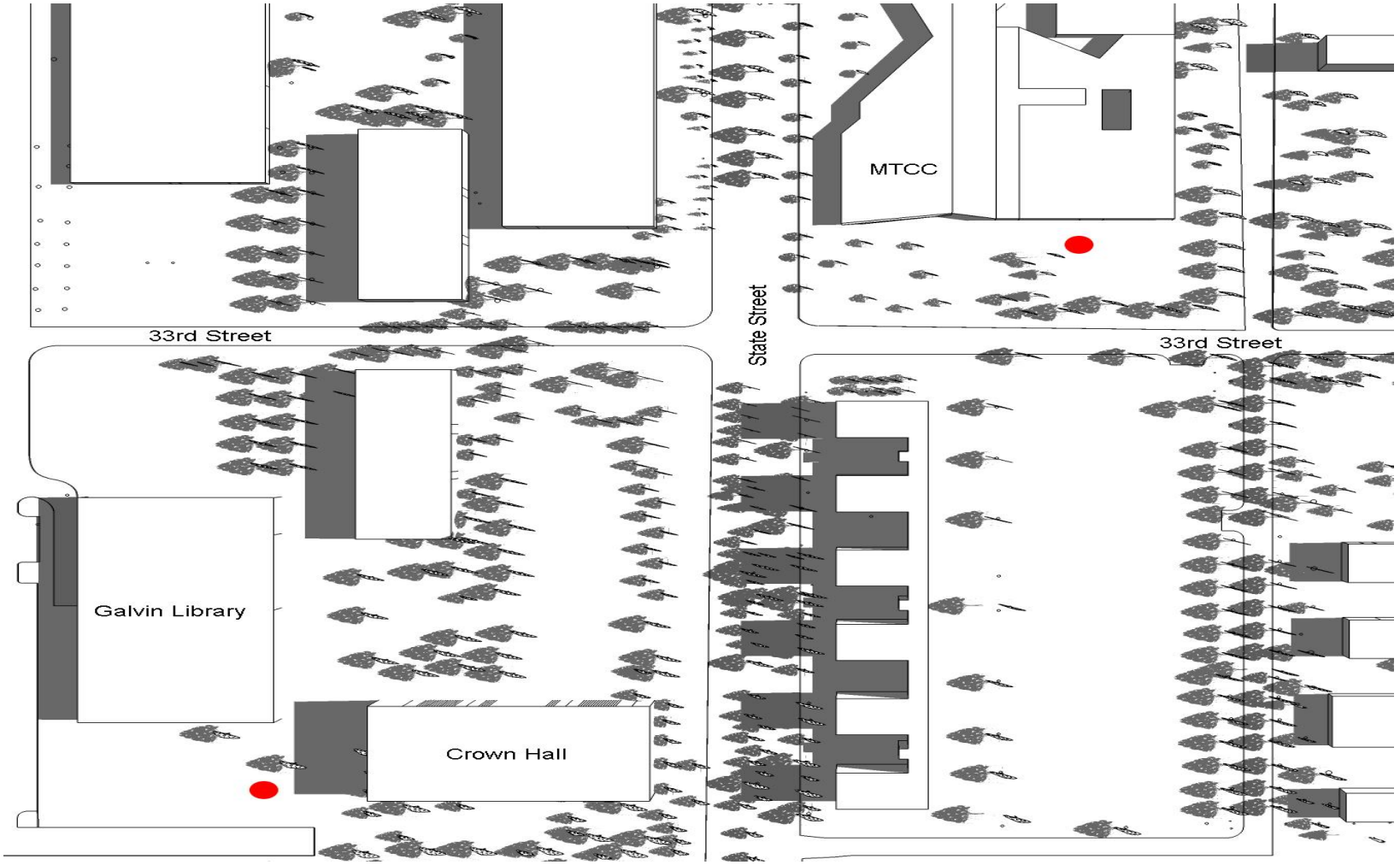
32 strips of 1/16" wood was then laminated together using the mold to acquire our desired shape.

1/16" strips was only used for where tight radiuses were needed.

The canopy was made of 1/8" strips laminated together.

All the strips were then inserted in to the mold where we steam to bend it in to shape, then glued to hold the shape.

PLACEMENT ON CAMPUS



ESTIMATED COST

MATERIAL	QUANT.	PRICE	TOTAL
Lumber Ash	56	$3.26	$182.56
Uni-Solar - Solar Laminate PVL-Series	1	$588.00	$588.00
CANVAS FOR SKIN	1	$0.00	$0.00
12 Ounce Exterior Wood Glue (Elmers)	5	$5.79	$28.95
Sunforce 7 Amp Charge Controller	1	$25.00	$25.00
Vector VEC024BCA 400-Watt Inverter	1	$36.97	$36.97
Deka Solar Batteries	1	$250.00	$250.00
Other (Screws, nails etc.)			$20.00
TOTAL COST			**$1,131.48**

Future Improvements & Developments

- Better construction method than we have now.
- Better materials, such as aluminum.
- Make solar workstation cheaper, which could be possible due to better and cheaper material.

Facilities Improvement Group

Members: Michael Chamales (Leader), Hyeran Um,
Shawn Block and Justin Ma.

PERMEABLE PAVEMENT

- Proposed Plans:
  - Pave lot south of Vander Cook with permeable asphalt
    - Cost: $6900 (not including installation)
  - Pave lot west of Vander Cook with permeable concrete; Filtercrete
    - Cost: $84,000 (including installation)
  - Pave worn in footpath west of E1with Filtercrete
    - Cost: $15,000 (including installation)
- Experimental phase to test viability of permeable pavement on campus
- Promote sustainability
- Help drain rainwater back into the ground; prevent standing puddles and runoff

Filtercrete Rendering at E1

RAIN/FREEZE SPRINKLER SENSOR

- Rain / Freeze sensor wirelessly alerts timer to shut off during rainfall or during cold temperatures
- Use one sensor per timer (7 timers on Campus); Cost: $26.50 ea.
- Potable water demand is reduced
- Adjustable settings for rainfall trigger from 1/8-inch to 1 inch

Mount the transmitter in the highest possible position where rain can fall directly upon the rain sensor.

The position of the transmitter can affect on the reset rate of the sprinklers.

If placed in a sunny location the sensor will dry out faster allowing the sprinklers to run more frequently.

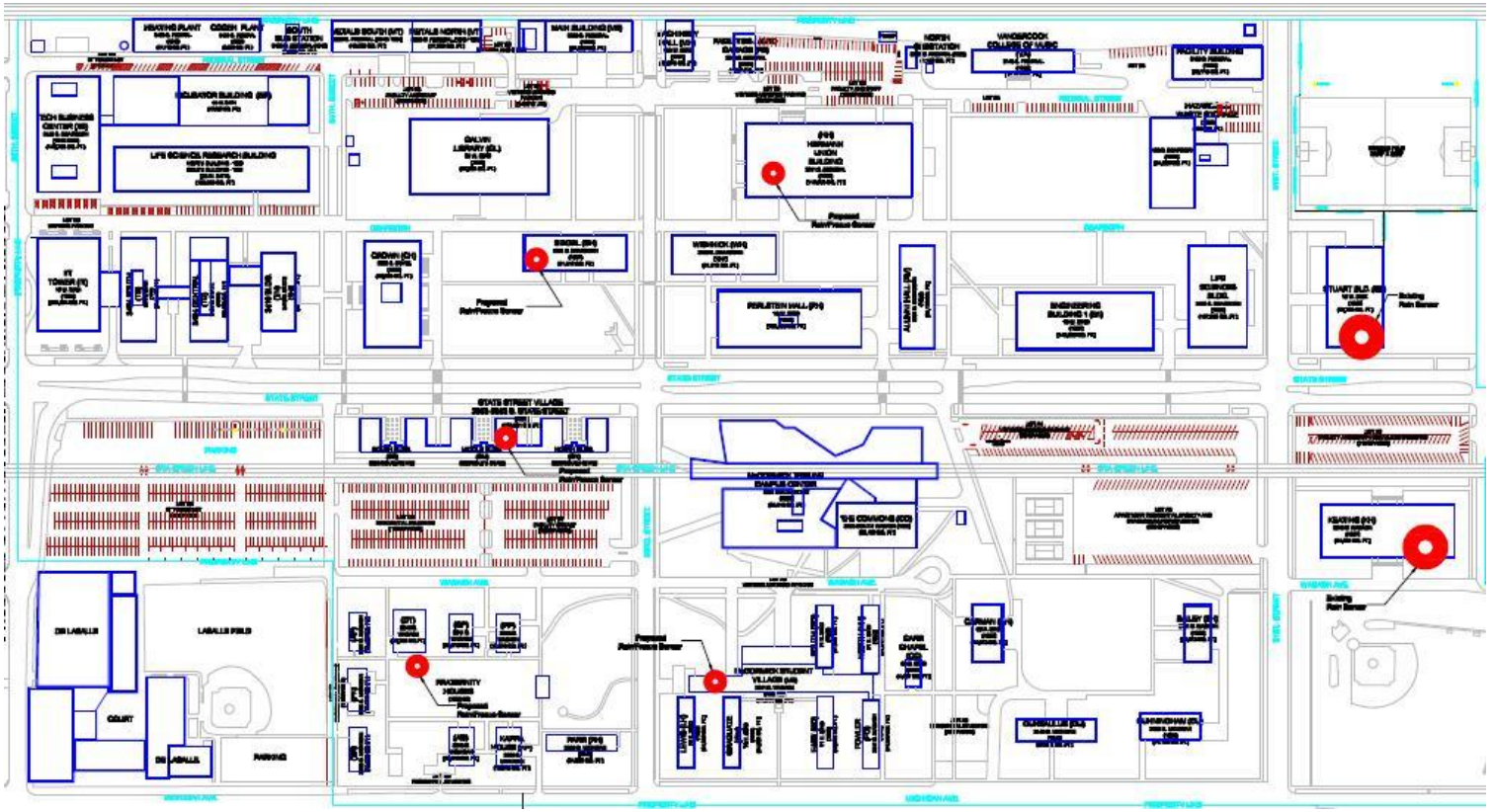
RAIN/FREEZE SPRINKLER SENSOR

Proposed Rain/Freeze Sensors

- Hermann Union Building
- Siegal Hall
- State Street Village
- The Quad
- McCormick Student Village

Existing Rain Sensors

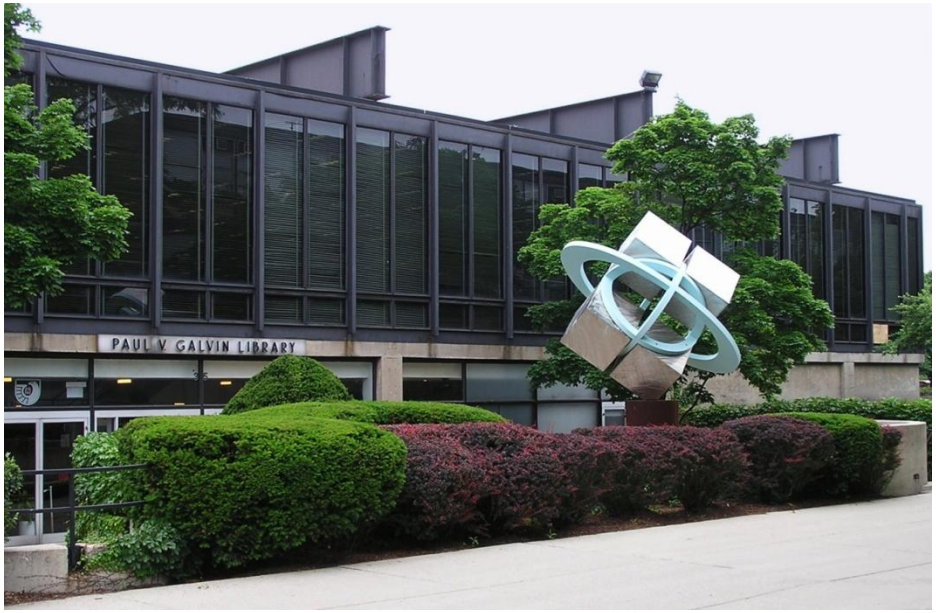
- Stuart Building
- Keating Hall



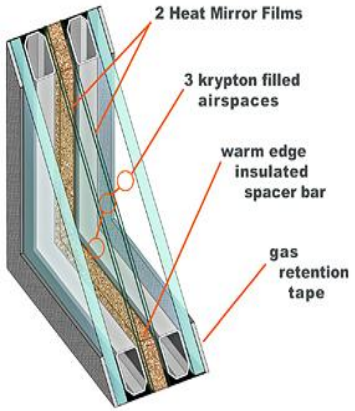
Proposed Locations on Campus

WINDOW REPLACEMENT

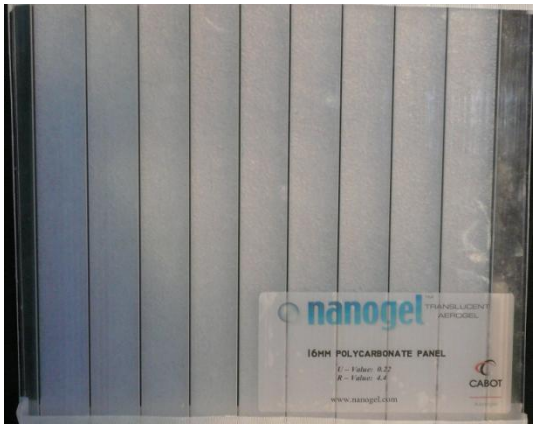
- Many windows in campus buildings are single pane
- Increase building efficiency through insulation and save money; heating and cooling
- Use argon filled double glazed glass in buildings like Galvin Library
  - R value of 4.7 per in.
  - Pella Thermastar 20 series
  - Low E coating
  - ¾" thick
  - Cost for Galvin: $450,000 (not including installation)
  - Estimated cost savings: $41,200 per year



Pella COMMERCIAL



WINDOW REPLACEMENT



- Use of Aerogel windows in translucent applications like Keating Hall
  - R value is over 8 per in.
  - 73% transmission of light
  - Super Sky Edge w/ Nanogel
  - Nanogel produced by Cabot Aerogel
  - Reduction in noise transmission
  - UV protection
  - 25mm thick
  - 5X more insulating than standard insulated glass
  - Estimated cost savings: $50,700 per year

GREEN WALL

Purpose

-Energy efficiency by shading west wall of E1 building.

- Sustainability: Promotes environmental awareness and clean air

-Beautify Campus

Proposal

- Design Green Wall structure – Free standing

- Ambient lighting : Using LED strips

GREEN WALL

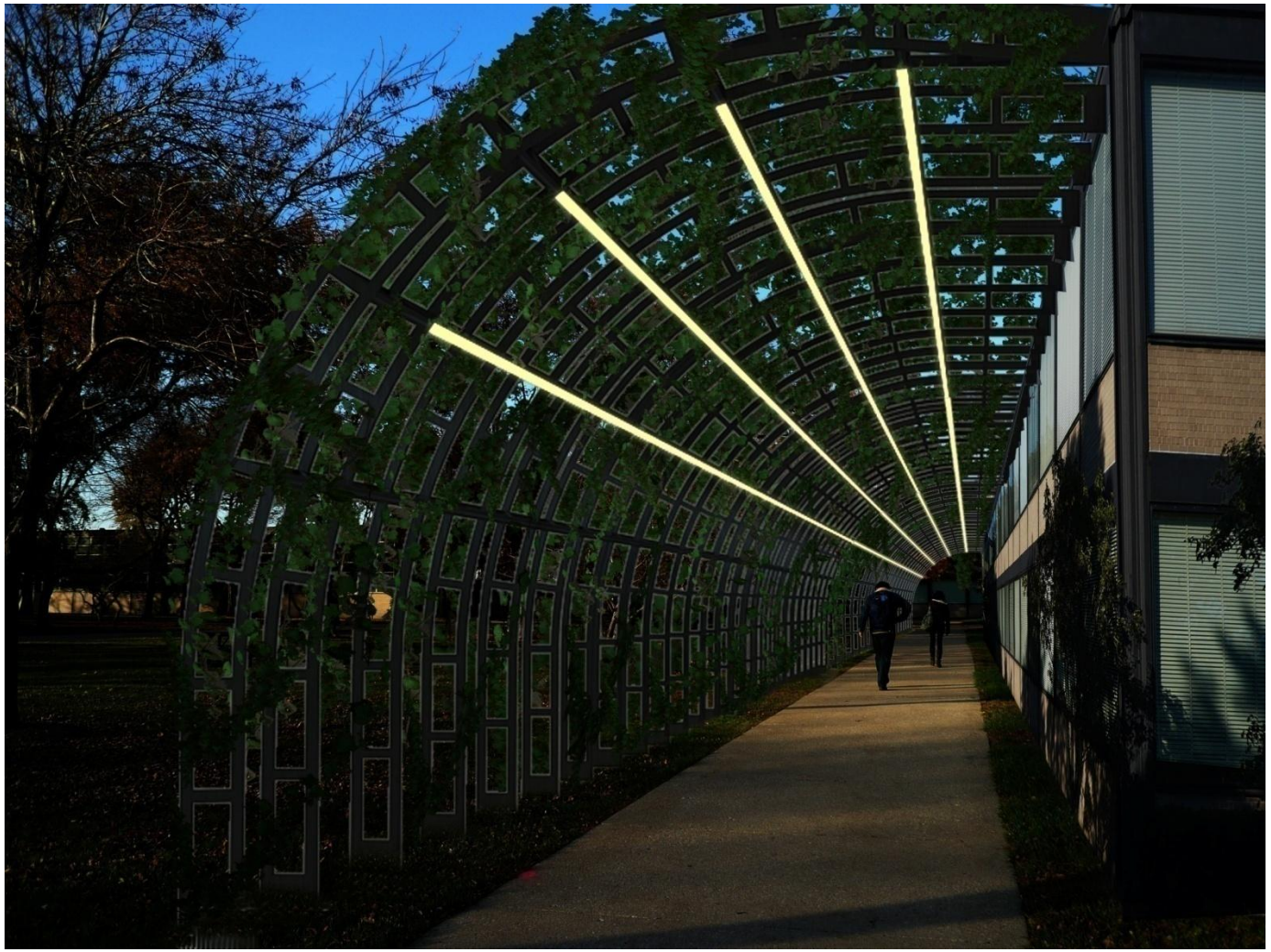
Advantages

- E1 BLDG walls cooler during direct summer sunlight
- An effect to clean air
- A canopy shape extends over the sidewalk so passer-by can walk through it
- Helping IIT project its image of Sustainability
- After dark, LED strips will illuminate the side walk under the green wall: safety and aesthetics
- Solar panels mounted on the green wall itself
- Beautify the campus

GREEN WALL

Day time rendering

GREEN WALL



Night time rendering

ACKNOWLEDGEMENTS

- Prof. Nancy Hamill
- Rae Mindock
- Mindy Sherman
- Susan Ask
- George Nassos

QUESTIONS / COMMENTS