

LESLIE ROSAS

ARCH 3630

FEB. 26, 2014

ASSIGNMENTS 7

PINUP OF ASSIGNMENTS 1-7

ASSIGNMENT 1 AND 2

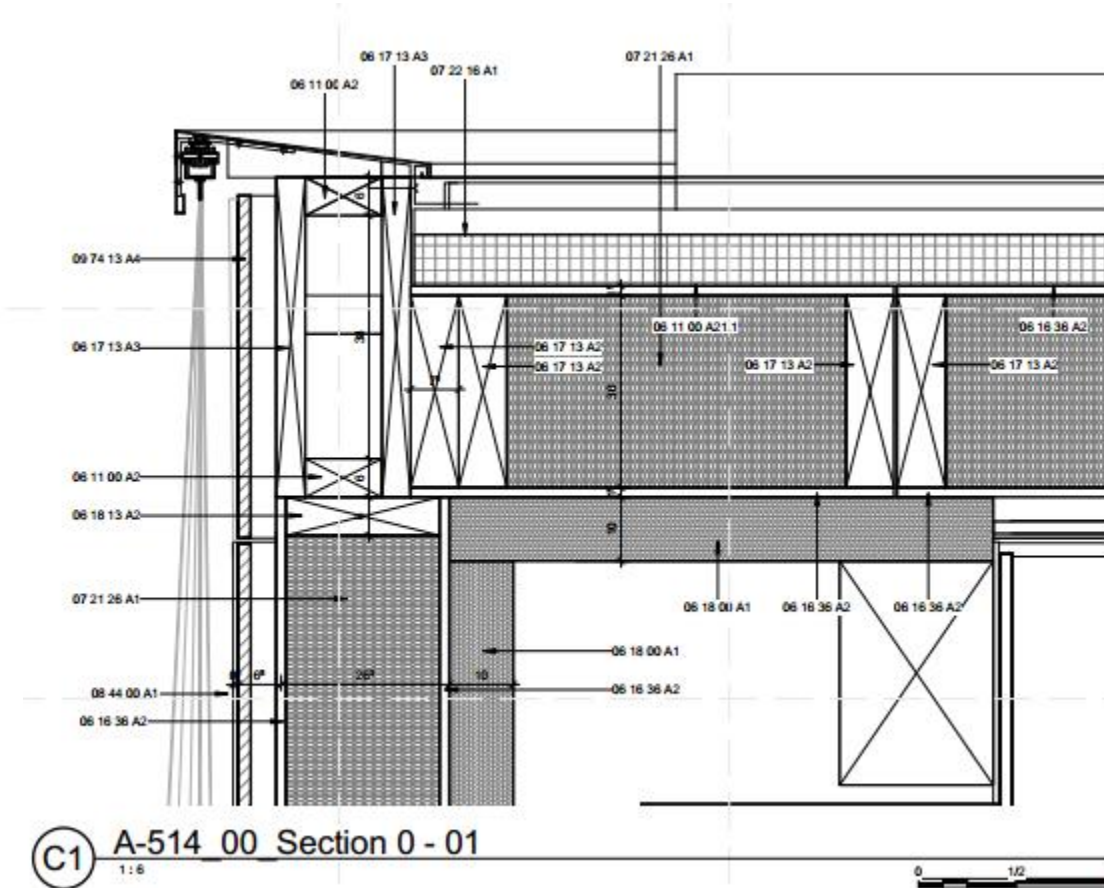
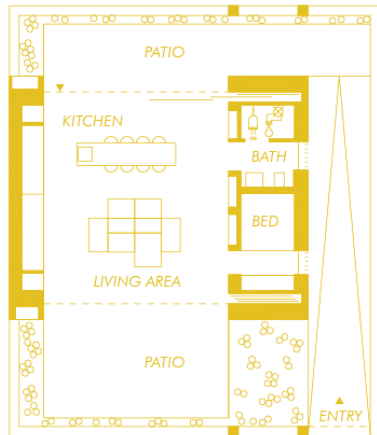
#1 Team Austria



Scores by Team
Team Austria: Vienna University of Technology
 Vienna University of Technology current scores in the U.S. Department

Contest	Rank	Score
Architecture	4	91.000
Market Appeal	2	93.000
Engineering	T3	93.000
Communications	1	94.000
Affordability	14	93.007
Comfort Zone	12	93.172
Hot Water	T1	100.000
Appliances	6	98.971
Home Entertainment	4	98.272
Energy Balance	T1	100.000

100 points possible per contest



REFERENCE KEYNOTES

03 54 00 A1	CAST UNDERLAYMENT WITH EMBEDDED HEATING SYSTEM: 50MM/1.97IN
06 11 00 A1	FINGER-JOINTED SOLID CONSTRUCTION TIMBER: 120X100MM/4.72x3.93IN
06 11 00 A2	FINGER-JOINTED SOLID CONSTRUCTION TIMBER: 120X60MM/4.72x2.36IN
06 11 00 A5.1	FINGER-JOINTED SOLID CONSTRUCTION TIMBER: 130X60MM/5.11x2.36IN
06 11 00 A8	FINGER-JOINTED SOLID CONSTRUCTION TIMBER: 180X100MM/7.08x3.93IN
06 11 00 A8.1	FINGER-JOINTED SOLID CONSTRUCTION TIMBER: 170X100MM/6.69x3.93IN
06 11 00 A12	FINGER-JOINTED SOLID CONSTRUCTION TIMBER: 240X140MM/9.44x5.51IN
06 11 00 A13	FINGER-JOINTED SOLID CONSTRUCTION TIMBER: 240X100MM/9.44x3.93IN
06 11 00 A15	FINGER-JOINTED SOLID CONSTRUCTION TIMBER: 280X120MM/11.02x4.72IN
06 11 00 A21.1	WOOD BOARD SHEATHING: 25MM/0.98IN
06 16 33 A1	ORIENTED STRAND BOARD: 15MM/0.59in
06 16 36 A1	ORIENTED STRAND BOARD: 22MM/0.86IN
06 17 13 A2	LAMINATED VENEER LUMBER BEAM: 300x75MM/11.81x2.95IN
06 17 13 A3	LAMINATED VENEER LUMBER BEAM: 200x75MM/7.87x2.95IN
06 17 13 A6.1	LAMINATED VENEER LUMBER BEAM: 300x90MM/11.81x3.54IN
06 18 00 A1	CROSS-LAMINATED TIMBER BOARD: 100MM/3.93IN
06 18 13 A1	GLUED-LAMINATED BEAM: 270x200MM/10.62x7.87IN
06 18 13 A2	GLUED-LAMINATED BEAM: 350x240MM/13.77x9.44IN
07 21 13 13 A2	FOAM BOARD INSULATION: 60MM/2.36IN
07 21 26 A1	BLOWN INSULATION CELLULOSE
07 22 16 A1	ROOF WOOD SOFTBOARD SLOPE INSULATION 120-43MM/4.72-1.69IN
08 44 00 A1	TEXTILE CURTAIN WALL
09 64 33 A1	WOOD FLOOR INTERIOR: 21MM/0.82IN
09 74 13 A4	WOOD WALL COVERINGS: 19MM/0.75IN

What I like about this project is how the team came up with a very open floor plan which is hard to do when trying to design a sustainable house.

#2 Team Alberta



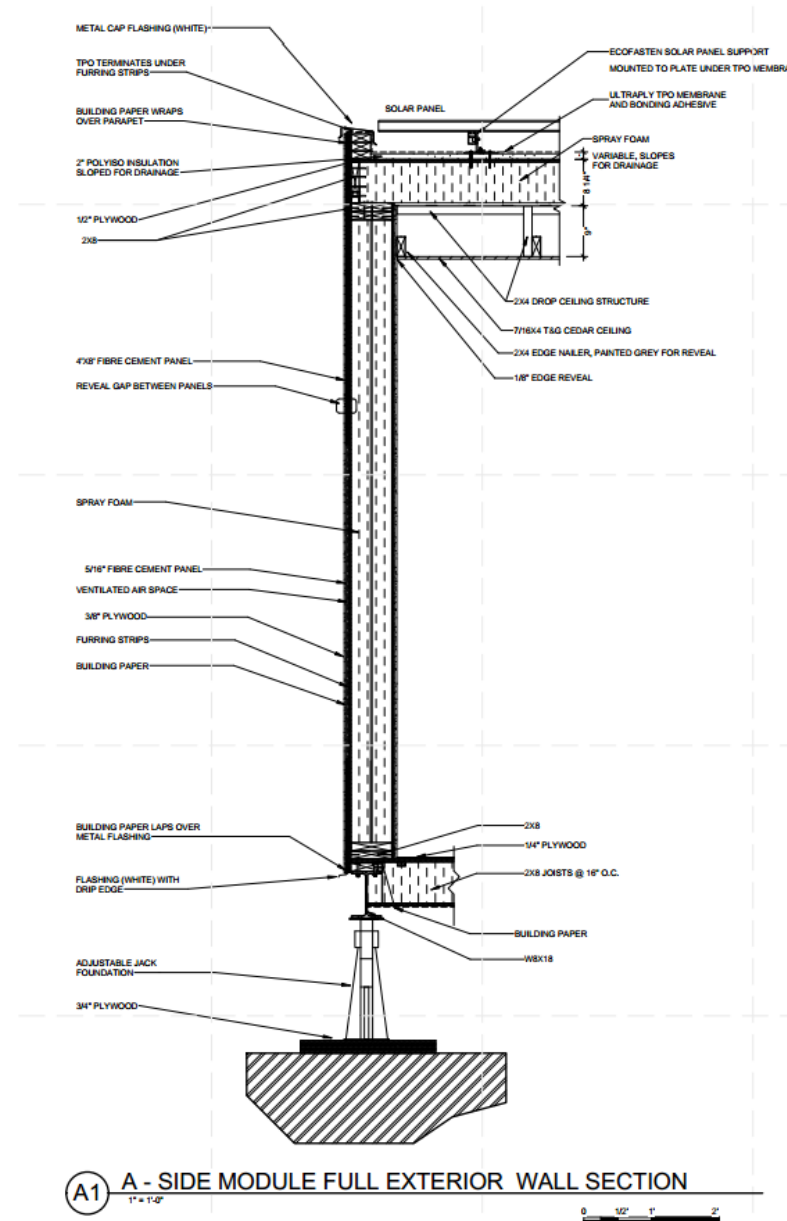
Scores by Team

Team Alberta: University of Calgary

University of Calgary current scores in the U.S. Department of Energy

Contest	Rank	Score
Architecture	T7	75.000
Market Appeal	T4	91.000
Engineering	T6	86.000
Communications	T12	76.000
Affordability	4	97.955
Comfort Zone	5	97.780
Hot Water	T1	100.000
Appliances	8	98.756
Home Entertainment	8	97.833
Energy Balance	T1	100.000

100 points possible per contest



#3 Team Czech Republic

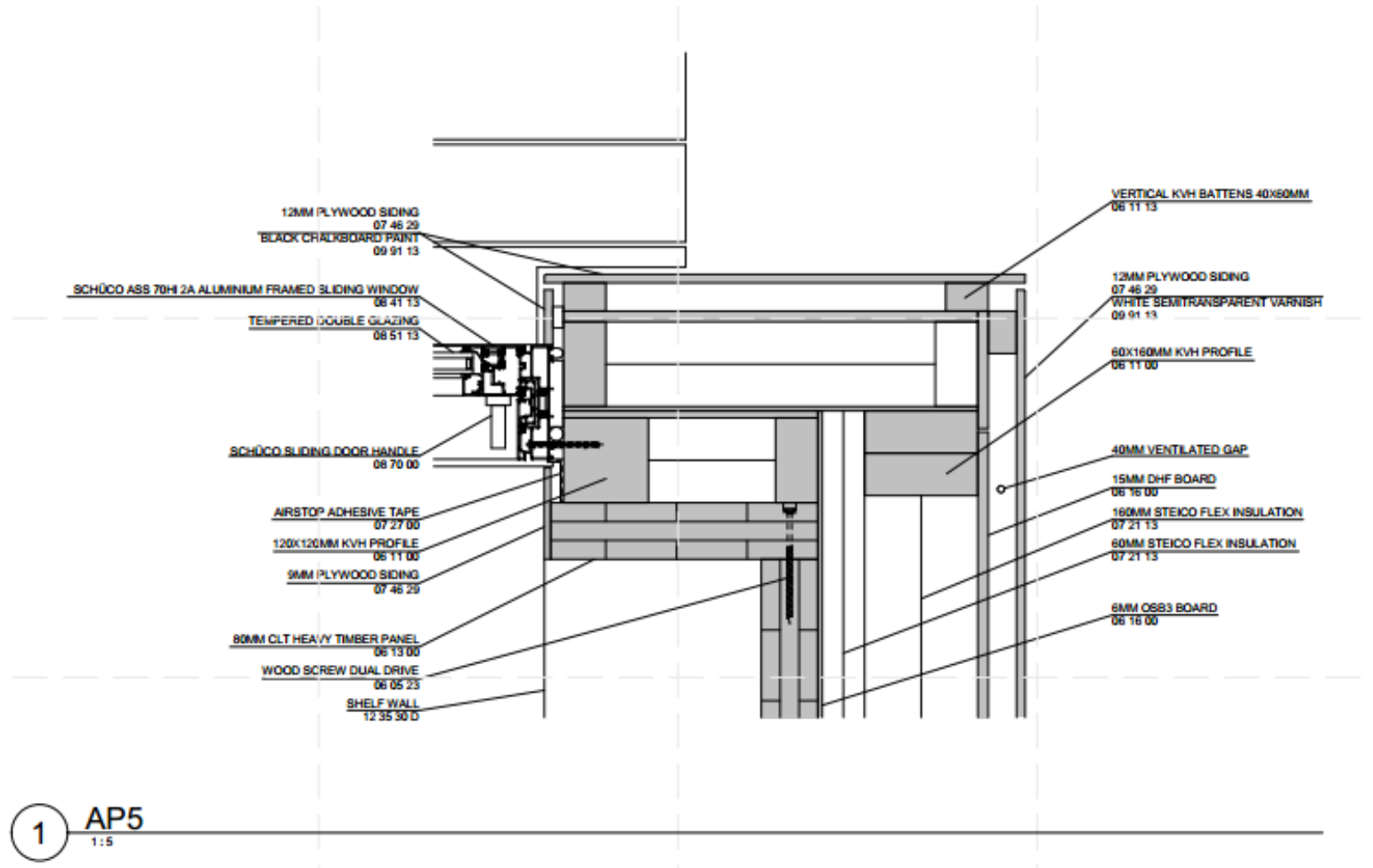


Scores by Team

Czech Republic: Czech Technical University
Czech Technical University current scores in the U.S. Department of

Contest	Rank	Score
Architecture	1	98.000
Market Appeal	T3	92.000
Engineering	2	94.000
Communications	7	85.000
Affordability	15	92.677
Comfort Zone	3	98.691
Hot Water	3	98.938
Appliances	7	98.903
Home Entertainment	9	97.433
Energy Balance	T1	100.000

100 points possible per contest



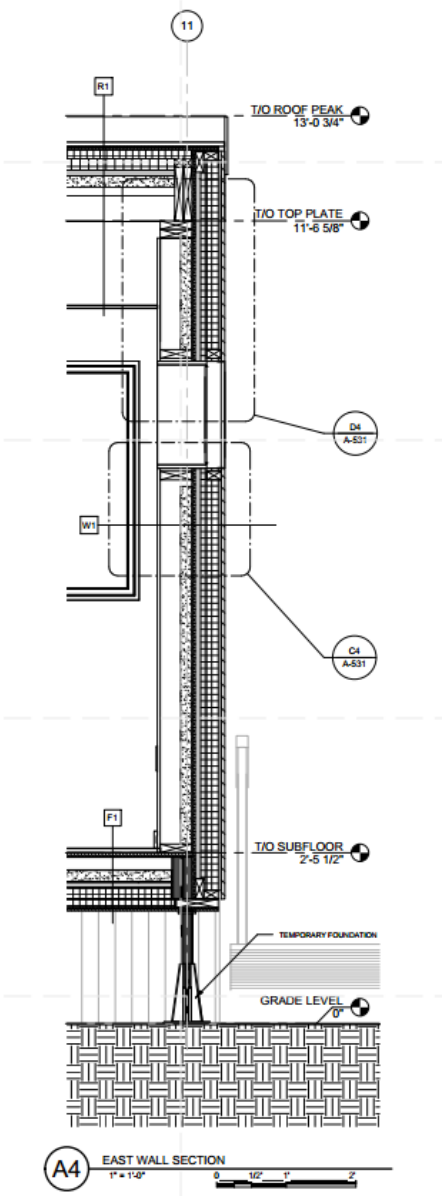
#4 Team Ontario



Scores by Team
Team Ontario: Queen's University, Carleton University, and Algonquin College
Queen's University, Carleton University, and Algonquin College current scores in the U.S. Department of Energy's 2009 Solar Decathlon are shown below.

Contest	Rank	Score
Architecture	T8	70.000
Market Appeal	T4	91.000
Engineering	1	95.000
Communications	8	84.000
Affordability	2	99.242
Comfort Zone	6	97.642
Hot Water	T1	100.000
Appliances	12	95.020
Home Entertainment	6	98.075
Energy Balance	T1	100.000

100 points possible per contest



Leslie Rosas

Arch 3561

Assignment #3

Average Temperature in New York City

New York City has humid hot summers and wet cold winters. The weather can change dramatically in a matter of hours.

Practical seasons

Fall Season September, October, November: These are some of the most pleasant months in New York City. The air is crisp and clear, and the sun shines often.

Winter Season December, January, February: During these months it can get very cold and very windy. Snow and/or sleet can also make walking slippery.

Spring Season March, April, May: These months are often quite pleasant.

Summer Season June, July, August: The summer months can bring stifling heat and humidity to the city. Even at night, temperatures may remain in the 90s.

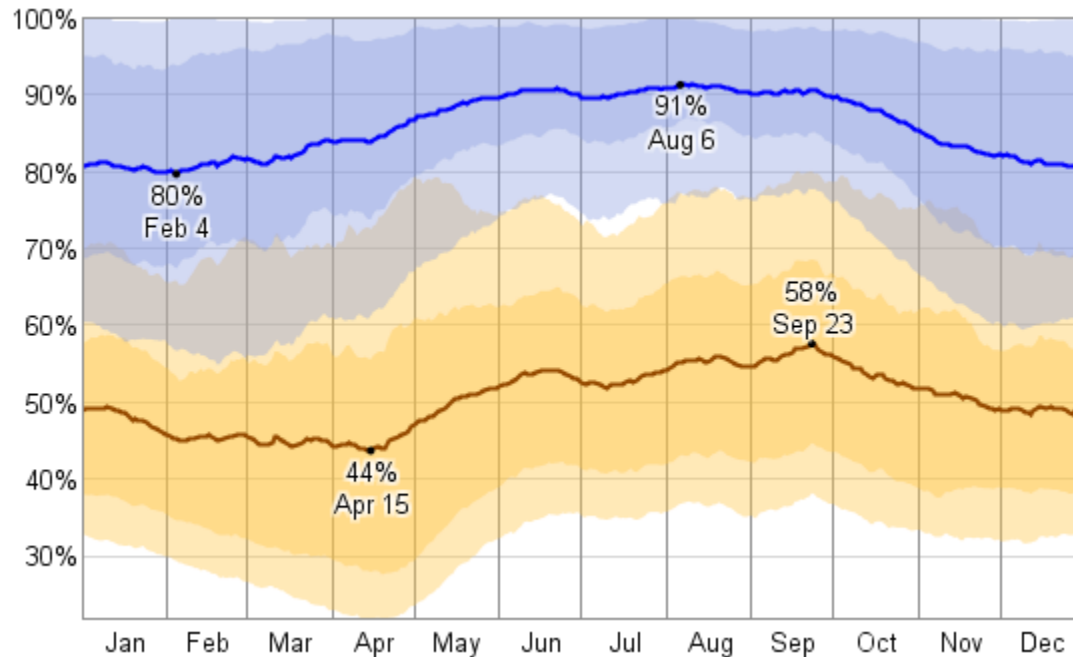
Mean Temperature, Precipitation, Temperature extremes records

Month	Avg. High	Avg. Low	Mean	Avg. Precip.	Record High	Record Low
Jan	38°F	25°F	32°F	3.30 in.	68°F (1967)	-4°F (1985)
Feb	40°F	26°F	34°F	3.20 in.	73°F (1985)	-2°F (1963)
Mar	49°F	34°F	42°F	3.80 in.	83°F (1990)	10°F (1980)
Apr	60°F	43°F	52°F	4.10 in.	89°F (1977)	19°F (1982)
May	70°F	53°F	62°F	4.20 in.	98°F (1969)	36°F (1966)
Jun	79°F	63°F	71°F	3.60 in.	99°F (1964)	46°F (1972)
Jul	84°F	68°F	77°F	4.20 in.	105°F (1966)	54°F (1979)
Aug	83°F	67°F	76°F	4.00 in.	101°F (1975)	50°F (1965)
Sep	76°F	60°F	69°F	4.00 in.	98°F (1983)	41°F (1963)
Oct	65°F	49°F	58°F	3.10 in.	86°F (1990)	30°F (1976)
Nov	54°F	41°F	48°F	4.00 in.	80°F (1974)	17°F (1976)
Dec	42°F	30°F	37°F	3.60 in.	75°F (1998)	-1°F (1980)

Humidity

The relative humidity typically ranges from 44% (comfortable) to 91% (very humid) over the course of the year, rarely dropping below 22% (dry) and reaching as high as 100% (very humid).

The air is *driest* around April 15, at which time the relative humidity drops below 56% (mildly humid) three days out of four; it is *most humid* around August 6, exceeding 87% (very humid) three days out of four.



IECC , ASHRAE climate zone

Climate Zone 4 (Except Marine)	
Ceiling R-value	38
Wood Frame Wall R-value	13
Mass Wall R-value ⁱ	5/10
Floor R-value	19
Basement Wall R-value ^c	10/13
Slab R-value ^d , Depth	10, 2 ft
Crawlspace Wall R-value ^c	10/13
Fenestration U-Factor ^b	0.35
Skylight U-Factor ^b	0.60
Glazed fenestration SHGC ^{b, e}	NR

Heating Degree Days

	HDD	% Estimated
Jan	342	0
Feb	287	0
Mar	239	0
Apr	154	0
May	67	0.02
Jun	32	0
Jul	8	0
Aug	6	0
Sep	13	0
Oct	73	0.03
Nov	168	0
Dec	314	0.02
Total	1703	0.005

Average Temperature in Irvine, CA

Practical seasons

Irvine, CA, gets 13 inches of rain per year. The US average is 37. Snowfall is 0 inches. The average US city gets 25 inches of snow per year. The number of days with any measurable precipitation is 34.

On average, there are 281 sunny days per year in Irvine, CA. The July high is around 84 degrees. The January low is 41. Our comfort index, which is based on humidity during the hot months, is a 53 out of 100, where higher is more comfortable. The US average on the comfort index is 44.

Mean Temperature, Precipitation, Temperature extremes records

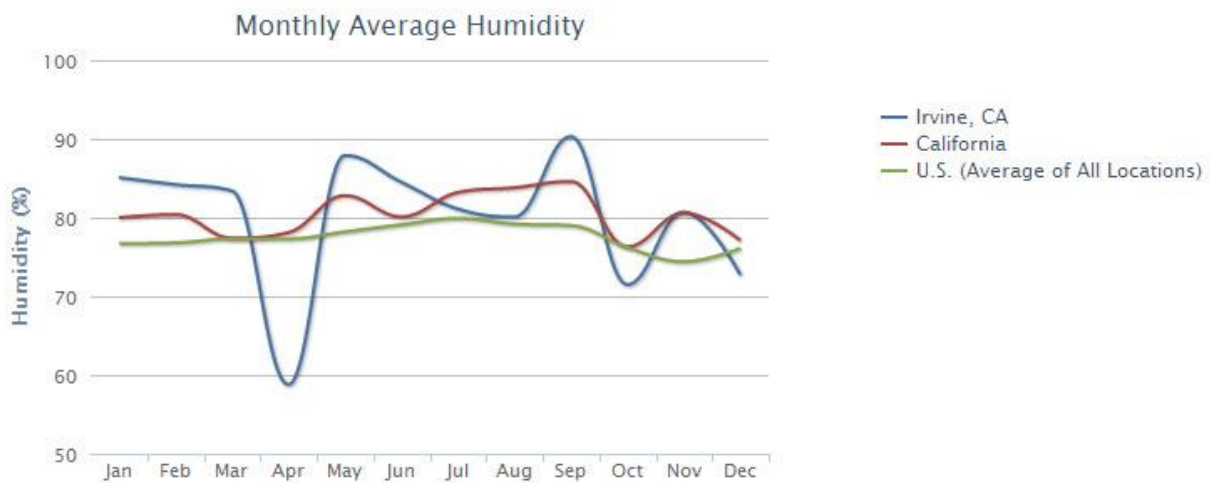




Humidity

Humidity

Annual Average Humidity, #1108

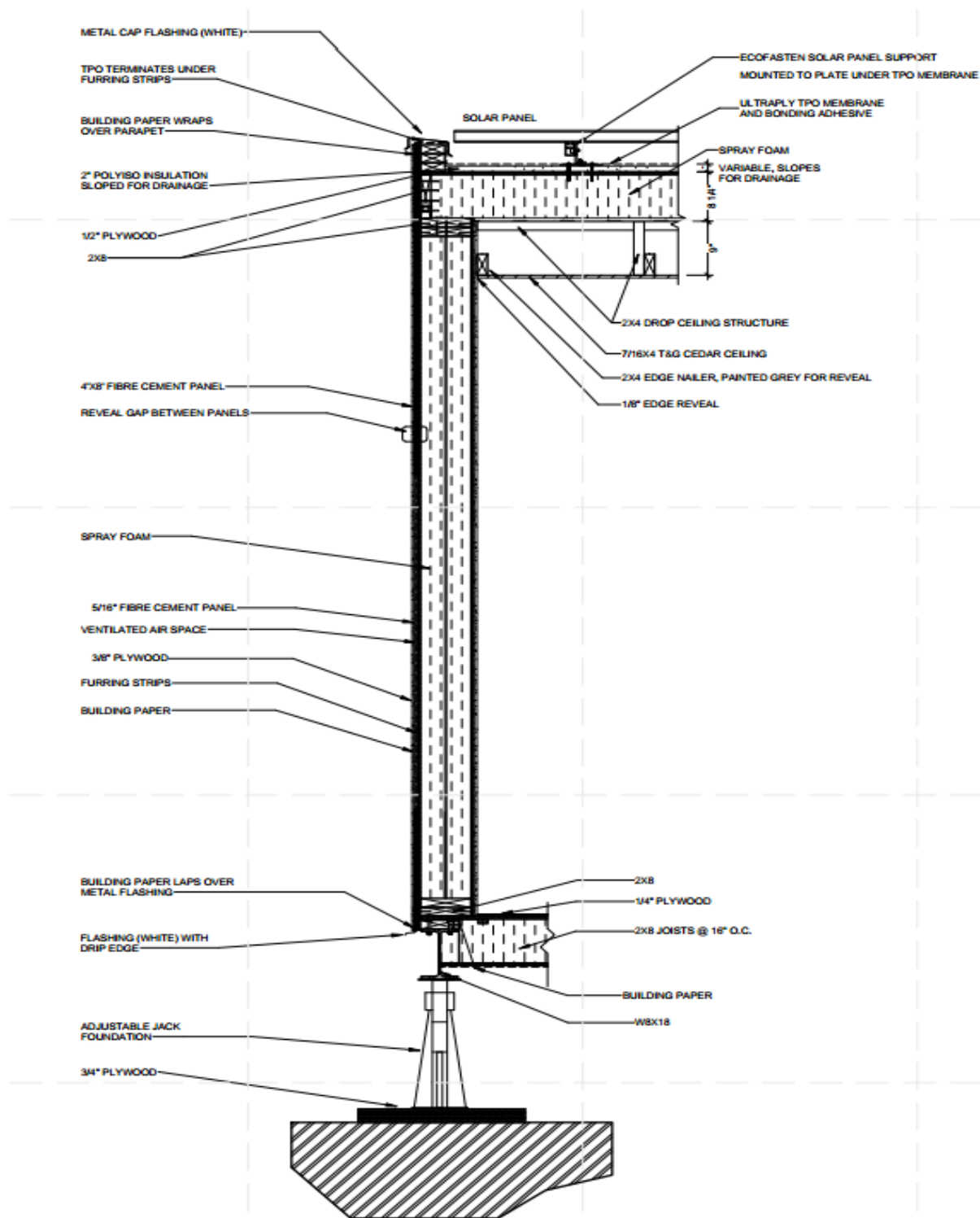


IECC, ASHRAE climate zone

Climate Zone 3	
Ceiling R-value	30
Wood Frame Wall R-value	13
Mass Wall R-value ⁱ	5/8
Floor R-value	19
Basement Wall R-value ^c	5/13 ^f
Slab R-value ^d , Depth	0
Crawlspace Wall R-value ^c	5/13
Fenestration U-Factor ^b	0.50 ^j
Skylight U-Factor ^b	0.65
Glazed fenestration SHGC ^{b, e}	0.30

Heating Degree Days: 1,400

WALL SECTION-Team Alberta



A1 A - SIDE MODULE FULL EXTERIOR WALL SECTION

1" = 1'-0"



Wall strategy:

Rainscreen w furring strips

Wall address:

Durability: Spray foam insulation with 2x4 wood studs and 1/2" plywood sheathing and 1/2" gypsum sheathing.

Air leakage: Continuous insulation

Strategies:

Building Paper

Air space

Spray foam insulation

R-value:

5/16" Hardie fiber cement panel 4'x8' = 0.48

Gypsum wall board sheathing (1/2") = 0.45

Building Paper = 0.06

Plywood furring strips (3/8") = 0.47

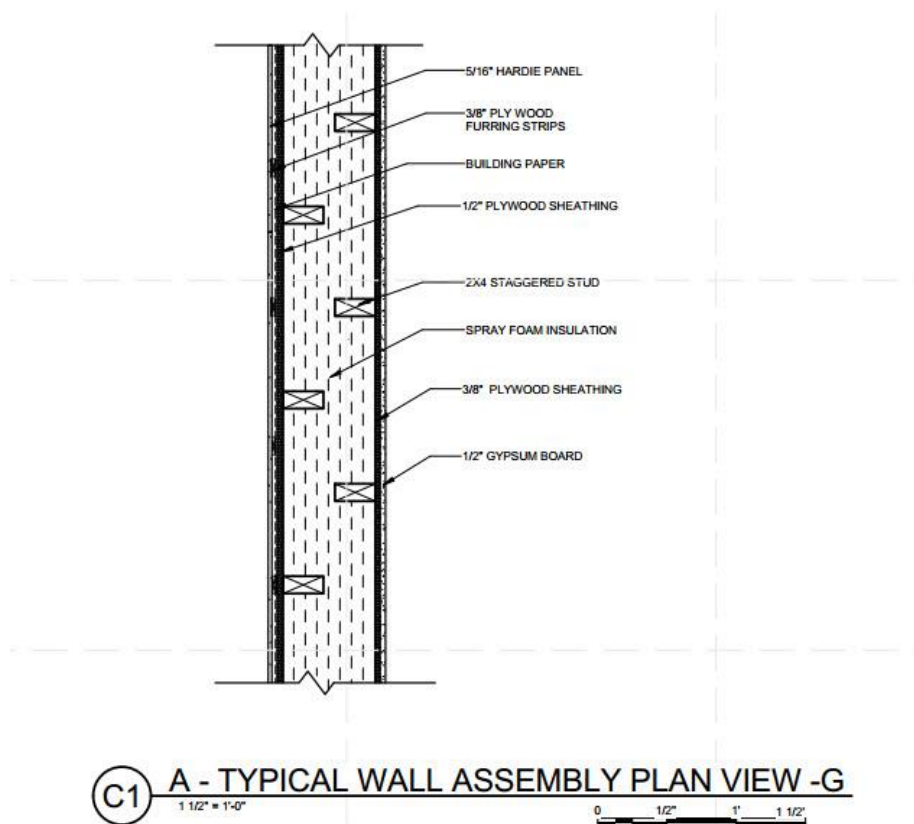
Plywood sheathing (1/2") = 0.62

Spray foam insulation with 2x4 wood studs @ 16o.c. = 6.00

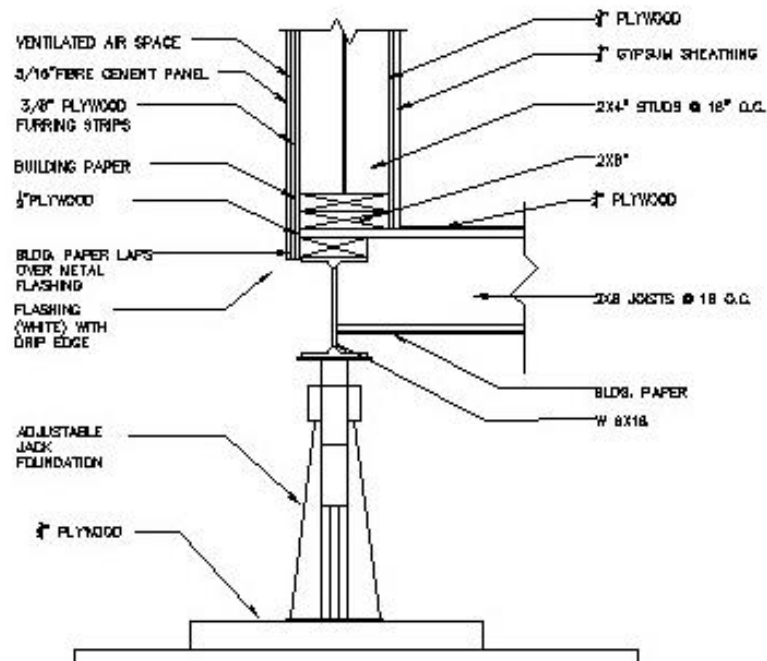
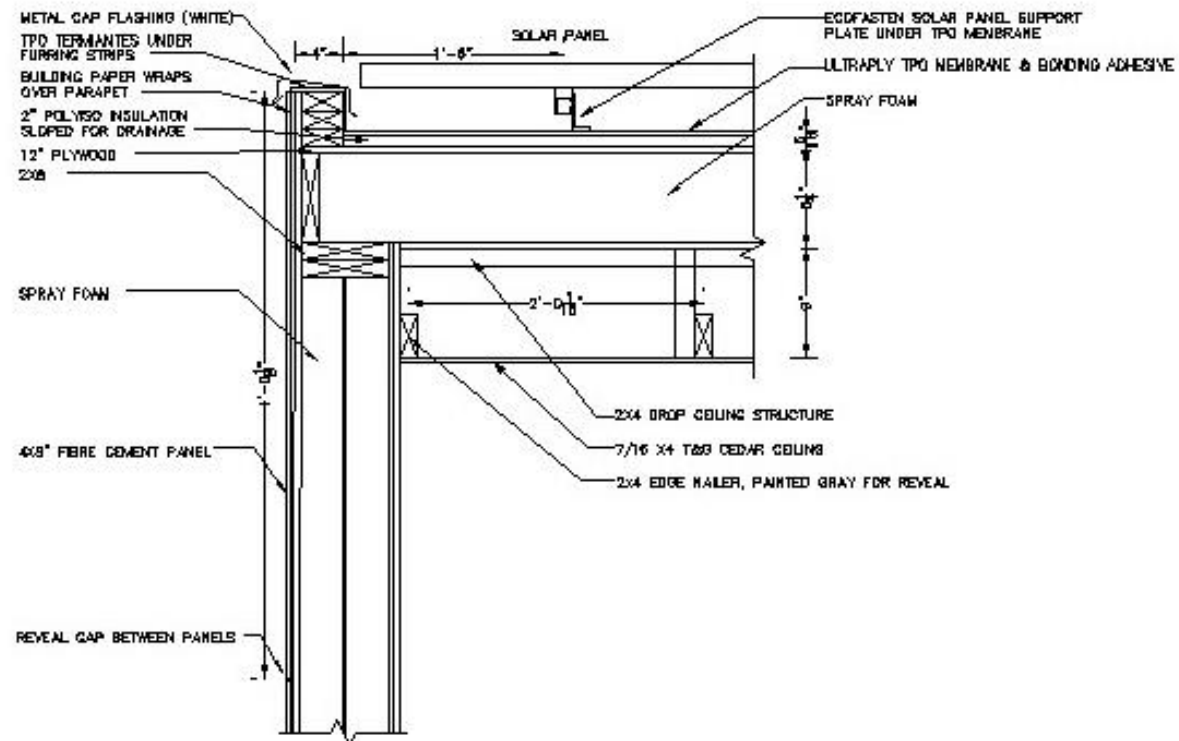
Total = 8.08

Air Space 1

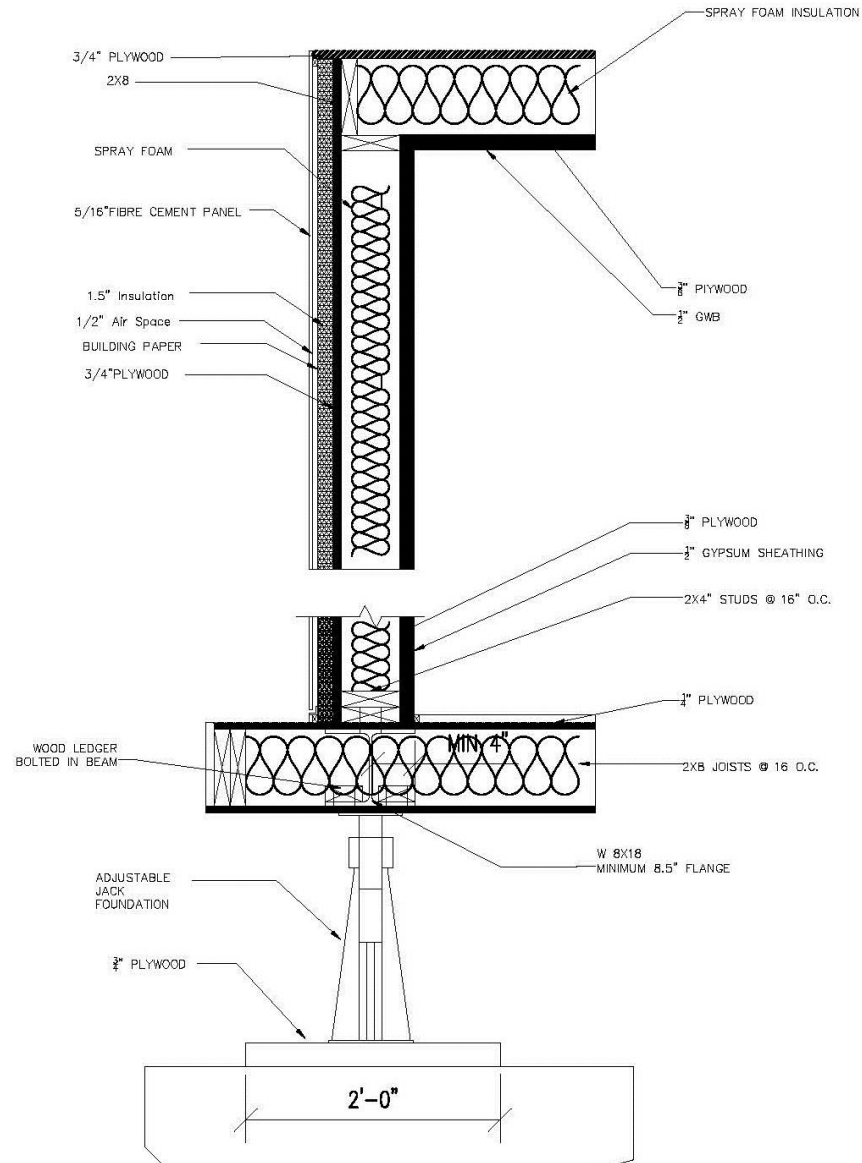
Vapor Barrier 1



TYPICAL EXTERIOR WALL SECTION ASSIGNMENT 4



IMPROVED WALL SECTION



4 SOLAR DECATHLON TEAMS

ASSIGNMENT 5

Team 1: Ontario

Brand: Eclipsall Energy Corporation
Quantity: 60 multi-crystalline PV cells
Model: Eclipsall NRG60M
Max system voltage: 250W-270W
Size: 1663 x 997 x 42mm

Team 2: Alberta (USING IN MY DESIGN)

Brand: Canadian Solar
Quantity-40 Polycrystalline Solar Panels
Model: CS6 P-250/255P
Max system voltage: 250W-270W
Size:(64.5 x 38.7 x 1.57in)



CS6P-250 | 255P

THE BEST IN CLASS

Canadian Solar's modules are the best in class in terms of power output and long term reliability. Our meticulous product design and stringent quality control ensure our modules deliver a higher PV energy yield in live PV system as well as in PVsyst's system simulation. Our in-house PV testing facilities guarantee all module component materials meet the highest quality standards possible.

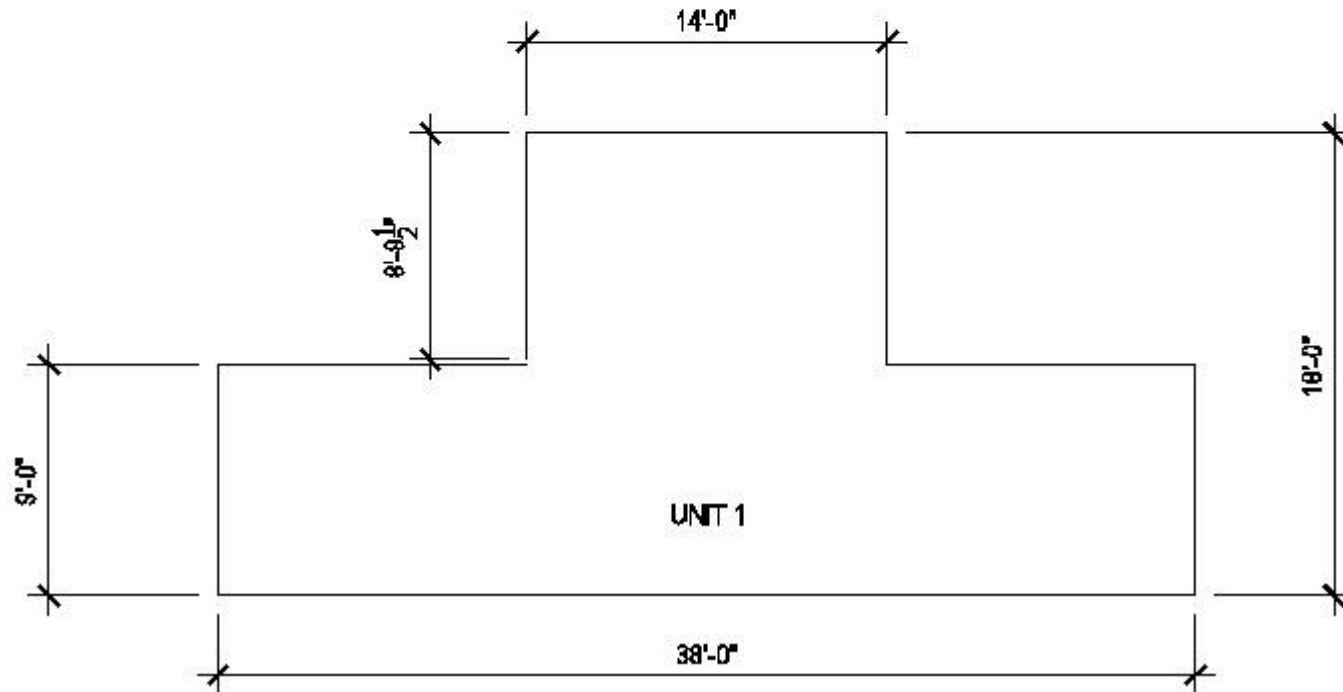
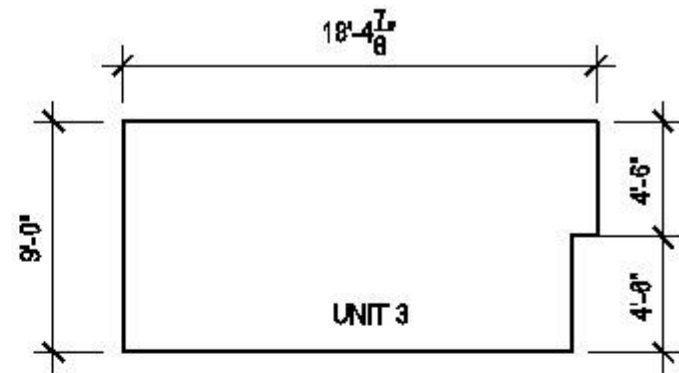
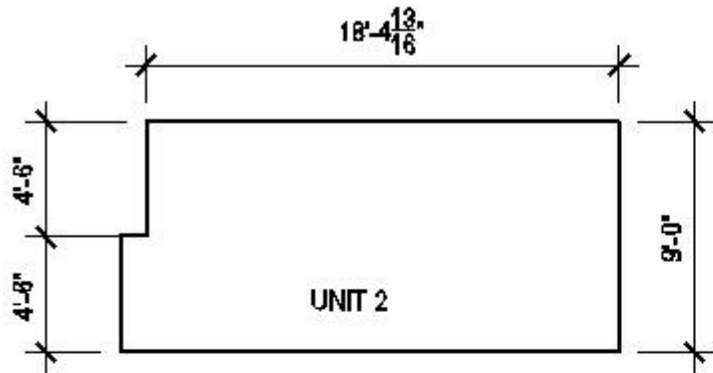
Team 3: Stanford

Brand: Stion Corporation, 6321 San Ignacio Ave, San Jose, CA 95119
Size: 23.9" x 65.2" x 1.4"
Max system voltage: 600v
Total: 48 panels

Team 4: Norwich

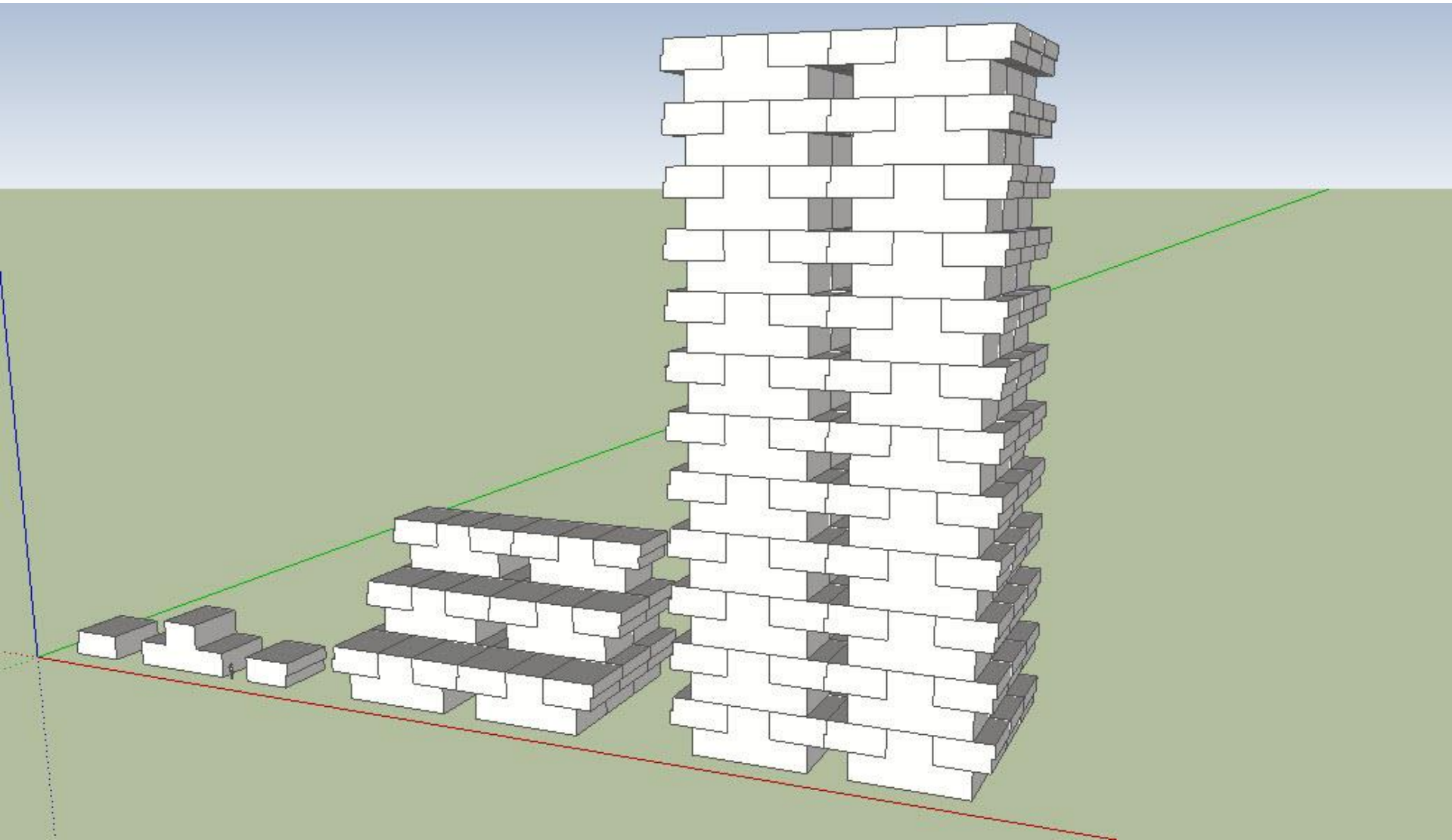
Brand: Solo power, San Jose, CA
Model: SoloPanel Model SP1
Size: 86.1" x 15.7" x .1"
Total: 30 panels

UNIT DIMENSIONS

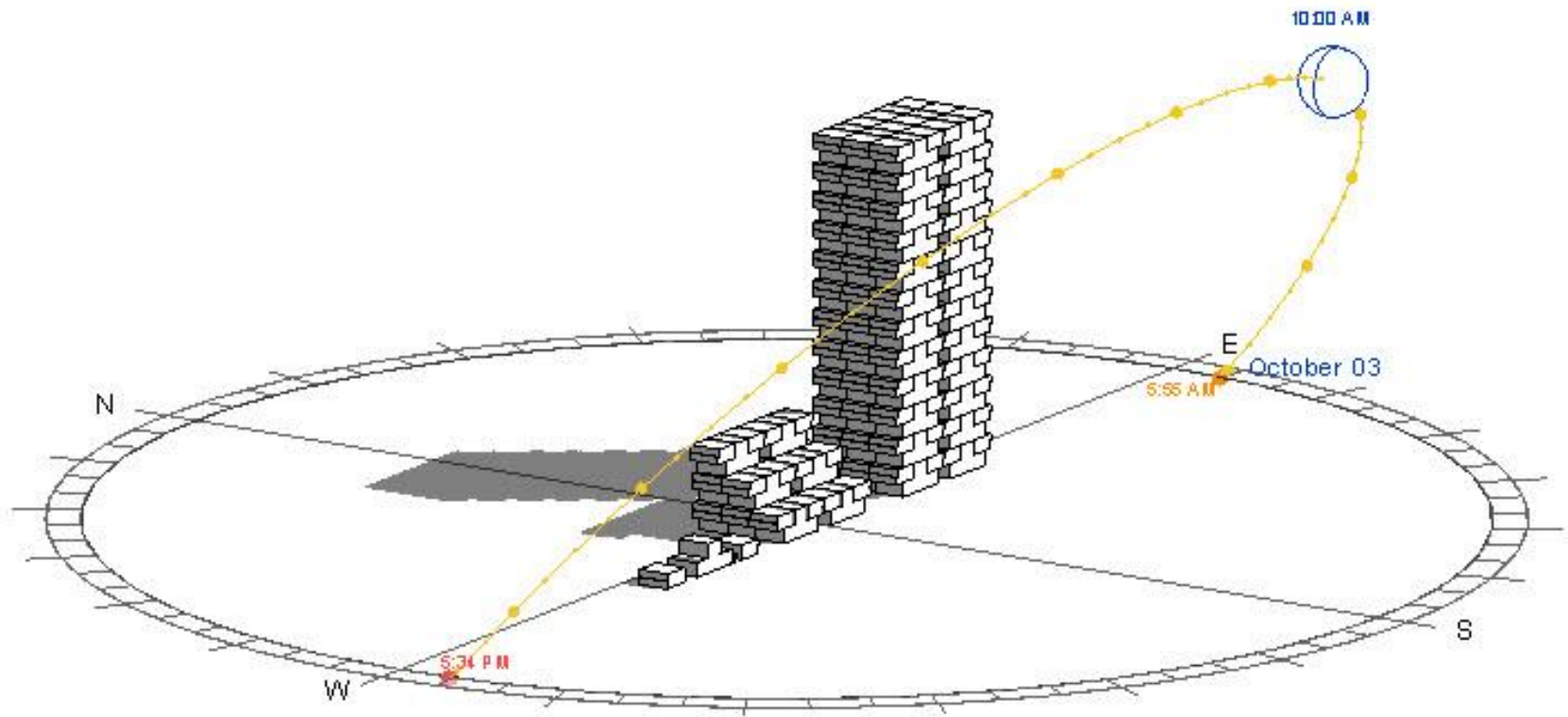


UNITS: LOW, MEDIUM & HIGH DENSITY

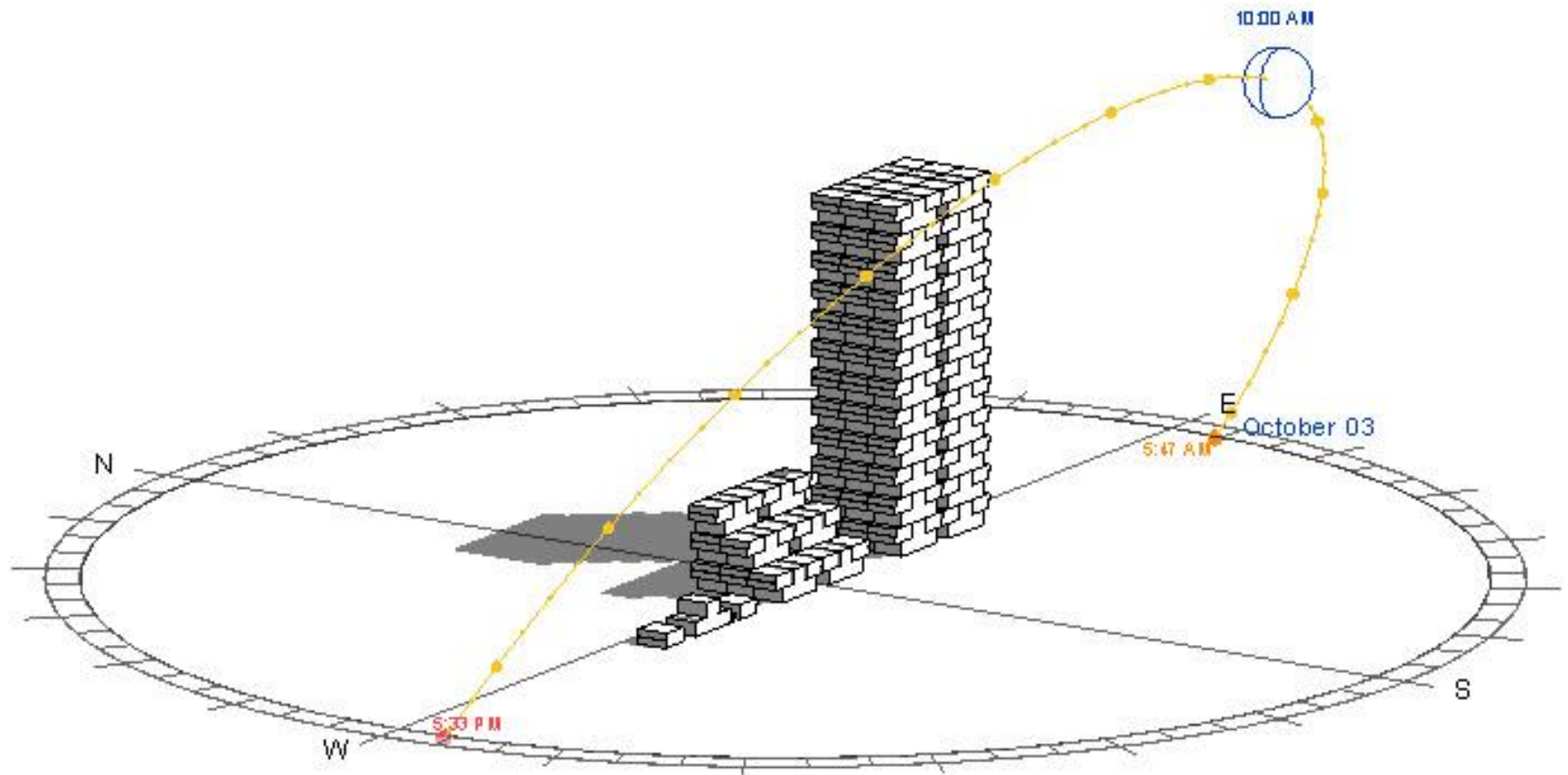
ASSIGNMENT 6



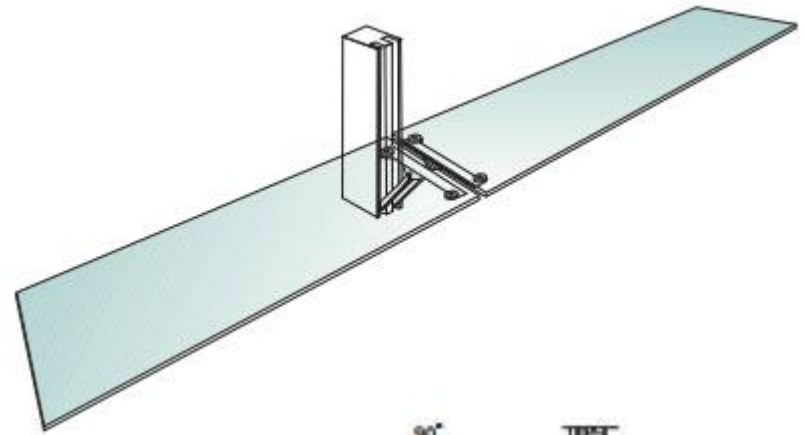
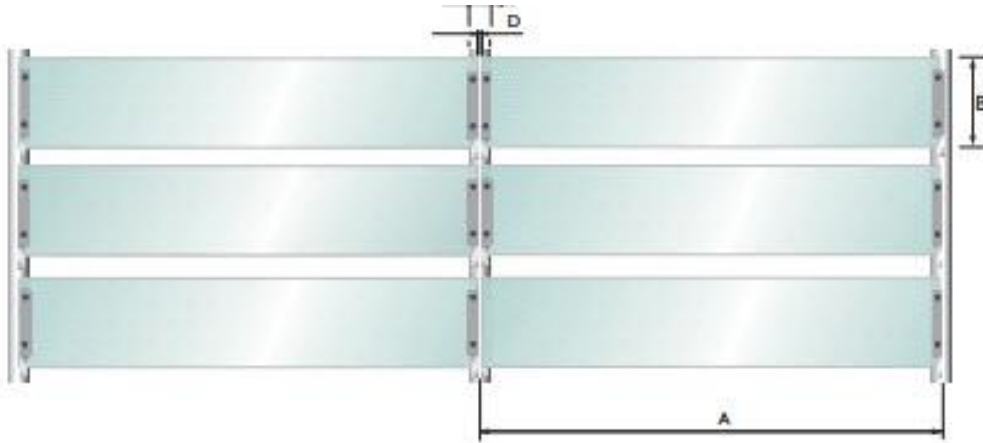
SUN STUDY: BROOKLYN, NY.



SUN STUDY: IRVINE, CA.



COLT SOLAR SHADING LOUVER SYSTEMS



Glass Parameters Table

Dimensions	LS4
A (max)*	70.87"
B	13.78" min / 23.62" max
C	2.56"
D	0.39"
Angle of rotation	0 - 85°

Note: Table to be used as a guide only. Allowable dimensions depend upon the specific requirements of the project.

* If spanning across an intermediate mullion, max 141.73".

